1 Teaching Aptitude

SYLLABUS

- **Teaching: Concept, Objectives, Levels of teaching (Memory, Understanding and Reflective), Characteristics and basic requirements.**
- **Learner's characteristics: Characteristics of adolescent and adult learners (Academic, Social, Emotional and Cognitive), Individual differences.**
- **Factors affecting teaching related to: Teacher, Learner, Support material, Instructional facilities, Learning environment and Institution.**
- **Methods of teaching in Institutions of higher learning: Teacher centred vs. Learner centred methods; Off-line vs. On-line methods (Swayam, Swayamprabha, MOOCs etc.).**
- **Teaching Support System: Traditional, Modern and ICT based.**
- **Evaluation Systems: Elements and Types of evaluation, Evaluation in Choice Based Credit System in Higher education, Computer based testing, Innovations in evaluation systems.**

INTRODUCTION

According to Edmund Amidon "Teaching is defined as an interactive process primarily involving classroom interaction which takes place between the the teacher and the pupil and occurs during certain definable activity." In other words, teaching is a concerted sharing of knowledge and experience, which is normally organised within a discipline and provides the impetus for the psychological and intellectual growth of a person. Teaching requires four key qualities – knowledge, communication skills, aptitude and enthusiasm.

Quotes

"The roots of education are bitter, but the fruit is sweet". *–Aristotle*

"Education is the most powerful weapon which you can use to change the world" *–Nelson Mandela*

"Education is the manifestation of the perfection already in man". *–Swami Vivekananda*

"Teaching process is designed and performed to produce change in student behaviour". *–Clarke*

Teaching and Learning

- Learning is self-explanatory and can take place even without teaching, but teaching without some form of learning is nearly impossible to imagine.
- Practically, teaching can also be defined as the act of giving lessons on a subject to a class or to pupils. For example, within a school, the process of teaching is undertaken by a teacher. On the other hand, the literal meaning of word 'learning' refers to acquiring knowledge. Learning is an attempt by the student who wishes to enlighten himself or herself and broaden his or her understanding of basics as well as other concepts.
- The relationship between teaching and learning is integral. Teaching is a social act, as the purpose of teaching (by the teacher) is to ensure transformation in students (learners), whereas learning is a personal act of acquiring knowledge.

Objectives of Teaching

- **Helping Students to Attain Knowledge and Skills:** The primary objective of teaching is to

impart knowledge and skills. However, it should not be limited only to textbook knowledge; additionally, some practical and necessary knowledge should also be imparted.

- **Shaping Character and Behaviour:** Teachers help students acquire knowledge, which is not just limited to the syllabus. Through this process, character is shaped and the behaviour is moulded.
- **Motivating Students:** Teachers are competent enough to motivate their students in a robust manner which in turn helps their students to lead a successful life.
- **Nurturing Creative Thinking:** Creative thinking as well as problem-solving skills are essential life skills that are of utmost importance, leading to a successful life.
- **Nurturing Analytical Skills:** Nurturing analytical skills helps prepare students for the real life issues.
- **Developing Social Skills:** A teacher plays a pivotal role in the all-round development of a child. They help their students to cultivate skills that are good for mental and overall well-being and help them to grow emotionally, physically and intellectually.
- **Developing Awareness as Citizens:** Students should be motivated towards becoming better and aware citizens, because youth constitutes the future of a country and thus developing a sense of solidarity, brotherhood, communal harmony, etc., plays a significant role in a student's life.
- **Independence:** Helping students to grow strong and independent.

Levels of Teaching

Teachers have to keep in mind the developmental stage of the learners so that the desired educational objectives can be achieved. This can be done in the following three levels:

- Memory Level
- Understanding Level
- Reflective Level

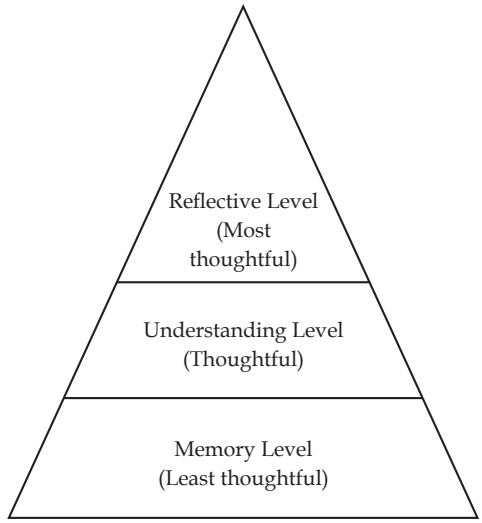


Fig. *Hierarchy of Levels of Teaching*

Memory Level

- Memory level teaching emphasises imparting information or knowledge to the learner. This type of knowledge is factual in nature, which is acquired through a mechanical process (i.e., memorisation of facts or rote learning).
- Memory level teaching was propounded by J.F. Herbart. He advocated five steps of teaching: preparation, presentation, association (comparison), generalisation and application.
- Memory Level of teaching covers only the knowledge-based objective of Bloom's Taxonomy (i.e., cognitive domain) where students learn to identify, recall, or remember objects, events, ideas, and concepts and retain them in memory.
- Memory level teaching lacks insight and thoughtfulness. Psychologically, it is considered a lower level of cognitive teaching.
- The teaching method is subject-centred, and revision is emphasised by teachers to efficiently memorise facts.
- A teacher's role is primary (and dominating) at this level of teaching.
- A student's role is passive in this level of teaching, they are only tested for their memorised facts.

Understanding Level

- The term "understanding" literally means to comprehend, to grasp, to acquire knowledge to learn, to interpret and to infer, etc. This level is higher than the memory level but inferior to the reflective level. This level of teaching involves a moderate level of thoughtful behaviour, which is higher than that of the memory level. Thoughtfulness is a pre-requisite for the reflective level teaching-learning, which requires higher mental processing.
- Understanding level teaching was propounded by H.C. Morrison. From his studies, it was postulated that genuine learning consists of the student's response or adaptation to a situation. He rejected the notion that learning referred only to the acquisition of subject knowledge and emphasised actual behavioural change in the learner, which he called adaptation.
- Morrison has identified a five-step instructional pattern. His general pattern for the instructional process (his plan or method) involves the following sequential steps: (1) pretest, (2) teaching, (3) testing the result of instruction, (4) changing the instruction procedure, and (5) teaching and testing until the unit is completely mastered by the student.
- The teacher's role is permissive in understanding level teaching.
- Both teacher and learner occupy primary positions at this level of teaching.
- Teacher-centered techniques as well as subject-centered techniques are used at this level of teaching.
- The thoughtfulness level is moderate.
- This level of teaching is best suited for middle and higher level classes.

Reflective Level

- It is the highest and ultimate level of teaching-learning activity.
- This level of teaching is propounded by Bigge and Hunt.
- This level uses a problem-centred approach.
- A teacher's role is democratic in reflective level teaching.
- Students play an active role in this type of learning.
- At this level of learning, students do not merely revise and memorise or answer the questions, nor do they only understand, learn, interrelate or interpret the concepts but they devote their learning and time to analysing and even solving practical real-life problems.
- This type of learning is most thoughtful.
- This method is best suited for higher-level classes or university-level education.

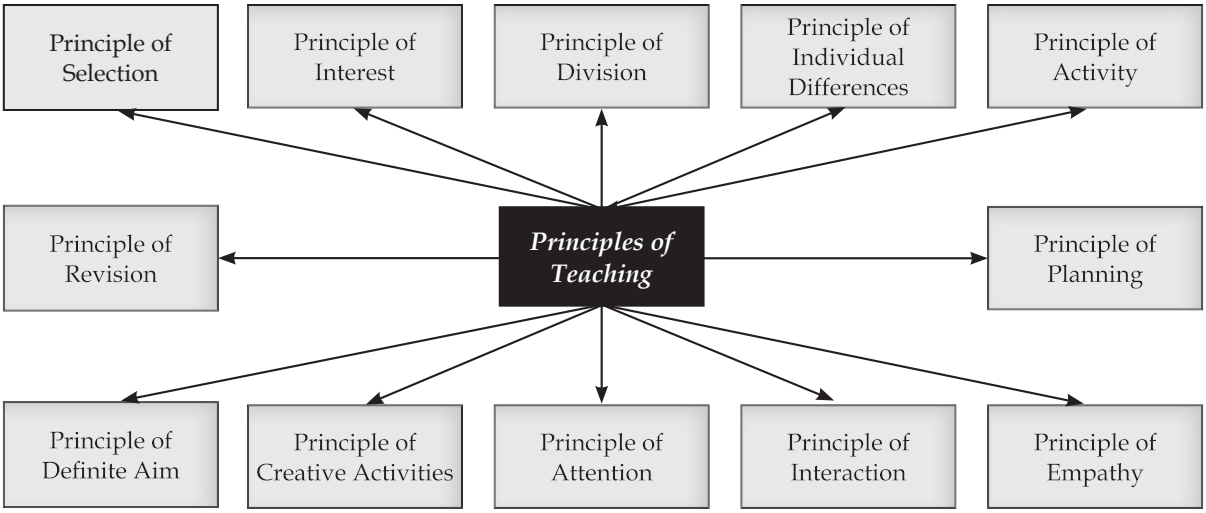
Characteristics of Teaching

- **Professional Activity:** It is a professional activity which involves a teacher and a student, emphasising the overall development and growth of the student. Professionalism helps students to remain regular and synchronising with their aims and objectives.
- **Interactive Process:** Teaching is an interactive process carried out with a specific purpose and objective. Normally, it is an interaction which is two sided i.e., two-way. Teachers impart knowledge to students and students clarify their doubts and queries with teachers. If there is minimal interaction in the classroom, students will limit their growth to subject-specific knowledge only and there is minimal growth in other skills.
- **Rational Process:** Teachers have to be rational when they are teaching to their students. There is no space for any bias (partiality) or dichotomy.
- **Teaching is a Science:** Teaching is a planned and a systematic process. Different methods, strategies as well as techniques are used during the process of teaching. A few carefully planned practices are also adopted to enhance the learning outcomes. Therefore, teaching is a science.
- **Specialised Task:** Teaching is a Specialised task and some specific set of skills may be required to accomplish the desired objectives.
- **Continuous Process:** Teaching is continuous and diverse which can be seen as a lifelong learning process because learning as well as teaching go together. Learning is a lifelong process and to teach effectively a teacher has to learn accordingly.

- **Diversity**: Practically, no two students are the same. Therefore, no classroom can have similar students. Therefore, there will be a lot of diversity when we compare two classrooms. So, teachers have to be prepared for a lot of diversity with planned strategies.
- **Based on Analysis and Feedback:** Teaching (methods and strategies) should be analysed and assessed because analysis and assessment may provide feedback for improvement.
- **Teaching is an Art:** As per the varying competencies of different students, teachers plan and execute the different tasks and practices. Executing these tasks involves a lot of creativity because of the flexibility involved in the tasks. Hence, we consider teaching as an art.
- **Teaching is a Moral Activity:** A teacher imparts moral values to students apart from the basic knowledge of subjects. These moral values help them grow into successful individuals and play an important role in shaping students into good citizens with utmost probity.

Principles of Teaching

- **Principle of Organisation and Structure:** Learning is more likely to occur if the information is properly organised according to the syllabus and the needs of the students. Organised and structured information can be conveniently and easily understood by students.
- **Principle of Attention:** Learning outcomes vary according to learners' attention. Creative ideas and enthusiastic teaching methods can help to capture the attention of the students for longer durations.
- **Principle of Readiness:** Learning will be maximised if the students are presented (taught) with the appropriate information according to their level. For example, Class XI students will comprehend the concepts of differential calculus more readily as compared to students of Class VIII.
- **Principle of Continuous Assessment:** Learning is a continuous process; therefore assessment should also be continuous. Continuous assessment will provide a clarity about student's progress.
- **Principle of Student Participation:** Student participation is important for assessment as well as motivation. Learning happens more easily when students participate in planning, class activities and goal development.
- **Principle of Rewarding Behaviours:** A behaviour which is rewarded is more likely to be repeated. Therefore, rewarding positive behaviours is an important step in achieving the desired results.
- **Principle of Feedback and Timing:** Students need feedback on their performance as soon as possible. Rewards given closely to the behaviour exhibited are more likely to achieve the desired results.
- **Principle of Choice:** It is important for the teacher to choose the right and appropriate study material for their students. If the study material is best suited for the students, it would make learning much simpler for them.
- **Principle of Conducive Environment:** A conducive environment makes learning easier. Students lose their productivity and interest, if the surrounding environment is stressful and non-supportive. Therefore, conducive environment is necessary for better learning outcomes.
- **Principle of Democracy:** While dealing with the classroom, teachers should adopt a democratic approach. Every student should get an equal opportunity to participate in activities as well as learning processes.
- **Principle of Creative Activities:** Learning games as well as learning activities make learning much more interesting and simpler. Students do not lose their attention and enthusiasm while performing such activities. Such activities should be planned and executed accordingly.
- **Principle of Empathy:** Teachers should empathise with their students. Empathy signifies here that teachers will consider student's problems as their own and will support them in solving them.
- **Principle of Repetition:** Revision is the key to learning for students. If the students are made to revise again and again, they will learn and easily memorise their subject matter. Through monthly tests, assignments, etc., teachers can make sure that students revise the subject matter.
- **Principle of Individual Difference:** Teachers should acknowledge well in advance that every child is different; therefore, every child's needs are also different. Pedagogy and teaching ideas should be highly flexible and they should align according to the needs of different students.



Requirements of Teaching

- Teacher (the independent variable) and students (the dependent variable) are the very first and foremost requirements of teaching. Teachers should be aware of their students' nature, habits, etc. Their teaching strategy will depend on students' behaviour as well as their nature and their learning abilities.
- Various methods, strategies, aids, and learning materials are used by teachers to deliver enhance the learning outcomes and assess their students.
- Teaching is a complex and continuous process; therefore, qualities like enthusiasm, patience, tolerance, etc., can help students to maximise their learning.
- Students should be curious about their subjects, classroom activities, lectures, games, books, etc.
- Learning outcomes can be enhanced through activity-based classroom learning.
- Regular and inclusive evaluation is important to assess the performance of students and suggest pragmatic measures for improvement.
- Discipline is a foremost required quality for teaching. When a class is not disciplined, the teacher will not be able to teach students and deliver the planned content, no matter what his or her qualification is.
- A conducive environment is mandatory for effective communication and interaction between the teachers and the students.

LEARNER'S CHARACTERISTICS

As we have already discussed teaching characteristics, we should now discuss learner characteristics. The term, 'learner' is used in a broader context than 'student', as learners can learn even without a teacher, but a teacher is necessarily needed for students. It does not matter whether it is inside or outside the classroom; learning can take place anywhere without any concern about place. However, feasibility of teaching exists primarily within the classroom. Motivation and curiosity can be cultivated to sustain the learning process which is persistent and eternal.

Behaviour, maturity level, morality, confidence levels, prior knowledge, competency, etc., are the usual learner characteristics. Characteristics of adolescent and adult learners can be differentiated as personal, academic, social or emotional, and cognitive.

- **Personal Characteristics:** Personal characteristics signify the demographic traits of the learners, such as birth place, age, gender, maturity level, language, socioeconomic status, cultural background, etc.
- **Academic Characteristics:** Academic characteristics of learners include their learning targets, acquired knowledge, and educational level. They revolve around criteria and parameters related to academics only.
- **Social or Emotional Characteristics:** Social and emotional characteristics are dependent on the relationship of an individual with the group or society. These characteristics include place of the

individual within a group, social circle, self-image, etc.

- **Cognitive Characteristics:** These characteristics are significant because these determine the learner's perception, thought process, problem-solving approach, organisational capabilities, and ability to retain information. Also, attention span, mental awareness, and intellectual skills are determined by cognitive traits.

Individual Differences

Every one among us is special in some way or another. We are all the same but also very different at the same time. These small differences and peculiarities make us different. Due to these differences among individuals, the term 'individual differences' was coined. There are differences among learners, as some learners prefer online classes, some prefer physically going to class, some prefer games over studies, whereas others prefer studies over games or other activities. Below are the individual differences discussed in detail:

- **Perception:** Perception varies from person to person. A half glass of water may be perceived as half full by some and half empty by others.
- **Sharpness:** Every learner has different cognitive abilities and therefore, different levels of sharpness and intelligence. Some learners can master concepts quickly while others require more time because of slower cognitive processing.
- **Enthusiasm:** Each learner who learns something new or any new skill has a different motivating force for learning it. Driving forces may be of different kinds, such as salary hikes, curiosity, interest, parent's wishes, etc., which in turn ignite enthusiasm.
- **Cognitive Abilities:** Cognitive abilities are the basis for developing skills. The performance, retention abilities and analytical abilities depend on the cognitive abilities of a person (learner in this case).
- **Age Factor:** Older individuals may be less inclined to learn something new, and vice versa. Therefore, we can conclude that age and curiosity are often inversely related, as curiosity may decrease with increasing age.
- **Learning Approach:** Different people have different learning approaches because of the differences in their cognitive abilities. Some people revise again and again to learn, while others revise only a few times but practice to achieve the mastery.
- **Problem-Solving Approach:** Problem-solving approach makes a real difference when it comes to the learning. Every person perceives problems according to their own capabilities. In an examination, some people deal with easiest problems first and may skip the hard part, whereas others prefer to deal with the hardest problems on priority basis and then proceed towards the easier problems.
- Personality, attitude, health, etc., are some other examples of individual differences.

FACTORS AFFECTING TEACHING

Many factors affect the quality of teaching in different set-ups, which includes use of technology, tools and study material, besides, students and teachers.

Factors Affecting Teaching (Related to Teacher)

- **Subject Expertise:** For effective teaching, the competency of the teacher should match the level of the students. If a teacher lacks competence, the burden of understanding is shifted to the students. A teacher having expertise can teach in a far better way than a teacher without expertise. A specialised (expert) teacher can play a decisive role in leading the journey of the teaching-learning process.
- **Teaching Skills:** Developing the required skill set for teaching is mandatory for a teacher to achieve the desired learning outcomes and manage the classroom. The skill set includes communication (verbal and non-verbal) skills, presentation skills, and the ability to manage the class, etc. Some skills are inherent, while some can be learnt.
- **Familiarity with Learners:** This is a broad category that incorporates knowing about the cognitive, social and emotional development of learners. It includes an understanding of how students learn at a given developmental level; learning progressions or trajectories; an understanding that instruction should be tailored to meet each learner's needs.

- **Study Material:** Teachers should work on the quality of the study material, notes, video lectures and other support materials because the learning outcomes depend on the quality of the material and it becomes much more convenient to clear the concepts and doubts of the students.
- **Discipline:** A teacher ensures discipline so that the routine is followed in the classroom, school rules are enforced, and the students get a conducive learning environment. A good teacher has competent discipline skills and can promote positive behaviours and changes in the classroom. Without discipline, learning is a tough task to accomplish.
- **Progress of Teaching and Learning:** The teacher should acknowledge the leaning abilities of the students and plan the lessons accordingly. If the speed of teaching is too fast, students will not be able to match it and if it is too slow, the syllabus will lag behind. A moderate pace according to the cognitive abilities of the students is mandatory.
- **Confidence Building:** The teacher's ability to build a trustworthy relationship with students is another factor affecting the learning outcomes, students' curiosity and the effectiveness of teaching. Students will accept the advice of the teacher when they highly trust him or her, and they will also be determined to follow that advice.

Factors Affecting Teaching (Related to Learner)

Both psychological and physiological factors play an important role in learning outcomes. Factors affecting teaching related to learners can be summarised as below:

- **Maturation:** It is the process of development of bodily systems and the physical (and mental) readiness of the individual for the process of learning. It plays an essential role in developing required skills such as reading and writing.
- **Age:** Mental and cognitive abilities develop with age and therefore, learning efficiency increases with age up to a certain level, after which it tends to decrease.
- **Motivation:** It is necessary for reinforcement of class rules, which, in turn, is an essential condition for learning.
- **Curiosity:** The enthusiasm to learn new things daily arises out of curiosity. Taking interest in subject matter and enquiring about things taught can improve the learning process.
- **Mental Health:** It includes psychological and social well-being. Mental health includes attitude and related factors. Attitudes are made up of organic and kinaesthetic elements and they play an important part in the mental organisation, the learning process and behaviour of a person.
- **Diet and Nutrition:** These play an important role in a student's life. Without proper nutrition, mental and physical health would deteriorate. Mental growth can be hampered in the absence of certain vitamins and minerals. Learning efficiency could deteriorate if the learner is not healthy, both mentally and physically.
- **Attention and Interest:** Staying focused during the learning process is important to grasp the concepts clearly. Doubts can be solved by the teachers but repeating the whole concept would waste everyone's productive time.
- **Surroundings of Their Upbringing:** A learner's mental and physical health depends on surroundings as well. A peaceful and conducive environment would supports the positive growth of a person.

Factors Affecting Teaching (Related to Support Material)

Factors affecting teaching related to support material can be summarised as follows:

- **Meaningfulness:** Learning outcomes are associated with the meaningfulness of the learning. Tasks that have meaning and relevance make the learning process easier.
- **Difficulty:** The support material to be learned should be of an appropriate level of difficulty.
- **Length:** Lengthy material poses a big problem for young learners. In general, longer material is more difficult than shorter material. Learners find it difficult to concentrate for longer time periods.
- **Organisation of Material:** The subject matter should be logically and sequentially organised to ensure better outcomes.

Factors Affecting Teaching (Related to Instructional Facilities)

Instructional facilities for teaching are essential for effective learning. These include classrooms,

laboratories, boards, projectors, seminar halls, etc. Factors related to instructional facilities affecting teaching are summarised below:

- **Adequate Availability:** Availability of the teaching equipment needed for instruction and other facilities should be ensured.
- **Operational Issues:** Skilled manpower is needed at times to operate laboratories and other mechanical/electronic equipment. In the absence of skilled manpower, such machinery and equipment are of no use.

Factors Affecting Teaching (Related to Learning Environment)

Physical environment, social environment, classroom culture, discipline, timetable, fatigue, rest, etc., are important for providing a conducive environment for learning. These factors play an important role in the effectiveness of outcomes of teaching-learning process.

Factors Affecting Teaching (Related to Institution)

The teaching-learning process depends on various factors which are interdependent. The institution is a factor which directly affects teaching. Factors affecting teaching related to institution can be summarised as below:

- Infrastructure
- Teacher – Student Ratio
- Management
- Physical and Material Resources
- Quality of teachers and their commitments
- Policies of the institution
- Teacher's autonomy

METHODS OF TEACHING IN INSTITUTIONS OF HIGHER LEARNING

- **Demonstration Method:** The demonstration method, as demonstrations suggests, is a method in which teachers give the demos of the concept through an activity or a procedure. Here, the presentation given by the teacher is significant because it helps students to grasp the concept and visualise things. The demonstration method is different from other oral methods because by using this method, teachers can explain and clarify the concepts effectively. The demonstration method is generally used in teaching subjects like mathematics and science. However, this method consumes more time as compared to other available methods.
- **Lecture Method:** When an oral presentation of the lesson is given by the teacher, it is known as the lecture method. The lecture method is the most conventional method for giving instruction to students and its genesis can be traced back to the historical times. Historically, when there was no paper (and no books as well) and listening was the only way to learning, the lecture method was the only way to give instruction and help students learn new things. The main demerit of the lecture method is that student participation is minimal, which goes against teaching principles.
- **Project Method:** W. H. Kilpatrick classified project method according different purposes and utility. In project method, students work on different projects and learn through project experiences. Therefore, it is an activity-based method of learning. Cognitive abilities are also developed when students work on varied projects. Hence, this method is centred around personal experience. The only drawback of this method is that it is time consuming method as compared to other methods.
- **Heuristic Method:** This method aims to ignite the curiosity of the students through discovery and research related to given topic. Logical thinking and imagination are essential for this method of teaching. In this method, the student must be an independent discoverer and there is minimal help or guidance from the teacher. Teachers give topics or topic related problems to the students and the students find the solutions to these questions without direct assistance. They use the available resources such as books, library resources, online content, etc., to find solutions to the given problem. It helps to develop the habits of inquiry and investigation among students. H. E. Armstrong was the proponent of this method.
- **Kinesthetic Learning:** It is also known as tactile learning or hands-on learning. In this method of learning, physical activities are more significant as compared to lectures and instructions. Learning through activities, experiences, movement-based tasks, sports, drawing, etc., is prioritised in this learning method.

- **Flipped Classroom**: It is one of the newest modern teaching-methods. It came into existence during the 1990s. The flipped classroom is based on the idea that class time can be utilised in a better way rather than only teaching and lectures. In a normal classroom, teachers give assignments for homework after completing lectures in class. In a flipped classroom, teachers provide online material or video lectures to students. Students watch this material at home and then they work on assignments given in the classroom. Therefore, this method came to be known as the flipped classroom method.
- **Brainstorming:** It is an innovative approach to solve the problems. In brainstorming, many minds work together to find the solution for a common problem or topic. In brainstorming sessions, participants share their original ideas related to the problem/topic. Ideas are noted down and by the end of the session, similar ideas are clubbed together and the best ideas (solutions) are chosen for the given problem. Teachers mainly facilitate these sessions rather than contribute directly.
- **Programmed Instruction:** In programmed instruction, programmed material is given to the students and they go through it according to their convenience. There is a gradual progress with the content. Students get immediate feedback, which it is one of the significant features of this method. Correct answers are provided immediately to the students after they have solved the questions. Programmed instruction method is very flexible and it can be used even in the absence of the teacher.
- **Classroom Discussions:** Classroom discussions can enhance the knowledge of the students and it can be helpful for better learning outcomes. Also, discussions are two-way communication, it is significant for every student to present their views while others (including teachers) provide feedback. It is a time-consuming process and best suited for small sized groups or classes.
- **Open Learning:** Open learning is a revolutionary approach. It is highly flexible because students can decide when to learn, what to learn, where to learn and when to write the examinations. So, students are totally responsible for their learning. In India, Indira Gandhi National Open University (IGNOU) offers the open learning platform.
- **Assignments:** Assignments are classroom activities given to students. After the basic learning is completed through lectures, assignments are given to the students for the further problem-solving related to the topics and applications of the learned concepts. Students have to gather additional information to complete assignments. Basically, assignments develop the research attitude as well as problem-solving approaches among students.
- **Case Study:** It is an activity in which real-life cases are given to the students. They analyse the given case in depth with minute details. The outcome of this analysis is a solution or a decision for the given problem or controversy. The case study method improves the problem-solving skills of the students. It is a student-centred approach.
- **Seminar:** It is somewhat similar to classroom teaching. It is a conversation between an expert (or experts) and a group of students on a particular topic. Experts interact with the students and present evidence for the given facts. Students directly clarify their queries simultaneously.
- **Simulation:** It is an activity-based method of learning. Students conduct experiments and learn in an simulated environment which is based on the real life situations. It enhances the problem-solving skills and is similar to role playing.
- **Role Playing:** Role playing is an activity-based method where students are assigned particular roles and then communicate with each other to perform a given task. Skills related to communication, debate and bargaining can improve with such activity.

Teacher-Centred Methods vs. Learner-Centred Methods

Teacher-Centred Methods

- As the name suggests, these methods are teacher-centred i.e., they revolve mainly around the teacher for their execution.
- Students act as passive learners because lectures are delivered to them by teachers. Also, there is minimal participation of students in the classroom.
- These approaches are highly conventional in nature.
- These methods are comparatively less flexible because of their conventional nature and approach.

- Students are monitored by the teachers. Peer-to-peer monitoring/learning is negligible.
- Teachers evaluate the students' learning.
- In general, there is only one-way communication resulting in one-way flow of knowledge, i.e., from teacher to students.
- The teacher dominates the class, students are generally not allowed to speak during the lecture.
- This type of method includes lecture, TV programmes, video presentation, etc.
- Examples of teacher-centred methods are the lecture method, demonstration method, seminars, etc.

Learner-Centred Methods

- Relatively, it is a new and modern concept.
- As the name suggests, student/learner-centred, i.e., focus is on students as well as instructor.
- In this method, students are active learners because they actively participate in classroom as well as in the learning process.
- Since the learning needs vary, strategies have to be adjusted according to students' individual needs. Therefore, these methods are very flexible.
- Students can work on their own or in groups, depending upon the need of the activity. Therefore, peer-to-peer learning factor positively affects the learning outcomes.
- Students can learn even in the absence of a teacher because peer to peer learning is effective in this type of learning.
- Evaluation of learning is very flexible. Teachers, students themselves or the peer groups, anyone can evaluate the learning.
- Multiple channels (ways) of knowledge flow can exist.
- Every student participates in the class. Therefore, classroom ambience is very lively and enthusiastic.
- A few examples of student-centred learning are assignment, group projects, open learning, etc.

Teacher-Centred vs. Learner-Centred Approach to Teaching

Factors	Teacher-Centred	Learner-Centred
Approach	Conventional	New/Modern
Main focus	Teacher	Students & Instructor
Flexibility	Less flexible	Highly flexible
Flow of knowledge	One-way	Multiple channels
Evaluation	By teachers only	By teachers or peers/ students

Offline vs. Online Methods

Offline Methods of Teaching

- The teaching process is limited to the physical classroom only, no teaching/learning process happens outside the physical classroom.
- The physical presence of learners inside the classroom is mandatory.
- Enrolled students are limited in number due to the factors such as classroom size, number of teachers/faculty members, infrastructure, etc.
- Timings are fixed for offline classes. Therefore, students have to attend lectures according to the fixed schedule.
- Very conducive teaching method, even for remote areas which lack electricity, internet connectivity, and other basic infrastructure required for teaching process.
- A direct contact between teachers and students is established. Teachers can analyse and assess students' performance, behaviour, etc., and can also guide them.
- Doubts are entertained by teachers face-to-face in the classroom. If students have any query, they can clarify it directly during the class.
- These methods can be teacher-centred or learner-centred.
- It is a less flexible method because students have to attend classes according to the fixed schedule and appear in examinations on fixed date and times.
- **Example:** Blackboard method is the most common offline teaching method.

Online Methods of Teaching

- The boundary limit for an online classroom is endless. Anyone around the world can attend classes anywhere at any time.
- Teachers can live-stream their lectures, or they can create and upload the content on online platforms to be streamed later by the students/ learners at any time and from any place.

- There is no restriction on the number of students enrolling for the course or online streaming of the lectures. Any number of students can enrol and stream lectures at any time and access them from anywhere. Thus, no spatial and temporal restrictions exist.
- Timings are highly flexible. Learners/students can visit online platforms at any time and access the material available according to their convenience.
- Since everything is available online, high speed internet connection is necessary to access materials and lectures. Also, high-speed internet is needed by teachers for uploading lectures and materials.
- Since, there is only virtual contact between teachers and learners, learners/students can contact teachers through e-mail and chat boxes.
- Special meetings/sessions can be scheduled for doubt clarification and query solving. Students can also send their doubts and queries to teachers through e-mail.
- These methods of teaching are usually student-centred because students' convenience is the priority and also student plays an active role.
- These methods are highly flexible in nature because students can learn and plan their tests according to their own schedule and convenience.
- **Examples:** Computer-based learning, programmed instruction, live sessions, interactive videos, game-based learning.

e-learning Facilities

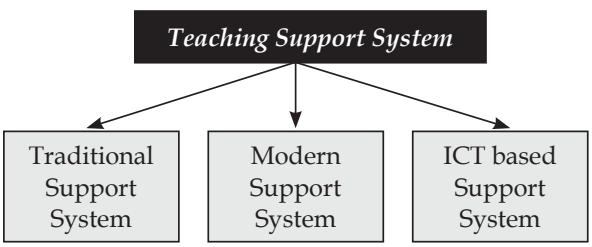
- **Massive Open Online Courses (MOOCs):**
  - MOOCs are freely available online courses; anyone can enrol in them.
  - MOOCs are an affordable and flexible way to learn new skills, attain career growth, and experience quality educational content.
  - Such courses are taught by prestigious Indian and foreign institutes on platforms such as SWAYAM, edX, MIT OpenCourseWare (MIT OCW), and so on.
  - Online courses comprise videos, course handouts, suggested readings, and online tests. On successful completion of the course, certificates are also issued.
- **SWAYAM:**
  - SWAYAM, i.e., Study Webs of Active-Learning for Young Aspiring Minds, is a MOOC-based initiative of the Indian government. It offers courses from prestigious institutes, which are available online and can be accessed by anyone.
  - No fee is charged from the students enrolling for these courses on this platform.
- **SWAYAM PRABHA:**
  - SWAYAM PRABHA is a project of Ministry of Education (formerly Ministry of Human Resource Development) under the National Mission on Education through Information and Communications Technology (ICT).
  - Under this project, 32 DTH channels broadcast high-quality educational programmes on a 24 × 7 basis. The GSAT-15 satellite is used for telecast.
  - University Grants Commission (UGC), Consortium for Educational Communication (CEC), Indian Institutes of Technology (IITs), Indira Gandhi National Open University (IGNOU), National Programme on Technology Enhanced Learning (NPTEL), National Council of Educational Research and Training (NCERT), National Institute of Open Schooling (NIOS), etc., are the major content providers for SWAYAM PRABHA platform.
  - The Information and Library Network Centre (INFLIBNET) Centre maintains the website of SWAYAM PRABHA.
  - New content is telecast every day for at least four hours and it is then repeated five times a day, so that the students can learn according to their convenience.
  - There are channels dedicated to school education and higher education in subjects such as languages, humanities, social sciences, physical sciences, mathematics, life sciences, various engineering streams, agriculture, vocational and allied sciences, etc.
- **ePathshala:**
  - ePathshala is a portal/app developed by the Ministry of Education (formerly the Ministry of Human Resource Development), and NCERT. It was initiated jointly by the Ministry of Education (formerly the Ministry of Human Resource Development), CIET, and NCERT, and launched in November 2015.

- It is a platform that provides a wide range of educational e-resources including textbooks, audio, video, periodicals, and other materials.
- Teachers, researchers, educators, students and their parents can use it.

- **National Programme on Technology Enhanced Learning (NPTEL):**
  - NPTEL is a joint initiative of the IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras, and Roorkee) and IISc aimed at improving the quality of technical education by providing online content. All the courses provided are free of cost. Teachers as well as students can use the content according to their needs.
  - Teachers can use these courses to plan their classroom lectures, and students can use these lectures to clarify their doubts and enhance their learning.

TEACHING SUPPORT SYSTEM

Teachers use various resources to enhance learning outcomes and make a long-lasting impact through their lectures; these resources are known as teaching support systems. Another term used for teaching support systems is 'Teaching Aids'. The significance of these support systems is that students understand better in less time, lessons become more interesting for students and teachers can make learning more effective. From blackboards to computers, all such tools that help teachers enhance learning outcomes are examples of support systems.



Traditional Teaching Support System

- Traditional education refers to educational customs and practices whose origins go back to earlier historical periods and which society has traditionally used in schools. This traditional teaching method is also known as the chalk-and-talk method.
- It is an old-fashioned way of teaching that emphasises recitation and memorisation techniques (i.e. rote learning).
- It presents teachers as organisers of learning activities, providers of information, and experts in subject knowledge.
- The teacher carries significant responsibility for teaching in the classroom to ensure that everything taught is understood by students.
- The teacher is also responsible for controlling the class, teaching using the blackboard, explaining concepts, asking students to note them down, and ensuring that students are paying attention.

Merits and Demerits of Traditional Teaching System

- Traditional methods of teaching are still followed in many schools. They are generally teacher-centred and involve limited interaction between the teacher and students.
- It is a more economical teaching method as compared to the other methods.
- Such systems help to build discipline in the classroom.
- There is a lack of collaboration and peer-to-peer learning.
- More emphasis is given to examinations and results; conceptual clarity is given less priority.

Modern Teaching Support System

Modern teaching support systems include computers, the internet, laptops, electronic notebooks, e-readers, computer educational games, online dictionaries, online encyclopedias, online tests, e-books, audio-visual teaching aids, Power Point slides, lessons relayed through radio and television, educational CDs and DVDs, pen drives, projectors, and interactive whiteboards (also called smartboards).

ICT based Teaching Support System

- Information and Communication Technology (ICT) refers to devices, applications and systems that enable individuals and organisations to interact effectively in the digital word. ICT plays a significant role in modern education, as it enables teachers and students to store, retrieve, and manage information efficiently.
- ICT makes it possible to reach students in different geographical locations, provided adequate

infrastructure and internet connectivity are available. When used effectively, ICT can enhance student engagement and support the development of cognitive skills.

- The use of ICT is widely encouraged in contemporary teaching support systems. Educational content can be made more engaging through the use of images, videos, animations, and interactive presentations.
- ICT also facilitates the sharing of teaching resources. Course materials, assignments, and assessments can be uploaded and accessed online. Teachers may use online learning platforms to share content, conduct discussions, receive assignments, and organise assessments.

Factors Impacting the Effectiveness of Teaching Support Systems

- **Type:** ICT-based systems are generally more flexible than traditional systems; however, their effectiveness depends on infrastructure, teacher training, and appropriate use. The use of too many teaching aids simultaneously may create confusion.
- **Cost Efficiency:** Teaching aids should be cost-effective while ensuring pedagogical value and proper utilisation of available resources.
- **Accessibility:** Easily available and accessible teaching aids are generally preferred. Accessibility should also consider technological compatibility and inclusiveness.
- **Complexity:** Overly complex teaching aids may reduce learning effectiveness unless adequate guidance and training are provided.
- **Relevance and Attractiveness:** Teaching aids should be engaging and aligned with learning objectives to maintain students' attention without causing distraction.

EVALUATION SYSTEM

Evaluation is an important part of teaching-learning process. It helps teachers to assess the performance as well as needs of the students. Classroom teaching has its own limitations when addressing individual differences among students. Every student has a different personality; therefore, everyone's performance is also different. Evaluation can provide insights into the needs and interests of the students. The process of evaluation is organised and different methods can be used for evaluation. The following are the basic characteristics of evaluation:

- It is an organised and systematic process.
- As learning is a continuous process, evaluation is also continuous because it is a means of assessing learning.
- It assesses not only learning outcomes but also the weaknesses, needs, and interests of learners.
- Teachers can plan their courses and schedules based on the outcomes of the evaluation.
- Evaluation should be flexible and it should be based on the needs of the students.
- It helps to identify and assess the prior learning of the students.

Elements of Evaluation

- **Evaluator and Participants**: Evaluation is conducted by an evaluator for a participants. Absence of any one of them nullifies the whole process of evaluation.
- **Purpose and Objectives of Evaluation:** It can be conducted for a number of purposes. Some of these are as follows: admission of students to a particular course; selection of candidates for a job; routine tests to check the progress and understanding of students; or semester/final examinations for promoting students to a higher semester or class.
- **Resources:** Resources forms the benchmark for the process of evaluation. Without a minimal benchmark, the evaluation process would be chaotic. Therefore, resources are mandatory for the evaluation of question papers, answer sheets answer scripts, or online tests. If the skill level of the candidates is to be evaluated, then equipment, hardware, software, etc., will be required.
- **Analysis:** Without analysis, justice would be nearly impossible, and participants may be awarded fewer or more marks/grades than they deserve. Analysis is a fundamental requirement for evaluators.

Types of Evaluation

Placement Evaluation

- Placement evaluation is also known as pre-assessment or initial evaluation. It is conducted at the beginning of a course or term to assess learners' entry-level competence and readiness.

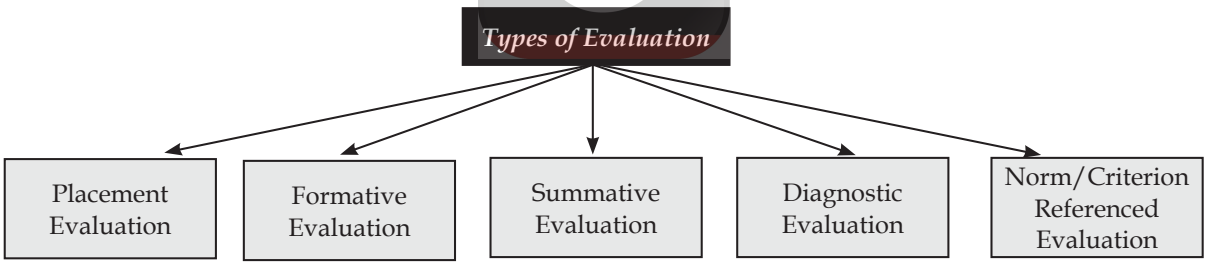
- It is significant for evaluating prior knowledge and determining whether the learner possesses the required skills for the course.
- Both quantitative and qualitative techniques can be used for placement evaluation. Quantitative techniques such as entrance tests and structured interviews, and qualitative techniques such as observation and cumulative performance records, are relevant for evaluating students.
- The final outcome of this evaluation is generally in the form of selection or non-selection. Grades are usually not applied in this type of evaluation.

Formative Evaluation

- Formative evaluation is conducted simultaneously with the course or learning process. During the teaching–learning process, teachers can evaluate the conceptual understanding of their students.
- Necessary modifications can be made in teaching methods, learning materials, and instructional strategies based on formative assessment.
- Both qualitative and quantitative techniques are used in formative evaluation. Class tests, quizzes, assignments, observations, and feedback mechanisms are common tools used for this type of evaluation.
- Formative evaluation helps students monitor their learning progress and improve their performance. It is often referred to as internal assessment. In some educational systems, formative assessment may contribute to the final result.

Summative Evaluation

- The distinction between formative and summative evaluation was popularised by Michael Scriven (1967).
- Summative evaluation is conducted at the end of a term, course, or unit of study. Qualitative as well as quantitative techniques are used for this evaluation.
- Final assessment of students' learning is conducted through this type of evaluation. End-of-term examinations, final examinations, board examinations, projects submitted at the end of a term, and term papers are common forms of assessment used in summative evaluation.
- The outcome of summative evaluation is expressed in the form of marks or grades. Although summative evaluation is important for certification and promotion, excessive emphasis on examinations may encourage rote learning if analytical and higher-order thinking skills are not adequately assessed.



Diagnostic Evaluation

- Diagnostic evaluation is related to formative evaluation but differs in purpose. It is conducted to identify specific learning difficulties and determine their root causes.
- Diagnostic evaluation may be conducted at the beginning of a course or during the teaching–learning process to assess prior knowledge and identify areas requiring improvement.
- Diagnostic evaluation generally emphasises qualitative techniques, although quantitative tools may also be used. The results are useful for improving pedagogy and planning remedial instruction.

Norm-Referenced Evaluation and Criterion-Referenced Evaluation

- Norm-referenced and criterion-referenced evaluations are two different approaches to assessing students' performance.
- 'In norm-referenced evaluation, the performance of a learner is compared with that of other

learners. For example, if a student secures the highest marks in a class, the performance is evaluated relative to peers.

- In criterion-referenced evaluation, a learner's performance is measured against predetermined standards or criteria rather than against other learners. For example, a student scoring 95% or obtaining a specified CGPA based on institutional grading standards is evaluated according to fixed benchmarks.
- Observations, questionnaires, interviews, and tests are commonly used tools and techniques for evaluation purposes.

Choice Based Credit System (CBCS) in Higher Education

- CBCS is an innovation in higher education and is a student-centric model that provides flexibility and choice to students. Through CBCS, students can choose courses from a list comprising core, elective/minor, and skill-based courses. A grading system is followed to evaluate courses, which serves as an alternative to the conventional marks system. The grading system provides insight into students' performance as well as short-term academic progress.
- In this system, students must complete the required number of credits in order to obtain a degree or course certificate.
- Credit points and grade points are awarded to students and on this basis, the Semester Grade Point Average (SGPA) is calculated. The Cumulative Grade Point Average (CGPA) is calculated on the basis of performance across all the semesters.
- It is within the domain of universities to determine the minimum passing criteria (grade or CGPA) required to pass a subject or course. The percentage equivalent of a grade may be determined through absolute grading or relative grading systems.
- **Grades:** Grades are indices of performance denoted by O, A+, A, B+, B, C, P, and F (though the pattern may vary across institutions). A student obtaining Grade F is considered to have failed and is required to reappear in the examination.
- The 10-point grading system with letter grades is recommended by the University Grants Commission (UGC), although universities may adapt it according to their regulations. The table given below represents this grading system.

Grading System	
Letter Grade	**Grade Point**
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

- SGPA and CGPA are used to measure the academic performance of students. The Semester Grade Point Average (SGPA) measures a student's performance in a particular semester.
- The cumulative Grade Point Average (CGPA) measures the overall academic performance of a student across all semesters.
- Relative grading refers to a system in which a student's performance is assessed in comparison with the performance of other students in the same class.

Merits and Demerits of CBCS System

- **Merits:**
  - Student-centric model.
  - Flexibility in course selection.
  - Greater transparency and uniformity in the evaluation system.
- **Demerits:**
  - Calculation of credit points and grade points may appear complex to some students.

- The system may initially be difficult to understand due to its structure and credit requirements.

Computer-Based Testing (CBT)

- In CBT, the test is conducted using a computer system. The test may be designed and programmed in such a way that each student either receives a different set of questions or the same questions in a different order. Since the test is conducted digitally, the recorded responses are stored electronically.
- Some of the main reasons for using CBT include increasing the frequency of assessment, motivating students to learn new set of skills and practise them, and broadening the range of knowledge assessed.
- It also enhances the feedback mechanism for students and expands the scope and flexibility of assessment.

Important Innovations in Evaluation System

- **Concept Maps:** A concept map is a diagram that represents the relationships between different concepts taught in the class. The main aim of concept map is to make complex concepts easier to understand. For this purpose, visual elements such as directional line, rectangular boxes, flowcharts, etc., are used.
- **Podcast or Vlog:** A podcast is an audio file (generally released in instalments or series) available on the internet for streaming or downloading. Vlogs are video blogs. These tools can help students connect classroom learning with real-world issues through analysis, reflection, and feedback.
- **Artificial Intelligence(AI):** AI refers to advanced computational systems used in educational evaluation. AI-based programmes can assist in grading and analysing student performance, but they support rather than replace human judgement.
- **e-Portfolio:** An academic e-portfolio is a digital collection of a student's academic and course-related work (presentations, essays, artwork, artefacts, etc.). It is used to assess students' learning progress over time.
- **OMR:** Optical Mark Recognition (OMR) is a technology used to read marked responses on paper-based tests using specialised scanning machines. It is commonly used to evaluate MCQ-based answer sheets by detecting shaded responses.
- **Students as Evaluators:** Involving students in peer and self-assessment makes the evaluation process more participatory and reflective.
- **Big Data:** Big data refers to large and complex data sets that can be analysed using advanced computational tools to support decision-making in education.
- **Rubrics:** Rubrics add transparency and objectivity to the evaluation system by providing predefined criteria and performance scales for assessment.

Important Terms

- **Social Learning Theory:** It is a theory of the learning process. It proposes that new behaviours and knowledge can be acquired by observing and imitating others.
- **Relative Grading:** It is a type of evaluation in which teachers interpret a student's results by comparing his or her performance with the performance of other students.
- **Dyslexia:** It is a learning disorder that primarily affects reading ability.
- **Paradigm:** The concept of paradigm shift was propounded by Thomas Kuhn. A paradigm shift occurs when existing theories are not able to explain certain phenomena, and new theories are proposed to explain them.
- **Decoder:** Students play the role of decoders in the class when teachers present information, pictures, or facts, and students interpret and understand them.
- **Micro-teaching:** Micro-teaching is a teacher training and education programme in which teachers are trained to become more efficient so that their teaching techniques can be improved.
- **Utilitarian:** It refers to something that is designed to be useful or practical rather than attractive.

PREVIOUS YEARS' QUESTIONS

1. Which of the following is not a level of teaching? **(June 2026)**
   (a) Memory Power (b) Reflective
   (c) Analytical (d) Understanding
2. The role of a teacher in supporting experiential learning can't be of a/the _____. **(June 2025)**
   (a) Coach (b) Mentor
   (c) Tutor (d) Technology
3. Given below are two statements: **(June 2021)**

   Statement I: In a learning organisation, the learning of teachers, their professional development, and the learning of children, their education, are inevitably complementary and mutually reinforcing.

   Statement II: Intrapersonal intelligence does not involve understanding the inner world of emotions and thoughts, and developing the ability to control and consciously work with them.

   In light of the above statements, choose the most appropriate answer from the options given below:
   (a) Both Statement I and Statement II are correct.
   (b) Both Statement I and Statement II are incorrect.
   (c) Statement I is correct, but Statement II is incorrect.
   (d) Statement I is incorrect, but Statement II is correct.
4. Identify those teaching strategies which are learner-centred: **(June 2020)**
   A. Cooperative learning
   B. Team teaching
   C. Laboratory based projects
   D. Pair-share discussions
   E. Lecturing with PowerPoint presentations

   Choose the correct answer from the options given below:
   (a) (A), (B) and (C) only
   (b) (B), (C) and (D) only
   (c) (A), (B) and (D) only
   (d) (C), (D) and (E) only
5. Reflective level teaching is different from memory level teaching because the pattern of communication that is involved in reflective level teaching is basically: **(June 2020)**
   (a) Linear (b) Bottom-up
   (c) Interactional (d) Transactional
6. From the following, identify those features which are associated with 'Indirect Instructional Strategies': **(June 2020)**
   A. Guided student practice.
   B. Focus on concept acquisition through question-answer sessions.
   C. Presenting the stimulus material in small, easy to take steps.
   D. Problem based presentation.
   E. Participatory and collaborative moves stressed.

   Choose the correct answer from the options is given below:
   (a) (B), (D) and (E) only
   (b) (A), (B) and (C) only
   (c) (B), (C) and (D) only
   (d) (C), (D) and (E) only
7. Which one of the following assessment procedures is conducted during an in-progress teaching-learning session? **(June 2020)**
   (a) Summative (b) Formative
   (c) Norm-referenced (d) Criterion-referenced
8. Given below are two statements: **(June 2020)**

   Statement I: The use of ICT in organizing teaching-learning programmes in the universities has the potential to optimise learning outcomes.

   Statement II: Formative assessment provides support to enhancing the quality of teaching-learning sessions.

   In light of the above statements, choose the most appropriate answer from the options given below:
   (a) Both Statement I and Statement II are correct.
   (b) Both Statement I and Statement II are incorrect.

(c) Statement I is correct but Statement II is incorrect.

(d) Statement I is incorrect but Statement II is correct.

9. Which of the following will be considered key teaching behaviour belonging to the category of effectiveness? **(Dec. 2019)**

A. Making ideas clear to learners who may be at different level of understanding.

B. Showing enthusiasm and animation through variation in eye contact, voice and gestures.

C. Using student ideas by acknowledging and summarizing.

D. Probing through general questions and shifting a discussion to some higher thought level.

E. Using meaningful verbal praise to get and keep students actively participating in the learning process.

Choose the correct answer from the options given below:

(a) (A), (B) and (C) only

(b) (A), (B) and (E) only

(c) (B), (C) and (D) only

(d) (C), (D) and (E) only

10. The compositional skills and creativity in presentation of students can be most effectively evaluated by which of the following tests? **(Dec. 2019)**

(a) Objective type tests

(b) Essay type tests

(c) Short answer tests

(d) Projective type tests

11. **Assertion (A):** Pedagogy and social interaction are two major result oriented activities of a teacher.

Reason (R): Communication has a limited role in both these activites. **(Dec. 2019)**

Choose the correct answer from the options given below:

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)

(b) Both (A) and (R) are true but, (R) is NOT the correct explanation of (A)

(c) (A) is true but, (R) is false

(d) (A) is false but, (R) is true

12. Identify the sequence which correctly indicates the order for ensuring teaching-learning activities in a constructivist approach: **(Dec. 2019)**

(a) Explore, Explain, Engage, Extend and Evaluate

(b) Evaluate, Extend, Engage, Explain and Explore

(c) Explain, Engage, Explore, Evaluate and Extend

(d) Engage, Explore, Explain, Evaluate and Extend

13. Which of the following factors have been labelled as 'social competence' in influencing learning? **(Dec. 2019)**

A. Socio-economic status

B. Motivation

C. Intelligence-general and specific

D. Emotional well-being

E. Inability to translate thoughts into action

Choose the correct answer from the options given below:

(a) (A), (B) and (C) only

(b) (B), (C) and (D) only

(c) (A), (B) and (D) only

(d) (C), (D) and (E) only

14. Which among the following best describes the Emotional Intelligence of learners? **(June 2019)**

A. Understand the emotion of other people and your own.

B. Express oneself very strongly.

C. Being rational in thinking.

D. Adjusting one's emotion as per situation.

E. Being creative and open to criticism.

F. Accepting other people as they are.

Choose your answer from the options given below:

(a) (A), (D) and (F) (b) (D), (E) and (F)

(c) (A), (B) and (C) (d) (B), (C) and (D)

15. Which of the following statements explains the concepts of inclusive teaching? **(June 2019)**
    (a) Teacher facilitates the learning of the gifted students.
    (b) Teacher facilitates the learning of the weak students.
    (c) Teacher takes support of parents of the students to make them learn.
    (d) Teacher makes the students of different backgrounds to learn together in the same class.

16. Who developed the theory of 'Multiple Intelligence'? **(June 2019)**
    (a) Alfred Binet (b) L. Thurstone
    (c) Charles Spearman (d) Howard Gardner

17. From the list of the effective teaching behaviours, identify those which are called key behaviours. **(June 2019)**
    (i) Direct, audible and oral delivery to all students.
    (ii) Encouraging students to elaborate on an answer.
    (iii) Warm and nurturing relationships with learners.
    (iv) Varying modes of presentation.
    (v) Preventing misbehaviour with a minimum of class disruption.
    (vi) Organising what is to come and summarising what has gone before.

    Select the correct answer from the options given below:
    (a) (i), (iv) and (v) (b) (i), (ii) and (iii)
    (c) (ii), (iii) and (iv) (d) (iv), (v) and (vi)

18. To organize discussion method in teaching effectively, which of the following conditions should be met? **(June 2019)**
    A. Topic be easy.
    B. Topic be declared in advance.
    C. Topic of common interest.
    D. Availability of more than one teacher.
    E. Language facility of participants.

    Select appropriate answer from the options given below:
    (a) (B), (C) and (E) (b) (A), (B) and (C)
    (c) (A), (B) and (E) (d) (C), (D) and (E)

19. Which of the following is an indicator of key behaviour in effective teaching as evident from researches? **(Dec. 2018)**
    (a) Teacher affect in developing teacher-learner relationship
    (b) Engagement in learning by students
    (c) Using students ideas and contributions
    (d) Use of process and content questions during teaching

20. In the following statements identify those which relate to 'Norm-Referenced Testing' (NRT). Select from the code to give your answer. **(Dec. 2018)**
    A. Covering a large domain of learning tasks with just a few items measuring specific tasks.
    B. Emphasizing discrimination among individuals in terms of relative level of learning.
    C. Focusing on a specified domain of learning tasks with a large number of items measuring specific tasks.
    D. Interpretation requires a clearly defined group.
    E. Interpretation requires a clearly defined achievement domain.
    F. Emphasizing description of learning tasks which individuals can and cannot perform.

    Codes:
    (a) (A), (B) and (D) (b) (B), (C) and (F)
    (c) (A), (B) and (C) (d) (D), (E) and (F)

21. In the two sets given below, Set-I provides the different levels of teaching and learning while Set-II gives their exemplars and concerns. Match the two sets and select from the code to indicate your answer. **(Dec. 2018)**

Set-I (Levels of teaching and learning)	**Set-II (Exemplars and concerns)**
A. Memory level	(i) Encourages critical thinking based cognitive interchange.

B. Understanding (ii) Protects personal interest and attitudinal concerns.

C. Reflective level (iii) Facilitates recalling and recognizing of facts

(iv) Enhances scope for seeing of relationships and meanings.

Codes:

	(A)	(B)	(C)
(a)	(i)	(ii)	(iii)
(b)	(iii)	(ii)	(iv)
(c)	(iii)	(iv)	(i)
(d)	(iv)	(iii)	(ii)

22. From the following list, identify the indicators of commitment areas of teachers and learners. Select from the code to give your answer. **(Dec. 2018)**

A. 'Do it well' approach.

B. Developing contact with community.

C. Enhancing performance in classroom including teaching-learning processes.

D. Concern for the all round development and readiness to help.

E. Acquiring curricular and content competency.

F. Respecting impartiality, objectivity and intellectual honesty.

Codes:

(a) (A), (B) and (C)

(b) (B), (C) and (D)

(c) (A), (D) and (F)

(d) (D), (E) and (F)

23. Which of the following methods of teaching will encourage indirect learning? **(Dec. 2018)**

(a) Lecturing with examples

(b) Team teaching

(c) Demonstration on a subject

(d) Collaborative projects

24. Which of the following set of statements best describes the nature and objectives of teaching? Indicate your answer by selecting from the code. **(July 2018)**

A. Teaching and learning are integrally related.

B. There is no difference between teaching and training.

C. Concern of all teaching is to ensure some kind of transformation in students.

D. All good teaching is formal in nature.

E. A teacher is a senior person.

F. Teaching is a social act whereas learning is a personal act.

Codes:

(a) (A), (B) and (D) (b) (B), (C) and (E)

(c) (A), (C) and (F) (d) (D), (E) and (F)

25. Which of the following learner characteristics is highly related to effectiveness of teaching? **(July 2018)**

(a) Prior experience of the learner.

(b) Educational status of the parents of the learner.

(c) Peer groups of the learner.

(d) Family size from which the learner comes.

26. In the two sets given below Set-I indicates methods of teaching while Set-II provides the basic requirements for success/effectiveness. Match the two sets and indicate your answer by choosing from the code: **(July 2018)**

Set-I (Method of teaching)	**Set-II (Basic requirements for success/effectiveness)**
A. Lecturing	(i) Small step presentation with feedback provided
B. Discussion in groups	(ii) Production of large number of ideas
C. Brainstorming	(iii) Content delivery in a lucid language
D. Programmed Instructional procedure	(iv) Use of teaching-aids
	(v) Theme based interaction among participants

Codes:

	(A)	(B)	(C)	(D)
(a)	(i)	(ii)	(iii)	(iv)
(b)	(ii)	(iii)	(iv)	(v)
(c)	(iii)	(v)	(ii)	(i)
(d)	(iv)	(ii)	(i)	(iii)

27. From the list of evaluation procedures given below identify those which will be called 'formative evaluation'. Indicate your answer by choosing from the code: **(July 2018)**
    A. A teacher awards grades to students after having transacted the course work.
    B. During interaction with students in the classroom, the teacher provides corrective feedback.
    C. The teacher gives marks to students on a unit test.
    D. The teacher clarifies the doubts of students in the class itself.
    E. The overall performance of a students is reported to parents at every three months interval.
    F. The learner's motivation is raised by the teacher through a question-answer session.

    Codes:

    (a) (A), (B) and (C) (b) (B), (C) and (D)
    (c) (A), (C) and (E) (d) (B), (D) and (F)

28. **Assertion (A):** All teaching should aim at ensuring learning.

    Reason (R): All learning results from teaching. **(July 2018)**

    Choose the correct answer from the following code:

    (a) Both (A) and (R) are true, and (R) is the correct explanation of (A).
    (b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
    (c) (A) is true, but (R) is false.
    (d) (A) is false, but (R) is true.

29. Which of the following set of statements best represents the nature and objective of teaching and learning? **(Nov. 2017)**
    1. Teaching is like selling and learning is like buying.
    2. Teaching is a social act while learning is a personal act.
    3. Teaching implies learning whereas learning does not imply teaching.
    4. Teaching is a kind of delivery of knowledge while learning is like receiving it.
    5. Teaching is an interaction and is triadic in nature whereas learning is an active engagement in a subject domain.

    Codes:

    (a) (1), (2) and (5) (b) (2), (3) and (5)
    (c) (1), (2) and (3) (d) (1), (2) and (4)

30. From the list given below identify the learner characteristics which would facilitate teaching learning system to become effective. Choose the correct code to indicate your answer. **(Nov. 2017)**
    1. Prior experience of learner
    2. Learner's family lineage
    3. Aptitude of the learner
    4. Learner's stage of development
    5. Learner's food habits and hobbies
    6. Learner's religious affiliation

    Codes:

    (a) (1), (3) and (4) (b) (4), (5) and (6)
    (c) (1), (4) and (5) (d) (2), (3) and (6)

31. **Assertion (A):** All teaching implies learning.

    Reason (R): Learning to be useful must be derived from teaching. **(Nov. 2017)**

    Choose the correct answer from the following:

    (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
    (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
    (c) (A) is true, but (R) is false.
    (d) (A) is false, but (R) is true.

32. On the basis of summative tests, a teacher is interpreting his/her students, performance in terms of their wellness life style evident in behaviour. This will be called: **(Nov. 2017)**
    (a) Formative testing
    (b) Continuous and comprehensive evaluation

(c) Norm-referenced testing
(d) Criterion-referenced testing

33. Which one of the following is a key behaviour in effective teaching? **(Nov. 2017)**
(a) Using student ideas and contribution
(b) Structuring
(c) Instructional variety
(d) Questioning

34. Effectiveness of teaching has to be judged in terms of: **(Jan. 2017)**
(a) Course coverage
(b) Students' interest
(c) Learning outcomes of students
(d) Use of teaching aids in the classroom

35. In which teaching method learner's participation is made optimal and proactive? **(Jan. 2017)**
(a) Discussion method
(b) Buzz session method
(c) Brainstorming session method
(d) Project method

36. One of the most powerful factors affecting teaching effectiveness is related to the: **(Jan. 2017)**
(a) Social system of the country
(b) Economic status of the society
(c) Prevailing political system
(d) Educational system

37. **Assertion (A):** Formative evaluation tends to accelerate the pace of learning.
Reason (R): As against summative evaluation, formative evaluation is highly reliable. **(Jan. 2017)**
Choose the correct answer from the following code:
(a) Both (A) and (R) are true and (R) is the correct explanation of (A).
(b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
(c) (A) is true, but (R) is false.
(d) (A) is false, but (R) is true.

38. Select the alternative which consists of positive factors contributing to effectiveness of teaching: **(July 2016)**
List of factors:
1. Teacher's knowledge of the subject.
2. Teacher's socio-economic background.
3. Communication skill of the teacher.
4. Teacher's ability to please the students.
5. Teacher's personal contact with students.
6. Teacher's competence in managing and monitoring the classroom transactions.

Codes:
(a) (2), (3) and (4) (b) (3), (4) and (5)
(c) (2), (4) and (5) (d) (1), (3) and (6)

39. The use of teaching aids is justified on the grounds of: **(July 2016)**
(a) attracting students' attention in the class room.
(b) minimising indiscipline problems in the classroom.
(c) optimising learning outcomes of students.
(d) effective engagement of students in learning tasks.

40. **Assertion (A):** The purpose of higher education is to promote critical and creative thinking abilities among students.
Reason (R): These abilities ensure job placements. **(July 2016)**
Choose the correct answer from the following code:
(a) Both (A) and (R) are true and (R) is the correct explanation of (A).
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
(c) (A) is true but (R) is false.
(d) (A) is false but (R) is true.

41. Match the items of the first set with that of the second set in respect of evaluation system. Choose the correct code: **(July 2016)**

Set-I	Set-II
A. Formative evaluation	(i) Evaluating cognitive and co-cognitive aspects with regularity

B. Summative evaluation	(ii)	Tests and their interpretations based on a group and certain yardsticks
C. Continuous and comprehensive evaluation	(iii)	Grading the final learning outcomes
D. Norm and criterion referenced tests	(iv)	Quizzes and discussions

Codes:

	(A)	(B)	(C)	(D)
(a)	(iv)	(iii)	(i)	(ii)
(b)	(i)	(ii)	(iii)	(iv)
(c)	(iii)	(iv)	(ii)	(i)
(d)	(i)	(iii)	(iv)	(ii)

42. A college level assistant professor has planned his/her lectures with an intent to develop cognitive dimensions of students centered on skills of analysis and synthesis. Below, given are two sets of items Set–I consisting of levels of cognitive interchange and Set–II comprising basic requirements for promoting them. Match the two sets and indicate your answer by choosing the correct alternative from the code: **(July 2016)**

Set–I (Levels of Cognitive Interchange) interchange)		**Set–II (Basic requirements for promoting cognitive**
A. Memory level	(i)	Giving opportunity for discriminating examples and non-examples of a point.
B. Understanding level	(ii)	Recording the important points made during the presentations.
C. Reflective level	(iii)	Asking the students to discuss various items of information.
	(iv)	Critically analyzing the points to be made and discussed.

Codes:

	(A)	(B)	(C)
(a)	(ii)	(iv)	(i)
(b)	(iii)	(iv)	(ii)
(c)	(ii)	(i)	(iv)
(d)	(i)	(ii)	(iii)

43. Which set of learner characteristics may be considered helpful in designing effective teaching-learning systems? Select the correct alternative from the codes given below: **(July 2016)**

(i) Prior experience of learners in respect of the subject.

(ii) Interpersonal relationships of learner's family friends.

(iii) Ability of the learners in respect of the subject.

(iv) Student's language background.

(v) Interest of students in following the prescribed dress code.

(vi) Motivational-orientation of the students.

Codes:

(a) (i), (ii), (iii) and (iv)

(b) (i), (iii), (iv) and (vi)

(c) (ii), (iii), (iv) and (v)

(d) (iii), (iv), (v) and (vi)

44. Greater the handicap of the students coming to the educational institutions, greater the demand on the: **(Dec. 2015)**

(a) Family (b) Society

(c) Teacher (d) State

45. What are the characteristics of Continuous and Comprehensive Evaluation? **(Dec. 2015)**

1. It increases the workload on students by taking multiple tests.
2. It replaces marks with grades.
3. It evaluates every aspect of the student.
4. It helps in reducing examination phobia.

Select the correct answer from the codes given below:

(a) (1), (2), (3) and (4) (b) (2) and (4)

(c) (1), (2) and (3) (d) (2), (3) and (4)

46. Which of the following attributes denote great strengths of a teacher? **(Dec. 2015)**

1. Full-time active involvement in the institutional management
2. Setting examples
3. Willingness to put assumptions to the test
4. Acknowledging mistakes

Select the correct answer from the codes given below:

(a) (1), (2) and (4) (b) (2), (3) and (4)

(c) (1), (3) and (4) (d) (1), (2), (3) and (4)

47. Which one of the following statements is correct in the context of multiple – choice type questions? **(Dec. 2015)**

(a) They are more objective than true-false type questions.

(b) They are less objective than essay type questions.

(c) They are more subjective than short-answer type questions.

(d) They are more subjective than true-false type questions.

48. As Chairman of an independent commission on education, Jacques Delors report to UNESCO was titled: **(Dec. 2015)**

(a) International Commission on Education Report

(b) Millennium Development Report

(c) Learning : The Treasure Within

(d) World Declaration on Education for All

49. What are required for good teaching? **(Dec. 2015)**

1. Diagnosis 2. Remedy
3. Direction 4. Feedback

Select the correct answer from the codes given below:

(a) (1), (2), (3) and (4) (b) (1) and (2)

(c) (2), (3) and (4) (d) (3) and (4)

50. Using the central point of the classroom communication as the beginning of a dynamic pattern of ideas is referred to as: **(Dec. 2015)**

(a) Systemisation (b) Problem – orientation

(c) Idea protocol (d) Mind mapping

51. Which of the following is the highest level of cognitive ability? **(June 2015)**

(a) Knowing (b) Understanding

(c) Analysing (d) Evaluating

52. Which of the following factors does ***not*** impact teaching? **(June 2015)**

(a) Teacher's knowledge

(b) Class room activities that encourage learning

(c) Socio-economic background of teachers and students

(d) Learning through experience

53. Which of the following statements about teaching aids are correct? **(June 2015)**

A. They help in retaining concepts for longer duration.

B. They help students learn better.

C. They make teaching learning process interesting.

D. They enhance rote learning.

Select the correct answer from the codes given below:

(a) (A), (B), (C) and (D)

(b) (A), (B) and (C)

(c) (B), (C) and (D)

(d) (A), (B) and (D)

54. Techniques used by a teacher to teach include: **(June 2015)**

A. Lecture B. Interactive lecture

C. Group work D. Self study

Select the correct answer from the codes given below: **(June 2015)**

(a) (A), (B) and (C) (b) (A), (B), (C) and (D)

(c) (B), (C) and (D) (d) (A), (B) and (D)

55. Achievement tests are commonly used for the purpose of: **(June 2015)**

(a) Making selections for a specific job

(b) Selecting candidates for a course

(c) Identifying strengths and weaknesses of learners
(d) Assessing the amount of learning after teaching

56. A good teacher is one who: **(June 2015)**
(a) gives useful information
(b) explains concepts and principles
(c) gives printed notes to students
(d) inspires students to learn

57. "Education is the manifestation of perfection already in man" was stated by: **(Dec. 2014)**
(a) M.K. Gandhi
(b) R.N. Tagore
(c) Swami Vivekanand
(d) Sri Aurobindo

58. Which of the following is ***not*** a prescribed level of teaching? **(Dec. 2014)**
(a) Memory (b) Understanding
(c) Reflective (d) Differentiation

59. Maximum participation of students during teaching is possible through: **(Dec. 2014)**
(a) Lecture method
(b) Demonstration method
(c) Inductive method
(d) Textbook method

60. Diagnostic evaluation ascertains: **(Dec. 2014)**
(a) Students performance at the beginning of instructions.
(b) Learning progress and failures during instructions.
(c) Degree of achievement of instructions at the end.
(d) Causes and remedies of persistent learning problems during instructions.

61. Instructional aids are used by the teacher to: **(Dec. 2014)**
(a) glorify the class
(b) attract the students
(c) clarify the concepts
(d) ensure discipline

62. Attitude of the teacher that affects teaching pertains to: **(Dec. 2014)**
(a) Affective domain
(b) Cognitive domain
(c) Connative domain
(d) Psychomotor domain

63. Which one of the following is considered a sign of motivated teaching? **(June 2014)**
(a) Students asking questions
(b) Maximum attendance of the students
(c) Pin drop silence in the classroom
(d) Students taking notes

64. Which one of the following is the best method of teaching? **(June 2014)**
(a) Lecture (b) Discussion
(c) Demonstration (d) Narration

65. Dyslexia is associated with: **(June 2014)**
(a) mental disorder (b) behavioural disorder
(c) reading disorde (d) writing disorder

66. The e-content generation for undergraduate courses has been assigned by the Ministry of Human Resource Development to: **(June 2014)**
(a) INFLIBNET
(b) Consortium for Educational Communication
(c) National Knowledge Commission
(d) Indira Gandhi National Open University

67. Classroom communication is normally considered as: **(June 2014)**
(a) effective (b) cognitive
(c) affective (d) selective

68. Who among the following, propounded the concept of paradigm? **(June 2014)**
(a) Peter Haggett (b) Von Thunen
(c) Thomas Kuhn (d) John K. Wright

69. While delivering lecture if there is some disturbance in the class, a teacher should: **(Dec. 2013)**
(a) keep quiet for a while and then continue.
(b) punish those causing disturbance.
(c) motivate to teach those causing disturbance.
(d) not bother of what is happening in the class.

70. Effective teaching is a function of: **(Dec. 2013)**
(a) Teacher's satisfaction.
(b) Teacher's honesty and commitment.
(c) Teacher's making students learn and understand.
(d) Teacher's liking for professional excellence.

71. The most appropriate meaning of learning is: **(Dec. 2013)**
(a) Acquisition of skills
(b) Modification of behaviour
(c) Personal adjustment
(d) Inculcation of knowledge

72. Arrange the following teaching process in order: **(Dec. 2013)**
(i) Relate the present knowledge with previous one
(ii) Evaluation
(iii) Reteaching
(iv) Formulating instructional objectives
(v) Presentation of instructional materials
(a) (i), (ii), (iii), (iv), (v) (b) (ii), (i), (iii), (iv), (v)
(c) (v), (iv), (iii), (i), (ii) (d) (iv), (i), (v), (ii), (iii)

73. The black-board can be utilised best by a teacher for: **(June 2013)**
(a) putting the matter of teaching in black and white.
(b) making the students attentive.
(c) writing the important and notable points.
(d) highlighting the teacher himself.

74. Nowadays the most effective mode of learning is: **(June 2013)**
(a) self study
(b) face-to-face learning
(c) e-learning
(d) blended learning

75. At the primary school stage, most of the teachers should be women because they: **(June 2013)**
(a) can teach children better than men.
(b) know basic content better than men.
(c) are available on lower salaries.
(d) can deal with children with love and affection.

76. Which one is the highest order of learning? **(June 2013)**
(a) Chain learning
(b) Problem-solving learning
(c) Stimulus-response learning
(d) Conditioned-reflex learning

77. A person can enjoy teaching as a profession when he: **(June 2013)**
(a) has control over students.
(b) commands respect from students.
(c) is more qualified than his colleagues.
(d) is very close to higher authorities.

78. "A diagram speaks more than 1000 words." The statement means that the teacher should: **(June 2013)**
(a) use diagrams in teaching.
(b) speak more and more in the class.
(c) use teaching aids in the class.
(d) not speak too much in the class.

79. The best method of teaching is to: **(Dec. 2012)**
(a) impart information
(b) ask students to read books
(c) suggest good reference material
(d) initiate a discussion and participate in it

80. "Spare the rod and spoil the child", gives the message that: **(Dec. 2012)**
(a) punishment in the class should be banned.
(b) corporal punishment is not acceptable.
(c) undesirable behaviour must be punished.
(d) children should be beaten with rods.

81. If you get an opportunity to teach a visually challenged student along with normal students, what type of treatment would you like to give him in the class? **(June 2012)**
(a) Not giving extra attention because majority may suffer.
(b) Take care of him sympathetically in the class-room.
(c) You will think that blindness is his destiny and hence you cannot do anything.
(d) Arrange a seat in the front row and try to teach at a pace convenient to him.

82. Which of the following is ***not*** a characteristic of a good achievement test? **(June 2012)**
    (a) Reliability
    (b) Objectivity
    (c) Ambiguity
    (d) Validity

83. Which of the following does ***not*** belong to a projected aid? **(June 2012)**
    (a) Overhead projector
    (b) Blackboard
    (c) Epidiascope
    (d) Slide projector

84. For a teacher, which of the following methods would be correct for writing on the blackboard? **(June 2012)**
    (a) Writing fast and as clearly as possible.
    (b) Writing the matter first and then asking students to read it.
    (c) Asking a question to students and then writing the answer as stated by them.
    (d) Writing the important points as clearly as possible.

85. A teacher can be successful if he/she: **(June 2012)**
    (a) helps students in becoming better citizens
    (b) imparts subject knowledge to students
    (c) prepares students to pass the examination
    (d) presents the subject matter in a well organized manner

86. Dynamic approach to teaching means: **(June 2012)**
    (a) Teaching should be forceful and effective
    (b) Teachers should be energetic and dynamic
    (c) The topics of teaching should not be static, but dynamic
    (d) The students should be required to learn through activities

ANSWER KEY

1. (c)	2. (d)	3. (c)	4. (c)	5. (d)	6. (a)	7. (b)	8. (a)	9. (b)	10. (b)
11. (c)	12. (d)	13. (c)	14. (a)	15. (d)	16. (d)	17. (a)	18. (a)	19. (b)	20. (a)
21. (c)	22. (c)	23. (d)	24. (c)	25. (a)	26. (c)	27. (d)	28. (c)	29. (b)	30. (a)
31. (c)	32. (d)	33. (c)	34. (c)	35. (d)	36. (d)	37. (c)	38. (d)	39. (c)	40. (b)
41. (a)	42. (c)	43. (b)	44. (c)	45. (d)	46. (b)	47. (a)	48. (c)	49. (a)	50. (d)
51. (d)	52. (c)	53. (b)	54. (a)	55. (d)	56. (d)	57. (c)	58. (d)	59. (b)	60. (d)
61. (c)	62. (a)	63. (a)	64. (c)	65. (c)	66. (b)	67. (b)	68. (c)	69. (c)	70. (c)
71. (b)	72. (d)	73. (c)	74. (c, d)	75. (d)	76. (d)	77. (b)	78. (c)	79. (d)	80. (c)
81. (d)	82. (c)	83. (b)	84. (d)	85. (d)	86. (d)				

PRACTICE QUESTIONS

1. Which of the following statements are correct:
    (i) There are very few benefits of student-centered instruction.
    (ii) Adults will be more ready to learn something that they will have to use in daily life, versus something that they're not likely able to use.
    (iii) Formative assessments should always be counted for a grade in the grade book.

    Choose the correct answer from the options given below:
    (a) Only (i) and (ii) (b) Only (ii) and (iii)
    (c) Only (i) and (iii) (d) Only (ii)

2. All of the following are true for a learner-centered approach, except:
   (a) Focus is on single discipline.
   (b) Teacher and students learn together.
   (c) Teacher's role is to coach and facilitate.
   (d) Emphasis is on generating better questions and learning from errors.
3. A discussion of a subject in which many people take part is:
   (a) A dialogue (b) A debate
   (c) Role play (d) A lab
4. Which of the following are the benefits of student-centered instruction?
   (a) Higher achievement
   (b) Higher student engagement
   (c) Increase in student motivation
   (d) All of the above
5. SWAYAM PRABHA is an initiative of:
   (a) Ministry of Education
   (b) Ministry of Health
   (c) World Bank & UNICEF
   (d) None of the above
6. Which of the following is ***not*** true about the nature of teaching?
   (a) It is moral activity.(b) It is a science.
   (c) It is continuous. (d) It is static.
7. The key objective of teaching at higher education level is:
   (a) To provide information to students.
   (b) To motivate students to ask questions during lectures.
   (c) To develop the capacity to take decisions.
   (d) To prepare students to pass examination.
8. Discussion in the class will be more effective if the topic of discussion is:
   (a) Related to research level.
   (b) Told to students when class is about to start.
   (c) When the students are informed well in advance.
   (d) None of the above
9. Authoritarian teaching (i.e., dominant teaching) is relevant in _____ teaching.
   (a) Class-centered (b) Learner-centered
   (c) Teacher-centered (d) School-centered
10. From the list given below identify the learner characteristics which would facilitate the teaching-learning system to be more effective:
   (i) Aptitude of the learner
   (ii) Prior knowledge of the learner
   (iii) Learner's food habits and hobbies
   (iv) Educational level of the learner
   Choose the correct answer from the options given below:
   (a) (i), (ii), and (iii) (b) (i), (iii), and (iv)
   (c) (i), (ii), and (iv) (d) (ii), (iii), and (iv)
11. ePathshala is a joint effort of:
   (a) Ministry of Education and NIOS
   (b) Ministry of Education and NCERT
   (c) Ministry of Education and CBSE
   (d) Ministry of Education, CIET, and NCERT
12. The quality of teaching is reflected by the:
   (a) Percentage of the students passing the exams
   (b) Duration of silence maintained in the class
   (c) Number of students attending the class
   (d) Quality of questions asked by students
13. OMR stands for:
   (a) Online Mark Reader
   (b) Online Marked Response
   (c) Optical Mark Recognition
   (d) Optically Marked Response
14. Visual and other teaching aids are used by teachers to make learning:
   (a) Quicker
   (b) More knowledgeable
   (c) Simple
   (d) Interesting
15. Being clear about how to do well in your class is:
   (a) A material-centered class
   (b) A content-centered class
   (c) A teacher-centered class
   (d) A student-centered class

16. A good teacher is the one who:
    (a) Follows discipline and strictly follows the rules of school.
    (b) Focuses on all-round development of students.
    (c) Scolds and punishes his students.
    (d) Gives more homework to students.
17. Which one of the following statements is ***not*** correct about the Lecture Method?
    (a) It is a one-way process.
    (b) This method can develop knowledge.
    (c) It can develop reasoning.
    (d) It has propagated from the Idealism philosophy of teaching.
18. Visual imagery helps people store information in their memory more effectively. Which one of the following is a teaching implication of this principle?
    (a) Teachers will not object when students daydream in class.
    (b) Instruct students to take notes simultaneously with lecture.
    (c) Encourage your students to imagine the characters and situations when reading a story.
    (d) Tell them to read more illustrated comics.
19. A child treats his friend as highly aggressive. This is because of his experiences with his father who is also highly aggressive. This is demonstrated by which theory?
    (a) Social learning theory
    (b) Operant conditioning
    (c) Cognitive development
    (d) Classical conditioning
20. Which of the following are the factors affecting teaching related to support material?
    (a) Meaningfulness of the task
    (b) Organization of material
    (c) Length of the task
    (d) All of the above
21. Which of the following statements correctly defines 'demonstration'?
    (a) A method of instruction where students forms a group and perform, each group evaluates the performance of the other group.
    (b) A method of instruction where the instructor by actually performing an operation or doing a job shows the students what to do, how to do it, and through explanations brings out why, where, and when it is done.
    (c) A method that typically involves in-depth analysis and also the research from multiple resources are used to make the final report which is submitted to the teacher for evaluation.
    (d) None of the above
22. Which of the following is ***not*** a Massive Open Online Course (MOOC)?
    (a) Udacity (b) SWAYAM
    (c) Coursera (d) Microsoft Team
23. Which of the following is/are correct about Heuristic Method?
    (a) Armstrong proposed this method.
    (b) It is a student-centered approach.
    (c) This method aims to ignite the student's curiosity and make students learn by discovery, instead of receiving information as such from teachers.
    (d) All of the above.
24. Which one of the following is ***not*** a step of teaching as advocated by Herbart?
    (a) Presentation (b) Observation
    (c) Generalization (d) Application
25. Which of the following are the characteristics of Learner Centered Methods of teaching?
    (i) It is a conventional approach.
    (ii) It emphasizes students and instructor.
    (iii) Presence and absence of teacher doesn't matter much.
    (iv) Multiple channels (ways) of flow of knowledge can be there.

    Choose the correct answer from the options given below:
    (a) (i), (ii), and (iv) (b) (ii) and (iv)
    (c) (ii), (iii), and (iv) (d) (i), (iii), and (iv)

26. Which one of the following is ***not*** correct about Kinesthetic Learning?
    (a) This is also known as Tactile Learning.
    (b) Lectures or demonstrations are more emphasized.
    (c) Students learn by experiments and sports activities.
    (d) Physical activities are more significant
27. Which of the following statements is/are correct:
    (i) Effectiveness of teaching can be improved if the teaching support systems are used.
    (ii) To maximize the effectiveness of teaching, a teacher should use a mix of both offline and online methods of teaching.

    Choose the correct answer from the options given below:
    (a) Only (i) (b) Only (ii)
    (c) Both (i) and (ii) (d) Neither (i) nor (ii)
28. How does the teacher respond to students' errors?
    (a) Implicit and does not interfere with communication.
    (b) Provides self-correction of students.
    (c) Ignore them
    (d) Scold them
29 Which of the following is ***not*** correct from the given learner's characteristics?
    (a) Personal Characteristics
    (b) Academic Characteristics
    (c) Cognitive Characteristics
    (d) Selection Characteristics
30. Which of the following is ***not*** correct regarding individual difference?
    (a) Perception of every person is same.
    (b) Cognitive abilities of every learner are different.
    (c) Curiosity decreases with the increasing age.
    (d) Different people have different learning approach.
31. Teaching strategies in which the teacher acts as a facilitator, or guide, but students are actively involved in directing and achieving their own learning is called:
    (a) Teacher-centered methods
    (b) Learner-centered methods
    (c) Lecture methods
    (d) Demonstration methods
32. Which method of learning can students use without the restrictions of space and time?
    (a) Teacher-centered method
    (b) Learner-centered method
    (c) Offline method
    (d) Online method
33. Which of the following are the key characteristics of teaching?
    (a) It is an interactive process.
    (b) It is a is a moral activity.
    (c) It is a specialized task.
    (d) All of the above
34. Which of the following is ***not*** a key level of teaching-learning activity?
    (a) Responsive Level
    (b) Reflective Level
    (c) Memory Level
    (d) Understanding Level
35. Which of the following statements is correct?
    (a) Syllabus is an annexure to the curriculum.
    (b) The curriculum is the same in all educational institutions affiliated to a particular university.
    (c) Syllabus is a part of the curriculum.
    (d) Syllabus is not the same in all educational institutions affiliated to a particular university.
36. Which of the following is more interactive and student centric?
    (a) Workshop
    (b) Seminar
    (c) Group Discussion
    (d) Lecture
37. Which of the following is a teaching aid?
    (a) Tape recorder
    (b) Smartboard
    (c) Course handout
    (d) All of the above

38. The current annual examination system:
    (a) Promotes rote learning.
    (b) Does not encourage students to be regular in class.
    (c) Does not promote good study habits.
    (d) All of the above.
39. Which of the following statements regarding 'e-Portfoilio' is/are correct:
    (i) An e-Portfolio is an online space where students can store and organize their academic works that they have produced in the course.
    (ii) An e-Portfolio cannot be used to evaluate student's learning.

    Choose the correct answer from the options given below:
    (a) Only (i) (b) Only (ii)
    (c) Both (i) and (ii) (d) Neither (i) nor (ii)
40. In his free time, the teacher should:
    (a) Use his time for good gossips
    (b) Helping in administrative work of school/ university
    (c) Conduct research
    (d) Play chess
41. Books can be a powerful source of communication, provided:
    (a) The content is colorful.
    (b) The font of content is bold and highlighted.
    (c) The language of the book is English.
    (d) The content is illustrative.
42. Evaluation is a continuous process, which involves:
    (a) Learner's performance and needs
    (b) Teaching Objectives
    (c) Curriculum
    (d) All of the above
43. Which of the following is the least important function of grading system of evaluation?
    (a) It is used for administrative purposes.
    (b) It gives information about a student's academic progress.
    (c) It provides short term goals.
    (d) It helps in developing an evaluation system.
44. Relative grading is the relative performance of an individual student:
    (a) In one subject to all the subjects.
    (b) To a selected homogeneous group of students' performance.
    (c) In one subject, to the performance of all students who took the test in the same subject.
    (d) In all subjects to the performance of all students in all subjects.
45. For evaluating the overall performance of students, a teacher can use:
    (a) Achievement tests
    (b) Continuous and comprehensive evaluation
    (c) Summative evaluation
    (d) Performance evaluation
46. Evaluation that monitors the learning progress during teaching is:
    (a) Formative evaluation
    (b) Summative evaluation
    (c) Placement evaluation
    (d) Diagnostic evaluation
47. In which level of teaching, the learner gets an opportunity to discriminate at length between positive and negative exemplars of concepts?
    (a) Memory level
    (b) Understanding level
    (c) Reflective level
    (d) Autonomous development level
48. 'SWAYAM', an initiative of the Government of India, aims at:
    (a) Promoting solar power at pan India level.
    (b) Providing financial assistance to young and naive entrepreneurs.
    (c) Promoting the nutritious meals at school for adolescent girls.
    (d) Providing affordable and quality education to the citizens for free.
49. Which of the following will be called behaviour related competencies for becoming an effective teacher?
    (i) Teacher's qualifications

(ii) Communicating
(iii) Managing and monitoring
(iv) Teacher's weight and height
(v) Evaluating and providing feedback

Choose the correct answer from the options given below:

(a) (i), (ii) and (iii) only
(b) (i), (iii) and (iv) only
(c) (ii), (iii) and (v) only
(d) (iii), (iv) and (v) only

50. During teaching, a teacher's statements that encourage students to elaborate on an answer, either of their own or that of others will be called:
(a) Structuring
(b) Probing
(c) Engagement in the learning process
(d) Instructional variety

ANSWER KEY

1. (d)	2. (a)	3. (b)	4. (d)	5. (a)	6. (d)	7. (c)	8. (c)	9. (c)	10. (c)
11. (d)	12. (d)	13. (c)	14. (d)	15. (c)	16. (b)	17. (c)	18. (c)	19. (a)	20. (d)
21. (b)	22. (d)	23. (d)	24. (b)	25. (c)	26. (b)	27. (c)	28. (a)	29. (d)	30. (a)
31. (b)	32. (d)	33. (d)	34. (a)	35. (d)	36. (c)	37. (d)	38. (d)	39. (a)	40. (c)
41. (d)	42. (d)	43. (a)	44. (d)	45. (b)	46. (a)	47. (b)	48. (d)	49. (c)	50. (b)

2 Research Aptitude

SYLLABUS

- ⇨ **Research: Meaning, Types, and Characteristics, Positivism and Post-positivistic approach to research.**
- ⇨ **Methods of Research: Experimental, Descriptive, Historical, Qualitative and Quantitative methods.**
- ⇨ **Steps of Research.**
- ⇨ **Thesis and Article writing: Format and styles of referencing.**
- ⇨ **Application of ICT in research.**
- ⇨ **Research ethics.**

RESEARCH

Research is composed of two terms, re and search; re means again or over again and search means to examine something carefully. Research can be defined as scientific, systematic, and objective investigation of information. It is an in-depth study of new areas and discovering new insights in existing areas.

There are many scholars who have defined the term 'Research' in their own ways:

- According to Clifford Woody, research comprises defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organising, and evaluating data; making deductions and reaching conclusions to determine whether they fit the formulated hypotheses.
- As specified by Creswell, research is a process of steps used to collect and analyse information to increase our understanding of a topic or issue.

Aptitude means natural ability or skill; therefore, we can define 'Research Aptitude' as the ability or skill to examine a situation systematically, scientifically, and closely critically for articulation of theories the formulation of theories.

Role of Research in Different Fields

- It is a means for the development of new ideas and innovations work.
- It is beneficial for students who want to pursue higher academic education.
- It is a source of livelihood for research professionals.
- Doing market or any other kind of research before taking business decisions is beneficial.
- New research helps in identifying the loopholes in policies and helps to formulate new ones.
- It helps in finding desired social-relationships.
- Logical thinking and understanding are necessary in globalised world. Research is a method of developing these skills.

Objectives of Research Aptitude

- To identify existing problem.
- To analyse the causes and effects of the problem.
- To generate new knowledge.
- To analyse and critically examine broader problems.
- To adopt different kinds of frameworks or methods.
- To formulate new types of hypotheses and theories.

Types of Research

Quantitative and Qualitative Research

- **Quantitative Research:**
  - Quantitative research deals with phenomena involving measurable quantities.
  - It is used to quantify a problem such as the extent and pattern of dengue in India, or to measure attitude, behaviour, or opinion.
  - It is usually organised.
  - It generally follows a deductive approach (from general to specific).
  - Its techniques include – questionnaires,, surveys, interviews, online polls, etc.
  - Sample size is larger but with less depth.
  - For example, a study conducted to determine how many people died due to Covid-19.
- **Qualitative Research:**
  - It deals with phenomena involving qualities and meanings.
  - It deals with understanding the nature of the problem. It tells about 'why'.
  - It is usually unorganised.
  - It generally follows an inductive approach (from specific observations to general conclusions).
  - Its techniques for data collection are group discussions, individual interviews, case studies, and observation to identify qualitative differences.
  - For example, a study conducted to understand why people died due to covid-19.

Mixed Research

- It is a research approach whereby the researcher collects and analyses both qualitative and quantitative data.
- We can see such research in both national and international health reports.

Fundamental and Applied Research

- **Fundamental Research:**
  - It is also known as basic research or a pure form of the research. It is based on the advancement of knowledge.
  - It adds to the existing body of knowledge.
  - It can be explanatory or exploratory.
  - It has a greater scope of application because it is conducted for the formulation of new theories and better understanding.
  - It is used for generalising principles..
- **Applied Research:**
  - It is used to solve practical real-life problems.
  - It is used to solve any specific issues.
  - Applied research addresses specific social and business issues.
  - We can apply the same solutions in similar situations.
  - It applies established theories and principles during field studies to generate practical solutions.

Structured and Unstructured Research

- **Structured Research:**
  - In this method of research everything is pre-determined. They are more formal with less scope for creative responses.
  - It can carry out a systematic investigation of data.
  - It is generally quantitative in nature and measures the extent of a problem.
  - It asks questions in a set order.
- **Unstructured Research:**
  - This type of method is more flexible and free-flowing as its objectives, samples and designs, etc., are not pre-determined.
  - They are used to examine small or limited data samples.
  - It has a qualitative nature to understand the nature of a problem.
  - It asks relatively open-ended questions.

Conceptual and Empirical Research

- **Conceptual Research:**
  - It implies how a person develops conceptual understanding through observation and intellect and not through experiment.

- Conceptual understanding through observation and intellect is based on a theoretical approach, and it is used to define new theory or redefine an existing theory.
- It is based on metaphysical ideas.

- **Empirical Research:**
  - It is guided by scientific experiments. Its conclusions are based on substantial verifiable evidence.
  - It is used to test the relevance of old theories.
  - It is also used to provide a basis for new theories.
  - It is based on direct observation and experience.

Innovative and Incremental Research

- **Innovative Research:**
  - Here the term innovative itself indicates that this research method is related to the development of new ideas, methods, or devices.
  - So, it is the creation of new technologies or technique to solve a problem.
  - For example, innovative research is conducted for the development of smart technological devices.
- **Incremental Research:**
  - The term increment means regular increase. So, incremental research means the gradual improvement or extension of existing technologies or techniques.
  - For example, upgrading computer versions according to advancements in technology.

Descriptive or Analytical Research

- **Descriptive Research:**
  - It is a kind of research that is used to describe the characteristics of a research area. It mainly answers 'what' questions rather than 'why' questions.
  - Various methods used in descriptive research are classification, comparison, and description.
  - Nothing is manipulated here.
  - Variables are not manipulated or controlled by the researcher.
  - For example, observing the trend of prices of wheat during the Russia–Ukraine war.
- **Analytical Research:**
  - This research explains the 'why' of the situation. It involves critical thinking and evaluation of the facts.
  - Analytical research focuses on cause and effect relationships.
  - Data are collected and analysed to interpret relationships and draw conclusions.
  - For example, analysing the reasons behind the variation in price of wheat during Russia-Ukraine war.

Deductive and Inductive Research

- **Deductive Research:**
  - It can be conducted when there is an existing theory or general principle. It always starts with a theory or hypothesis.
  - It tests the existing theory. The term deduction indicates that it goes from general to specific.
  - It is generally associated with quantitative research.
  - For example, suppose there is a generalisation that access to digital education improves students' academic performance. This hypothesis can be tested in a specific city or institution. Thus, it moves from a general theory to specific observations.
- **Inductive Research:**
  - It makes broad generalisation based on specific observations. That's why it is also called 'bottom-up' approach.
  - It develops theories based on observed patterns in data.
  - It often begins with observations or research questions.
  - It is generally associated with qualitative research.
  - For example, suppose you have conducted a study on five cities and found that women and men are equally capable in technological fields. You may then generalise that women and men are equally capable in technological fields.

Characteristic of Research

Systematic and Accurate

- **Systematic:** It means that it should follow a certain set of rules or procedures. It should have a clearly stated set of objectives, pre-defined eligibility criteria for studies, a systematic search that meets the objective of the research topic.
- **Accurate:** To maintain accuracy, attention should be paid at every step to avoid errors. Inaccurate research or using inaccurate tools for research can lead to false results.

Empirical and Critical

- **Empirical:** It means that it should be based on observation, real-life experiences, and, experiments rather than only theories or ideas. The Scientific method should also be used while conducting research. Therefore, research should be empirical.
- **Critical:** It means critically analysing the methods and procedures involved so that the research can be made free from errors and biases..

Objectivity and Generalisability

- **Objectivity:** It means discussing something or somebody without prejudice or personal interpretations. Research should be free from personal values and beliefs of the researcher; otherwise, it may result in misinterpretation of the work.
- **Generalisability:** It means the extension of results or conclusions from a small sample population to the population at large. Suppose we need to find the percentage of educated Muslim women in Delhi; then we will survey a representative sample, and on that basis, we will generalise the level of education among Muslim women in the whole of Delhi.

Logical and Realistic

- **Logical:** It should be based on inductive and deductive methods of logical reasoning to obtain more meaningful and effective results. Researchers should analyse ideas logically.
- **Realistic:** Good research is always realistic. It deals with real-world problems and establishes realistic cause-and-effect relationships. For example, Mumbai is a coastal area rich in fish production, and many coastal women's livelihoods depend on fish production. Thus, coastal women's economic and social conditions may be related to fish production.

Controlled and Reliable

- **Controlled:** A controlled factor means a variable that can be held constant in an experiment. This is usually possible in physical sciences. In real life, it is not possible to consider all factors together; therefore, some variables are controlled while others are tested as dependent variables.
- **Reliable:** Research reliability is the degree to which a research method produces stable and consistent results. It implies obtaining similar results on different samples under similar conditions. The greater the similarity in results, the greater the reliability.

Valid and Replicable

- **Valid:** Validity is very important for research. The conclusion drawn from the results are applicable to the real-life problems only if they are valid. Therefore, the tools and instruments used should be valid so that accurate results can be obtained.
- **Replicable:** It suggests that research can be repeated to obtain similar results. It can be recreated under similar conditions. Replicability strengthens reliability and credibility.

Credible and Cyclical

- **Credible:** Research should be credible; its evidence should be trustworthy. It deals with trustworthiness based on accurate data and reliable sources. Special focus should be given to the credibility of the sources.
- **Cyclical**: Here cyclical is related to the continuous nature of research. It means that after every result, there is a scope for new beginnings. Further research and extension are necessary over time; otherwise, findings may lose relevance.

Positivism and Post-positivistic Approach to Research

- **Positivism:** Positivism period comes the Theological and Metaphysical periods; it is oriented towards scientific reasoning. In the positivist approach, research should be verified, and it should not be based on intuition alone. Thus, in this approach research should be conducted in a controlled and systematic manner. Since it involves the scientific method, therefore it is based primarily on quantitative research and is conducted without researcher bias. It is based on empiricism. According the positivist approach, knowledge exists independently of the researcher and can be discovered and verified through observation and measurement. It is a deductive approach because it focuses on testing theories, and it assumes an objective reality that can be measured.
- **Post-Positivists Approach:** Post-positivism emerged in the late twentieth century after criticism of certain basic tenets of positivism. It holds that knowledge is tentative and subject to revision, and therefore multiple methods and critical reasoning are important in research. Unlike strict positivism, it recognises that reality can be understood only imperfectly. It is associated with both quantitative and qualitative research methods and employs both deductive and inductive reasoning. Post-positivism is grounded in critical realism, which assumes that an objective reality exists but can only be approximated through systematic inquiry. Post-positivist perspectives are often linked with approaches such as constructivism and critical realism.

METHODS OF RESEARCH

Experimental Research

Experimental Research is a method in which a hypothesis is scientifically tested. It is primarily a quantitative method. It is conducted by using two variables: dependent and independent variables. The researcher deliberately manipulates the independent variable in an experimental setting. This is called manipulation. The relationship between dependent and independent variables can be measured in a controlled setting to establish a cause-and-effect relationship. It is a scientific method, so it is based on observation, calculation, comparison and logical reasoning. It is widely used in physical sciences, social sciences, education, and psychology.

Descriptive Research

Descriptive research is a method used to describe the characteristics of a situation, population, or phenomenon. Its primary objective is to present an accurate account of events, conditions, or relationships as they exist. It mainly answers 'what', 'when', and 'where' questions rather than 'why'. Descriptive research employs methods such as observation, surveys, and case studies to gather information. In this approach, variables are not manipulated or controlled; therefore, it does not establish cause-and-effect relationships. Descriptive research may be either qualitative or quantitative and is widely used in fields such as healthcare, psychology, education, and political studies.

Historical Research

Historical Research is the study of past phenomena, for example, why a particular event occurred in the past and what effect it has on present. Researchers cannot perform experiments in historical research, but they can reconstruct events using available evidence. Historical research is primarily qualitative, and the primary focus is time as a variable.

Various steps of historical research include specifying the research problem, reviewing the literature, collecting relevant historical data, analysing evidence, and drawing conclusions. A hypothesis is generally not required, though it may guide the inquiry. For example, research conducted to examine the development of the healthcare system in India.

Qualitative and Quantitative Research

Qualitative research is used for understanding problems that cannot be quantified, whereas quantitative research is used to measure variables such as attitudes, behaviour, or opinions.

The former focuses on 'why' and 'how', while the latter focuses on 'how much' or 'how many'.

STEPS OF RESEARCH

- **Select and Define the Research Problem**: While selecting a research problem, social relevance of the research topic is important. A preliminary study is vital before choosing the topic. Topics that are very narrow or too vague should be avoided.
- **Comprehensive Study of the Literature:** It is important to thoroughly analyse all the information related to the research topic. (Tip: If a book or article referred to is written by more than two authors, write only the name of first author followed by 'et al.', instead of writing the name of all authors.)
- **Develop Objectives:** Once the comprehensive study of the topic is completed, the researcher becomes aware of the known and unknown areas. While developing objectives, the researcher should focus on areas where they would like to contribute.
- **Formulate Hypothesis**: A hypothesis is a proposed explanation for a phenomenon that can be tested. It should be stated before conducting research, as it provides direction. A hypothesis needs to be logical, precise wording, and testable. Following are the types of hypothesis:
  - **Null Hypothesis (H_0):** The null hypothesis states that there is no significant difference or relationship between variables. It represents a statement of 'no effect' or 'no association' and is formulated to be tested statistically. It is usually denoted by H_0.
  - **Alternative Hypothesis (H_1 or H_0):** The alternative hypothesis states that there is a significant difference or relationship between variables. It is the statement that is tested against the null hypothesis and is accepted when sufficient evidence leads to the rejection of the null hypothesis.
- **Prepare the Research Design:** Research design may be exploratory, descriptive, or experimental depending on the objective of the study. Design can also be split into several parts: sampling design, observational design, statistical design, and operational design.
- **Carry Out the Research Process:** The research process should include sampling, data collection and data analysis and hypothesis testing.
  - Sampling is done to make inferences about the population. Sampling can be categorised as follows:
    - **Probability Sampling:** In this method, each unit of population has an equal chance of selection.
    - **Quasi-probability Sampling:** This technique is not completely probability sampling. It is appropriate when probability sampling is not possible and too expensive to carry out.
    - **Non-probability Sampling:** In this method, selection is not random, i.e., units of the population have an unequal chance of selection.
  - The next step in research is data collection. Data can be either primary (interviews, questionnaires, observations, etc.) or secondary (historical documents, public records, reports of ministries, etc.), depending upon the source. Four different kinds of scales are used in data collection process:
    - **Nominal Scale:** A nominal scale is a measurement that is used to classify cases into categories. For example, sex variables and religious affiliations.
    - **Ordinal Scale:** It is the second level of data measurement that indicates the ranking or ordering of data without establishing the degree of variation between them.
    - **Interval Scale:** An interval scale has ordered values with equal intervals between them but does not have a true zero point. Temperature measured in Celsius and Fahrenheit are common examples.
    - **Ratio Scale:** A ratio scale has ordered values with equal intervals and a true zero point. Examples include height, weight, age, and income.

- Once the data are collected, they need to be analysed and processed. Some commonly used techniques in data analysis are:
  - **Frequency:** It helps to determine the extent of the preferences.
  - **Percentage:** It is used to calculate the proportion out of a total.
  - **Mean:** It is used to find the average number of responses.
  - **Standard Deviation:** It is useful for comparing different sets of data.
  - **Correlation:** It is used to study and analyse the relationship between variables.
  - **Regression:** It is used to study the cause-and-effect relationship between dependent and independent variables.
- Systematic procedure to decide whether the results of a research study support a particular theory is called hypothesis testing. For this purpose, different tests such as the F-test and t-test are used. There are four different types of errors in hypothesis testing:
  - **Type I Error:** The null hypothesis is true, but it has been rejected.
  - **Type II Error:** The null hypothesis is false, but it has not been rejected.
  - **Type III Error:** The null hypothesis is false but has been rejected for the wrong reason.
  - **Type IV Error:** The null hypothesis is correctly rejected, but there is an error in interpreting the result.

- **Drawing Conclusions:** Here the researcher summarises the key points of the research. This is important because it helps the reader understand why the research is important.
- **Preparing Research Results:** Here the researcher interprets and converts all ideas into written text and revises the interpretation of the research results to minimise errors.
- **Reporting Research Findings:** Finally, the research results are reported. A research report usually mentions questions that remain unanswered and suggests directions for future research. Normally, a research report is published as a journal article or a book.

THESIS AND ARTICLE WRITING

- **Article:** An article is also related to research, but it generally represents the views or findings of an individual and is not usually subject to formal evaluation like a thesis. An article is a piece of writing that can be found in newspapers, magazines, or other publications. An article can be either a research article or a review article.
  - **Research Article:** It deals with results of an original study performed by the authors. Such an article is published to inform others in the field about new path-breaking research. The word limit of a research article depends on the conditions set by the journal.
  - **Review Article:** It is based on secondary sources. It generally does not present new findings about the topic but provides a critical review of different studies available on the subject. A review article generally has a word limit of 3000 to 5000 words.
- **Thesis:** A thesis is submitted for a professional or academic degree. It is much more detailed than an article and is formally evaluated. In simple terms, a thesis is a theory or statement that needs to be proved through systematic research.

Thesis Writing: Format

A thesis contains detailed information about the research problem, research proposal, and findings.

- **Title Page:** Title page contains the title of the thesis, aligned at the centre and it must be free of errors.
- **Certificate:** Certificate states that it is the original work of the author and that the study has been conducted under the supervision of the guide.
- **Acknowledgement:** Acknowledgement expresses gratitude to the people who have helped the author during the research.
- **Table of Contents:** It provides information related to the chapters, page numbers, and titles.
- **List of Tables and Figures:** It contains the title of tables and figures along with their page numbers.
- **Nomenclature:** The foreign words or symbols that author used in the thesis are placed under the nomenclature section. It may also include subscripts, superscripts and other symbols used by author throughout the thesis.

Format of Thesis Writing

- **Prior to the Chapters:**
  - Title page
  - Certificate
  - Acknowledgement
  - Table of contents
  - List of figures and tables
  - Nomenclature
- **Chapters:**
  - Introduction
  - Review of literature
  - Research methods
  - Data analysis and presentation
  - Summary and conclusions
- Bibliography
- Appendix

- **Chapters:**
  - **Introduction:** This section familiarises the reader with the topic of research, its background, and objectives.
  - **Review of Literature:** It involves critically analysing the existing studies and literature related to the research topic.
  - **Research Method:** It explains which research method is used by the author in the thesis.
  - **Data Analysis and Presentation:** It deals with form of text, tables and graphs in which the data are presented and analysed.
  - **Summary and Conclusions:** This section presents the conclusions of the study and summarises the entire research.
- **Bibliography:** It includes the list of sources that have been consulted, such books, journals, articles, etc. There are different styles of bibliography such as APA (American Psychological Association), MLA (Modern Language Association), and Chicago Manual of Style.
- **Appendix:** It contains information that enhances the reader's understanding of the research, such as interview transcripts, questionnaire, etc. All such supporting materials are included in the appendix.

APPLICATION OF ICT IN RESEARCH

ICT stands for Information and Communication Technology, which encompasses any communication device or application such as radio, television, mobile phones, computer, internet, etc. ICT finds application in various fields such as banking, agriculture, transport, medicine and education. In research, ICT has can be used for various purposes, some of which are discussed below:

- **Collecting Data:** It is not possible to collect data from all over the world manually. Here, ICT plays a very important role, such as conducting online questionnaires, surveys, and audio-video conferencing.
- **Accessing Data:** Secondary data can also be accessed very easily using ICT. Various government reports and datasets are available on the online web portals, which can be conveniently used by the researcher.
- **Storing Data**: Data can be easily saved and stored in the computer technology, and it can be protected with passwords. It can also be saved on the cloud servers and accessed from anywhere using the login credentials.
- **Calculations**: Data can be easily processed and analysed using ICT. SPSS, Nesstar, MAXQDA, etc., are some of the data analysis tools.
- **Presentation:** Presentations become more effective by creating graphs, showing growth trends, comparing videos, etc., for which computer programs can be used.
- **Publishing**: ICT can also be used for communicating the research findings. Theses can be easily uploaded and shared.

Note: Some of the important initiatives by the government for integrating ICT with research are Shodhganga, e-shodhsindhu, IMPRINT (Impacting Research Innovation & Technology), UAY (Uchchtar Avishkar Yojana), GIAN (Global Initiative of Academic Networks), N-LIST, and INFLIBNET (Information and Library Network).

RESEARCH ETHICS

Research ethics is defined as a set of moral principles that determine the research process or researcher's behaviour. Ethics helps in bringing out the real facts about research issues. It helps in making

the research more realistic and trustworthy. While pursuing a research work, following points need to be considered:

- Researcher should interpret the data with honesty.
- Researcher should be open to criticism so that the best outcome can be obtained from the study.
- Researcher should maintain the research objectivity so that the study can be made free from personal biases.
- To make the research free from errors, it should be conducted carefully.
- Before collecting data, researcher should take the prior permission of the participants or respondents.
- Authenticity of data should be maintained.
- It must be ensured that no one is harmed in the process of the study.
- Researcher must ensure that all the sources referred to are cited properly, i.e., he/she should have respect for Intellectual Property Rights (IPRs).
- Legality of the process must be maintained.

Apart from taking care of the above mentioned points, some of the practices that should not be followed are:

- **Fabrication:** Fabrication means presenting the data in the research which does not exist in reality. Interpretations based on the fabricated data are not generally accurate and thus, it should be avoided.
- **Falsification:** It means manipulating the information, data or research process to prove something which cannot be proved on the given data.
- **Plagiarism:** Plagiarism means using someone else's work as their own without giving them proper credit. There are many software programs and websites that are used to check plagiarism.
- **Misuse of Funds or any Confidential Information:** Research funds should be used for research purposes only, and confidential information should not be misused under any circumstances.

Important Terms

- **Self-Plagiarism:** It is the practice in which a researcher reuses his or her own previously published work without proper acknowledgement.
- **Ghostwriting:** When a researcher writes a paper on behalf of someone else and allows it to be published under that person's name, it is called ghostwriting.
- **Improper Authorship:** It refers to giving unnecessary credit to someone who has not contributed to the research or failing to give due credit to someone who has contributed to the study.
- **Hawthorne Effect:** In an experiment, when subjects attempt to change or improve their behaviour simply because they know they are being observed or studied, it is called the Hawthorne Effect.
- **Markov Chain:** A stochastic model describing a sequence of possible events, where the probability of each event depends only on the state attained in the previous event.
- **Conference:** It is a formal meeting where individuals actively participate to discuss a common area of interest. It usually lasts longer than seminars and involves detailed analysis of topics for drawing conclusions.
- **Symposium:** It is a small-scale conference in which experts present papers on a specific theme.
- **Seminar:** It is an occasion where an expert or a group of people deliver lectures and engage in discussion with participants. It is similar to a classroom discussion where participants can ask questions and clarify doubts.
- **Workshop:** It is a meeting where a group of people are engaged in intensive discussion, with an emphasis on practical learning and skill development. Participants are encouraged not only to listen but also to perform activities. Workshops are usually organised to develop specific skills.
- **Colloquium:** It is a meeting where experts or specialists deliver lectures on a particular topic, followed by a question-and-answer session.
- **Webinar:** It is an online seminar where participants from different geographical locations can join simultaneously through digital platforms.

PREVIOUS YEARS' QUESTIONS

1. Functions of Research Design are: **(June 2026)**
   A. It does not discuss about any research plan.
   B. It provides a blueprint.
   C. It does not provide a blueprint.
   D. It limits (dictates) boundaries of research activity.
   E. It enables investigation to anticipate potential problems.

   Choose the correct answer from the options given below:
   (a) A and C only (b) A, B and C only
   (c) B, D and E only (d) A, C and E only

2. What is not a Research? **(June 2025)**
   (a) Research is a careful and exhaustive investigation of a phenomenon with an objective of advancing knowledge.
   (b) It is a systematic and objective attempt to study a problem for the purpose of deriving general principles.
   (c) Research is based on common sense knowledge, based on the accumulated experiences and beliefs of the people.
   (d) It is a systematic investigation to find solutions to a problem.

3. The form of asking mainly closed-ended questions that has been used in connection with the examination of people's normative standards is known as: **(June 2021)**
   (a) Abductive technique
   (b) Hermeneutics technique
   (c) Outlier technique
   (d) Vignette technique

4. Given below are two statements: **(June 2020)**

   Statement I: Qualitative research paradigm emphasizes participant perspectives and uses an empirico inductive approach.

   Statement II: In the same research project, it is neither possible nor desirable to use both Qualitative and Quantitative research paradigms.

   In light of the above statements, choose the most appropriate answer from the options given below:
   (a) Both Statement I and Statement II are correct
   (b) Both Statement I and Statement II are incorrect
   (c) Statement I is correct, but Statement II is incorrect
   (d) Statement I is incorrect, but Statement II is correct

5. The research method which focuses on establishing causal relationships with controls among variables independent moderator and dependent, is called: **(June 2020)**
   (a) Ex-post-facto method
   (b) Survey method
   (c) Case study method
   (d) Experimental method

6. What are the characteristic features of the Quantitative Research paradigm? **(June 2020)**
   A. It is hypothetico-deductive
   B. It is focused on natural settings
   C. It lays stress on generalizations to the population characteristics
   D. It emphasizes numeric data from a large number of people
   E. It says that the literature review plays a minor role but justify the problem

   Choose the correct answer from the options given below:
   (a) (A), (C) and (D) only
   (b) (A), (B) and (C) only
   (c) (B), (C) and (D) only
   (d) (C), (D) and (E) only

7. What is the usual sequence of steps in the scientific method? **(June 2020)**
   A. Hypothesis making by identifying the variables
   B. Felt need which is creating the problem
   C. Identifying the difficulty and problem statement formulation

D. Data analysis and interpretation
E. Collection of data using appropriate research tools

Choose the correct answer from the options given below:

(a) (A), (C), (B), (D), (E)
(b) (B), (C), (A), (E), (D)
(c) (C), (D), (E), (B), (A)
(d) (B), (A), (C), (E), (D)

8. In an intervention based action research process, which of the following is the usually recommended sequence? **(Dec. 2019)**
   (a) Plan, Act, Observe and Reflect
   (b) Observe, Plan, Act and Reflect
   (c) Reflect, Plan, Act and Plan
   (d) Observe, Act, Reflect and Plan
9. At the stage of data analysis, in which quantitative techniques have been used by a researcher, the evidence warrants the rejection of Null Hypothesis (H_0). Which of the following decisions of the researcher will be deemed appropriate? **(Dec. 2019)**
   (a) Rejecting the (H_0) and also the substantive research hypothesis
   (b) Rejecting the (H_0) and accepting the substantive research hypothesis
   (c) Rejecting the (H_0) without taking any decision on the substantive research hypothesis
   (d) Accepting the (H_0) and rejecting the substantive research hypothesis
10. A college teacher presents a research paper in a seminar. The research paper cites references which are pretty old. This situation will be described as the case of: **(Dec. 2019)**
    (a) Technical lapse
    (b) Ethical lapse
    (c) Academic ignorance
    (d) Inability of updating research source
11. Match Set I with Set II: **(Dec. 2019)**

Set-I (Research Tools)	Set-II (Measurement Scale)
A. Questionnaire and Interview	(i) Ratio scale of measurement
B. Intelligence and Aptitude Tests	(ii) Ordinal Scale of measurement
C. Attitude and Value Tests	(iii) Interval Scale of measurement
D. Speed and Frequency Tests	(iv) Nominal Scale of measurement

Codes:

	(A)	(B)	(C)	(D)
(a)	(i)	(ii)	(iii)	(iv)
(b)	(iii)	(i)	(iv)	(ii)
(c)	(iv)	(iii)	(ii)	(i)
(d)	(ii)	(iii)	(i)	(iv)

12. Bibliography given in a research report: **(June 2019)**
    (a) Helps those interested in further research
    (b) Shows the vast knowledge of the researcher
    (c) Makes the report authentic
    (d) Is an optional part of the report
13. Through which research method, the manipulation of an independent variable and its effect on dependent variable is examined with reference to a hypothesis under controlled conditions? **(June 2019)**
    (a) Ex-post-facto research
    (b) Descriptive research
    (c) Case study research
    (d) Experimental research
14. Which of the following is a plagiarism checking website? **(June 2019)**
    (a) http://go.turnitin.com
    (b) http://www.researchgate.com
    (c) http://www.editorial.elsevier.com
    (d) http://www.grammarly.com
15. The research design is specifically related to which of the following features in research? **(June 2019)**
    (i) Sample selection
    (ii) Formulation of a plan
    (iii) Deciding about the tool for data collection
    (iv) Hypothesis making
    (v) Choice of a field of inquiry

Select your answer from the options given below:

(a) (ii), (iii) and (iv) (b) (i), (ii) and (iii)

(c) (ii), (iv) and (v) (d) (iii), (iv) and (v)

16. In which of the following research studies interpretation and meaning get more attention than formulation of generalisations? **(June 2019)**

(i) Historical studies

(ii) Survey studies

(iii) Philosophical studies

(iv) Ethnographic studies

(v) Hypothetico-deductive studies

(vi) Ex-post-facto studies

Choose your answer from the options given below:

(a) (i), (ii) and (iii)

(c) (ii), (iv) and (v)

(b) (iv), (v) and (vi)

(d) (i), (iii) and (iv)

17. In which of the following methods of research the independent variable has to be selected rather than manipulated? **(Dec. 2018)**

(a) Descriptive survey method

(b) Experimental method

(c) Ex-post-facto method

(d) Exegetic research

18. In the list of statements given below which of them offer a suitable definition of research? Give your answer by selecting from the code: **(Dec. 2018)**

A. Research means a repeated search.

B. Research is basically an answer to a question.

C. Research provides an authentic solution to a problem.

D. Research is an endeavour to prove one's hypothesis.

E. Research is a meaning-giving process.

F. Research means drawing a sample from a defined population.

Codes:

(a) (A), (B) and (C) (b) (B), (C) and (F)

(c) (A), (D) and (F) (d) (B), (C) and (E)

19. Ability to see and size up the situation creatively is most relevant at which stage of research? **(Dec. 2018)**

(a) At the stage of identifying and defining a research problem.

(b) In determining the research design and its execution.

(c) In formulating research hypotheses and procedures for testing them.

(d) In deciding and identifying the sampling procedures to ensure their representative character.

20. Research ethics' is of critical importance in which of the following areas? Select your answer from the code given below: **(Dec. 2018)**

A. Data collecting

B. Preparing a seminar paper

C. Data analysis

D. Participation in a conference

E. Writing a thesis/dissertation

F. Selecting a research problem

(a) (A), (B) and (C) (b) (A), (C) and (E)

(c) (D), (E) and (F) (d) (A), (B) and (F)

21. While presenting the research outcomes and sharing the same with others, in which of the following research type, the style has to be impersonal? **(Dec. 2018)**

(a) Ethnographic studies

(b) Action research based studies

(c) Causal comparative based Ex-post-facto studies

(d) Narrative studies

22. Which one of the following has larger scope for the possibility of hands on experience? **(Dec. 2018)**

(a) Seminar (b) Conference

(c) Workshop (d) Symposium

23. Which one of the following is less oriented towards knowledge dissemination? **(Dec. 2018)**

(a) Seminar

(c) Field work

(b) Classroom

(d) Journal

24. There are two sets given below. Set-I specifies the types of research, while Set-II indicates their characteristics. Match the two and give your answer by selecting the appropriate code: **(July 2018)**

Set-I (Research types)		Set-II (Characteristics)
A. Fundamental research	(i)	Finding out the extent of perceived impact of an intervention
B. Applied research	(ii)	Developing an effective explanation through theory building
C. Action research	(iii)	Improving an existing situation through use of interventions
D. Evaluative research	(iv)	Exploring the possibility of a theory for use in various situations
	(v)	Enriching technological resources

Codes:

	(A)	(B)	(C)	(D)
(a)	(ii)	(iv)	(iii)	(i)
(b)	(v)	(iv)	(iii)	(ii)
(c)	(i)	(ii)	(iii)	(iv)
(d)	(ii)	(iii)	(iv)	(v)

25. Which of the sets of activities best indicate the cyclic nature of action research strategy? **(July 2018)**
    (a) Reflect, Observe, Plan, Act
    (b) Observe, Act, Reflect, Plan
    (c) Act, Plan, Observe, Reflect
    (d) Plan, Act, Observe, Reflect
26. Which of the following sequences of research steps is nearer to scientific method? **(July 2018)**
    (a) Suggested solution of the problem, Deducing the consequences of the solution, Perceiving the problem situation, Location of the difficulty and testing the solutions.
    (b) Perceiving the problem situation, Locating the actual problem and its definition, Hypothesizing, Deducing the consequences of the suggested solution and Testing the hypothesis in action.
    (c) Defining a problem, Identifying the causes of the problem, Defining a population, Drawing a sample, Collecting data and Analysing results.
    (d) Identifying the causal factors, Defining the problem, Developing a hypothesis, Selecting a sample, Collecting data and arriving at generalizations and Conclusions.
27. The problem of 'research ethics' is concerned with which aspect of research activities? **(July 2018)**
    (a) Following the prescribed format of a thesis
    (b) Data analysis through qualitative or quantitative techniques
    (c) Defining the population of research
    (d) Evidence based research reporting
28. In which of the following activities, potential for nurturing creative and critical thinking is relatively greater? **(July 2018)**
    (a) Preparing research summary
    (b) Presenting a seminar paper
    (c) Participation in research conference
    (d) Participation in a workshop
29. Which of the following research types focuses on ameliorating the prevailing situations? **(Nov. 2017)**
    (a) Fundamental Research
    (b) Applied Research
    (c) Action Research
    (d) Experimental Research
30. A researcher attempts to evaluate the effect of method of feeding on anxiety – proneness of children. Which method of research would be appropriate for this? **(Nov. 2017)**
    (a) Case study method
    (b) Experimental method

(c) Ex-post-facto method
(d) Survey method

31. In which of the following arrangements a wider spectrum of ideas and issues may be made possible? **(Nov. 2017)**
(a) Research Article (b) Workshop mode
(c) Conference (d) Symposium

32. In finalizing a thesis writing format which of the following would form part of supplementary pages? **(Nov. 2017)**
(a) List of tables and figures
(b) Table of contents
(c) Conclusions of the study
(d) Bibliography and Appendices

33. Which of the following is susceptible to the issue of research ethics? **(Nov. 2017)**
(a) Inaccurate application of statistical techniques
(b) Faulty research design
(c) Choice of sampling techniques
(d) Reporting of research findings

34. The principal of a school conducts an interview session of teachers and students with a view to explore the possibility of their enhanced participation in school programmes. This endeavour may be related to which type of research? **(Jan. 2017)**
(a) Evaluation Research
(b) Fundamental Research
(c) Action Research
(d) Applied Research

35. In doing action research what is the usual sequence of steps? **(Jan. 2017)**
(a) Reflect, observe, plan, act
(b) Plan, act, observe, reflect
(c) Plan, reflect, observe, act
(d) Act, observe, plan, reflect

36. Which sequence of research steps is logical in the list given below? **(Jan. 2017)**
(a) Problem formulation, Analysis, Development of Research design, Hypothesis making, Collection of data, Arriving at generalizations and conclusions.
(b) Development of Research design, Hypothesis making, Problem formulation, Data analysis, Arriving at conclusions and data collection.
(c) Problem formulation, Hypothesis making, Development of a Research design, Collection of data, Data analysis and formulation of generalizations and conclusions.
(d) Problem formulation, Deciding about the sample and data collection tools, Formulation of hypothesis, Collection and interpretation of research evidence.

37. Below are given two sets – research methods (Set-I) and data collection tools (Set-II). Match the two sets and indicate your answer by selecting the correct code: **(Jan. 2017)**

Set-I (Research Methods)	**Set-II (Data Collection Tools)**
A. Experimental method	(i) Using primary and secondary sources
B. Ex post-facto method	(ii) Questionnaire
C. Descriptive survey method	(iii) Standardized tests
D. Historical method	(iv) Typical characteristic tests

Codes:

	(A)	**(B)**	**(C)**	**(D)**
(a)	(ii)	(i)	(iii)	(iv)
(b)	(iii)	(iv)	(ii)	(i)
(c)	(ii)	(iii)	(i)	(iv)
(d)	(ii)	(iv)	(iii)	(i)

38. The issue of 'research ethics' may be considered pertinent at which stage of research? **(Jan. 2017)**
(a) At the stage of problem formulation and its definition
(b) At the stage of defining the population of research
(c) At the stage of data collection and interpretation
(d) At the stage of reporting the findings.

39. In which of the following, reporting format is formally prescribed? **(Jan. 2017)**
    (a) Doctoral level thesis
    (b) Conference of researchers
    (c) Workshops and seminars
    (d) Symposia
40. A researcher intends to explore the effect of possible factors for the organization of effective mid-day meal interventions. Which research method will be most appropriate for this study? **(July 2016)**
    (a) Historical method
    (b) Descriptive survey method
    (c) Experimental method
    (d) Ex-post-facto method
41. Which of the following is an initial mandatory requirement for pursuing research? **(July 2016)**
    (a) Developing a research design
    (b) Formulating a research question
    (c) Deciding about the data analysis procedure
    (d) Formulating a research hypothesis
42. The format of thesis writing is the same as in: **(July 2016)**
    (a) Preparation of a research paper/article
    (b) Writing of seminar presentation
    (c) A research dissertation
    (d) Presenting a workshop/conference paper
43. In qualitative research paradigm, which of the following features may be considered critical? **(July 2016)**
    (a) Data collection with standardised research tools.
    (b) Sampling design with probability sample techniques.
    (c) Data collection with bottom-up empirical evidences.
    (d) Data gathering to take place with top-down systematic evidences.
44. From the following list of statements identify the set which has negative implications for 'research ethics': **(July 2016)**
    (i) A researcher critically looks at the findings of another research.
    (ii) Related studies are cited without proper references.
    (iii) Research findings are made the basis for policy making.
    (iv) Conduct of practitioner is screened in terms of reported research evidences.
    (v) A research study is replicated with a view to verify the evidences from other researches.
    (vi) Both policy making and policy implementing processes are regulated in terms of preliminary studies.

    Codes:
    (a) (i), (ii) and (iii) (b) (ii), (iii) and (iv)
    (c) (ii), (iv) and (vi) (d) (i), (iii) and (v)
45. In a research on the effect of child-rearing practices on stress-proneness of children in completing school projects, the hypothesis formulated is that 'child rearing practices do influence stress-proneness'. At the data-analysis stage a null hypothesis is advanced to find out the tenability of research hypothesis. On the basis of the evidence available, the null hypothesis is rejected at 0.01 level of significance. What decision may be warranted in respect of the research hypothesis? **(July 2016)**
    (a) The research hypothesis will also be rejected.
    (b) The research hypothesis will be accepted.
    (c) Both the research hypothesis and the null hypothesis will be rejected.
    (d) No decision can be taken in respect of the research hypothesis.
46. Which of the following statements is not true in the context of participatory research? **(Dec. 2015)**
    (a) It recognizes knowledge as power.
    (b) It emphasises on people as experts.
    (c) It is a collective process of enquiry.
    (d) Its sole purpose is production of knowledge.
47. Which of the following statements is true in the context of the testing of a hypothesis? **(Dec. 2015)**
    (a) It is only the alternative hypothesis, that can be tested.
    (b) It is only the null hypothesis, that can be tested.

(c) Both, the alternative and the null hypotheses can be tested.

(d) Both, the alternative and the null hypotheses cannot be tested.

48. Which of the following are the basic rules of APA style of referencing format? **(Dec. 2015)**

A. Italicize titles of shorter works such as journal articles or essays

B. Invert authors' names (last name first)

C. Italicize titles of longer works such as books and journals

D. Alphabetically index reference list

Select the correct answer from the codes given below:

(a) (A) and (B) (b) (B), (C) and (D)

(c) (C) and (D) (d) (A), (B), (C) and (D)

49. Which of the following are the characteristics of a seminar? **(Dec. 2015)**

1. It is a form of academic instruction.
2. It involves questioning, discussion and debates.
3. It involves large groups of individuals.
4. It needs involvement of skilled persons.

Select the correct answer from the codes given below:

(a) (2) and (3) (b) (2) and (4)

(c) (2), (3) and (4) (d) (1), (2) and (4)

50. A researcher is interested in studying the prospects of a particular political party in an urban area. What tool should he prefer for the study? **(Dec. 2015)**

(a) Rating scale (b) Interview

(c) Questionnaire (d) Schedule

51. Ethical norms in research do ***not*** involve guidelines for? **(Dec. 2015)**

(a) Thesis format (b) Copyright

(c) Patenting policy (d) Data sharing policies

52. Which of the following statements regarding the meaning of research are correct? **(June 2015)**

A. Research refers to a series of systematic activity or activities undertaken to find out the solution of a problem.

B. It is a systematic, logical and an unbiased process wherein verification of hypothesis, data analysis, interpretation and formation of principles can be done.

C. It is an intellectual enquiry or quest towards truth.

D. It leads to enhancement of knowledge.

Select the correct answer from the codes given below:

(a) (A), (B) and (C) (b) (B), (C) and (D)

(c) (A), (C) and (D) (d) (A), (B), (C) and (D)

53. A good thesis writing should involve: **(June 2015)**

A. Reduction of punctuation and grammatical errors to a minimum.

B. Careful checking of references.

C. Consistency in the way the thesis is written.

D. A clear and well written abstract.

Select the correct answer from the codes given below:

(a) (A), (B), (C) and (D)

(b) (A), (B) and (C)

(c) (A), (B) and (D)

(d) (B), (C) and (D)

54. Jean Piaget gave a theory of cognitive development of humans on the basis of his: **(June 2015)**

(a) Fundamental Research

(b) Applied Research

(c) Action Research

(d) Evaluation Research

55. "Male and female students perform equally well in a numerical aptitude test." This statement indicates a: **(June 2015)**

(a) Research hypothesis

(b) Null hypothesis

(c) Directional hypothesis

(d) Statistical hypothesis

56. The conclusions/findings of which type of research cannot be generalized to other situations? **(June 2015)**

(a) Historical Research

(b) Descriptive Research

(c) Experimental Research
(d) Causal Comparative Research

57. Which of the following steps are required to design a questionnaire? **(June 2015)**
A. Writing primary and secondary aims of the study.
B. Review of the current literature.
C. Prepare a draft of questionnaire.
D. Revision of the draft.
Select the correct answer from the codes given below:
(a) (A), (B) and (C) (b) (A), (C) and (D)
(c) (B), (C) and (D) (d) (A), (B), (C) and (D)

58. When planning to do a social research, it is better to: **(Dec. 2014)**
(a) Approach the topic with an open mind.
(b) Do a pilot study before getting stuck into it.
(c) Be familiar with literature on the topic.
(d) Forget about theory because this is a very practical.

59. When academicians are called to deliver lecture or presentation to an audience on certain topics or a set of topics of educational nature, it is called: **(Dec. 2014)**
(a) Training Program (b) Seminar
(c) Workshop (d) Symposium

60. The core elements of a dissertation are: **(Dec. 2014)**
(a) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
(b) Executive Summary; Literature review; Data gathered; Conclusions; Bibliography
(c) Research Plan; Research Data; Analysis; References
(d) Introduction; Literature Review; Research Methodology; Results; Discussion and Conclusion

61. What is a Research Design? **(Dec. 2014)**
(a) A way of conducting research that is not grounded in theory.
(b) The choice between using qualitative or quantitative methods.
(c) The style in which you present your research findings e.g. a graph.
(d) A framework for every stage of the collection and analysis of data.

62. 'Sampling Cases' means: **(Dec. 2014)**
(a) Sampling using a sampling frame
(b) Identifying people who are suitable for research
(c) Literally the researcher's brief case
(d) Sampling of people, newspapers, television programmes etc.

63. The frequency distribution of a research data which is symmetrical in shape similar to a normal distribution but center peak is much higher, is: **(Dec. 2014)**
(a) Skewed (b) Mesokurtic
(c) Leptokurtic (d) Platykurtic

64. In a thesis, figures and tables are included in: **(June 2014)**
(a) The appendix
(b) A separate chapter
(c) The concluding chapter
(d) The text itself

65. A thesis statement is: **(June 2014)**
(a) an observation (b) a fact
(c) an assertion (d) a discussion

66. The research approach of Max Weber to understand how people create meanings in natural settings is identified as: **(June 2014)**
(a) positive paradigm
(b) critical paradigm
(c) natural paradigm
(d) interpretative paradigm

67. Which one of the following is a non-probability sampling? **(June 2014)**
(a) Simple random (b) Purposive
(c) Systematic (d) Stratified

68. Identify the category of evaluation that assesses the learning progress to provide continuous feedback to the students during instruction. **(June 2014)**
(a) Placement (b) Diagnostic
(c) Formative (d) Summative

69. The research stream of immediate application is: **(June 2014)**
    (a) Conceptual research
    (b) Action research
    (c) Fundamental research
    (d) Empirical research
70. Which is the main objective of research? **(Dec. 2013)**
    (a) To review the literature
    (b) To summarize what is already known
    (c) To get an academic degree
    (d) To discover new facts or to make fresh interpretation of known facts
71. Sampling error decreases with the: **(Dec. 2013)**
    (a) decrease in sample size
    (b) increase in sample size
    (c) process of randomization
    (d) process of analysis
72. The principles of fundamental research are used in: **(Dec. 2013)**
    (a) action research
    (b) applied research
    (c) philosophical research
    (d) historical research
73. The population information is called parameter while the corresponding sample information is known as: **(Dec. 2013)**
    (a) Universe (b) Inference
    (c) Sampling design (d) Statistics
74. The sequential operations in scientific research are: **(Dec. 2013)**
    (a) Co-variation, Elimination of Spurious Relations, Generalisation, Theorisation
    (b) Generalisation, Co-variation, Theorisation, Elimination of Spurious Relations
    (c) Theorisation, Generalisation, Elimination of Spurious Relations, Co-variation
    (d) Elimination of Spurious Relations, Theorisation, Generalisation, Co-variation.
75. In sampling, the lottery method is used for: **(Dec. 2013)**
    (a) Interpretation (b) Theorisation
    (c) Conceptualisation (d) Randomisation
76. Which one of the following references is written as per Modern Language Association (MLA) format? **(June 2013)**
    (a) Hall, Donald. Fundamentals of Electronics, New Delhi : Prentice Hall of India, 2005
    (b) Hall, Donald, Fundamentals of Electronics, New Delhi : Prentice Hall of India, 2005
    (c) Hall, Donald, Fundamentals of Electronics, New Delhi : Prentice Hall of India, 2005
    (d) Hall, Donald. Fundamentals of Electronics. New Delhi : Prentice Hall of India, 2005
77. A workshop is: **(June 2013)**
    (a) a conference for discussion on a topic.
    (b) a meeting for discussion on a topic.
    (c) a class at a college or a university in which a teacher and the students discuss a topic.
    (d) a brief intensive course for a small group emphasizing the development of a skill or technique for solving a specific problem.
78. A working hypothesis is: **(June 2013)**
    (a) a proven hypothesis for an argument.
    (b) not required to be tested.
    (c) a provisionally accepted hypothesis for further research.
    (d) a scientific theory.
79. A research paper: **(June 2013)**
    (a) is a compilation of information on a topic.
    (b) contains original research as deemed by the author.
    (c) contains peer-reviewed original research or evaluation of research conducted by others.
    (d) can be published in more than one journal.
80. Which one of the following belongs to the category of good 'research ethics'? **(June 2013)**
    (a) Publishing the same paper in two research journals without telling the editors.
    (b) Conducting a review of the literature that acknowledges the contributions of other people in the relevant field or relevant prior work.
    (c) Trimming outliers from a data set without discussing your reasons in a research paper.

(d) Including a colleague as an author on a research paper in return for a favour even though the colleague did not make a serious contribution to the paper.

81. Which of the following sampling methods is not based on probability? **(June 2013)**
(a) Simple Random Sampling
(b) Stratified Sampling
(c) Quota Sampling
(d) Cluster Sampling

82. Which one of the following is an indication of the quality of a research journal? **(Dec. 2012)**
(a) Impact factor (b) h-index
(c) g-index (d) i10-index

83. Good 'research ethics' means: **(Dec. 2012)**
(a) Not disclosing the holdings of shares/stocks in a company that sponsors your research.
(b) Assigning a particular research problem to one Ph.D./research student only.
(c) Discussing with your colleagues confidential data from a research paper that you are reviewing for an academic journal.
(d) Submitting the same research manuscript for publishing in more than one journal.

84. Which of the following sampling methods is based on probability? **(Dec. 2012)**
(a) Convenience sampling
(b) Quota sampling
(c) Judgement sampling
(d) Stratified sampling

85. Which one of the following references is written according to American Psychological Association (APA) format? **(Dec. 2012)**
(a) Sharma, V. (2010). Fundamentals of Computer Science. New Delhi : Tata McGraw Hill
(b) Sharma, V. 2010. Fundamentals of Computer Science. New Delhi : Tata McGraw Hill
(c) Sharma.V. 2010. Fundamentals of Computer Science, New Delhi : Tata McGraw Hill
(d) Sharma, V. (2010), Fundamentals of Computer Science, New Delhi : Tata McGraw Hill

86. Arrange the following steps of research in correct sequence: **(Dec. 2012)**
1. Identification of research problem
2. Listing of research objectives
3. Collection of data
4. Methodology
5. Data analysis
6. Results and discussion
(a) 1 – 2 – 3 – 4 – 5 – 6
(b) 1 – 2 – 4 – 3 – 5 – 6
(c) 2 – 1 – 3 – 4 – 5 – 6
(d) 2 – 1 – 4 – 3 – 5 – 6

87. Identify the ***incorrect*** statement: **(Dec. 2012)**
(a) A hypothesis is made on the basis of limited evidence as a starting point for further investigations.
(b) A hypothesis is a basis for reasoning without any assumption of its truth.
(c) Hypothesis is a proposed explanation for a phenomenon.
(d) Scientific hypothesis is a scientific theory.

88. When two or more successive footnotes refer to the same work which one of the following expressions is used? **(June 2012)**
(a) ibid
(b) et.al
(c) op.cit :
(d) loc.cit.

89. Nine year olds are taller than seven year olds. This is an example of a reference drawn from: **(June 2012)**
(a) Vertical study
(b) Cross-sectional study
(c) Time series study
(d) Experimental study

90. Conferences are meant for: **(June 2012)**
(a) Multiple target groups
(b) Group discussions
(c) Show-casing new Research
(d) All the above

91. Ex-Post-Facto research means: **(June 2012)**
   (a) The research is carried out after the incident.
   (b) The research is carried out prior to the incident.
   (c) The research is carried out along with the happening of an incident.
   (d) The research is carried out keeping in mind the possibilities of an incident.

92. Research ethics do *not* include: **(June 2012)**
   (a) Honesty (b) Subjectivity
   (c) Integrity (d) Objectivity

93. The research that aims at immediate application is: **(June 2012)**
   (a) Action Research
   (b) Empirical Research
   (c) Conceptual Research
   (d) Fundamental Research

ANSWER KEY

1. (c)	2. (c)	3. (d)	4. (c)	5. (d)	6. (a)	7. (b)	8. (a)	9. (b)	10. (d)
11. (c)	12. (a)	13. (d)	14. (d)	15. (b)	16. (d)	17. (c)	18. (d)	19. (c)	20. (b)
21. (c)	22. (c)	23. (c)	24. (a)	25. (d)	26. (b)	27. (d)	28. (c)	29. (c)	30. (c)
31. (c)	32. (d)	33. (d)	34. (c)	35. (b)	36. (c)	37. (b)	38. (c)	39. (a)	40. (d)
41. (b)	42. (c)	43. (c)	44. (c)	45. (b)	46. (d)	47. (b)	48. (b)	49. (d)	50. (c)
51. (a)	52. (d)	53. (a)	54. (a)	55. (b)	56. (a)	57. (d)	58. (c)	59. (b)	60. (d)
61. (d)	62. (d)	63. (c)	64. (d)	65. (c)	66. (d)	67. (b)	68. (c)	69. (b)	70. (d)
71. (b)	72. (b)	73. (d)	74. (a)	75. (d)	76. (d)	77. (d)	78. (c)	79. (c)	80. (b)
81. (c)	82. (a)	83. (b)	84. (d)	85. (a)	86. (b)	87. (d)	88. (a)	89. (b)	90. (d)
91. (a)	92. (b)	93. (a)							

PRACTICE QUESTIONS

1. Which among the following is the most important in selecting a research problem?
   (a) Availability of participants
   (b) Interest of the researcher
   (c) Social relevancy
   (d) None of the above

2. Research is helpful in:
   (i) policy formulation
   (ii) avoiding wastage of resources
   (iii) study social relationships
   (iv) teaching methodology
   Choose the correct answer from the options given below:
   (a) i, ii, iii (b) ii, iv, i
   (c) i, ii, iii, iv (d) i, iii, iv

3. Identify the correct order of the following in formulation of research question:
   (i) Formulation of broad objectives
   (ii) Dissect broad areas into subareas
   (iii) Selection of the research area
   (iv) Assessing and reviewing objectives
   (v) Focus on selecting an area of interest.
   (vi) Identifying the gaps and raising research questions.
   Choose the correct answer from the options given below:
   (a) v, iii, i, ii, iv, vi
   (b) iii, i, ii, iv, vi, v
   (c) i, ii, iii, iv, v, vi
   (d) iii, ii, v, vi, i, iv

4. Research can be conducted by a person who:
   (a) is a team leader.
   (b) holds a post graduate degree.
   (c) has studied research methods.
   (d) has philosophical mind.
5. Match List-I with List-II and choose the correct answer from the codes given below:

List-I	List-II
A. Fundamental research	(i) Begins with hypothesis
B. Empirical research	(ii) Adds to the existing knowledge
C. Deductive research	(iii) Based on experiment
D. Inductive research	(iv) Begins with research question

Codes:

	(A)	(B)	(C)	(D)
(a)	(iv)	(i)	(ii)	(iii)
(b)	(iv)	(iii)	(i)	(ii)
(c)	(ii)	(iii)	(i)	(iv)
(d)	(i)	(ii)	(iii)	(iv)

6. Fundamental research reflects the ability to:
   (i) Advance new knowledge
   (ii) Study the existing material related to topic
   (iii) Analyse the existing topic
   (iv) Generalize the topic
   Choose the correct answer from the options given below:
   (a) i, iv (b) i, iii, iv
   (c) i, ii, iii (d) ii, iv
7. Reflect, Plan, Act, and Observe are the steps of:
   (a) Empirical research
   (b) Action research
   (c) Qualitative research
   (d) Quantitative research
8. Which of the following statements are correct regarding Qualitative Research?
   (i) It asks open-ended questions
   (ii) It goes from general to specific
   (iii) It is mainly expressed in words
   (iv) Focus on exploring ideas
   Choose the correct answer from the options given below:
   (a) i, iii, iv (b) i, ii, iv
   (c) ii, iii (d) i, ii, iii, iv
9. The first step of the research is:
   (a) Finding a problem
   (b) Searching a problem
   (c) Identifying a problem
   (d) Selecting a problem
10. In which of the following research design, investigation starts after the fact has occurred without interference from the researcher?
    (a) Descriptive research
    (b) Ex-post-facto research
    (c) Action research
    (d) Applied research
11. Which among the following is ***not*** a characteristic of good research?
    (a) Objectivity (b) Idealistic
    (c) Empirical (d) Logical
12. In which among the following types of sampling technique a bunch is chosen randomly from the population?
    (a) Systematic sampling
    (b) Cluster sampling
    (c) Quota sampling
    (d) Snowball sampling
13. Which among the following is organized to test the relationship between two or more variables?
    (a) Experimental research design
    (b) Exploratory research design
    (c) Conclusive research design
    (d) None of the above
14. Which among the following processes is ***not*** needed in Experimental Research?
    (a) Reference collection
    (b) Controlling
    (c) Observation
    (d) Manipulation and duplication
15. Which among the following is pertinent to sampling?
    (i) Same units of sample should be used throughout the study.

(ii) Sample units must be chosen in systematic manner.
(iii) Sample units must be independent to each other.
(iv) Sample units must be clearly defined.

Choose the correct answer from the options given below:

(a) i, ii, iii, iv (b) i, ii, iv
(c) ii, iii, iv (d) ii, iv

16. In which of the following styles; encyclopaedia, dictionary, newspaper and magazine are mentioned in footnotes and not in bibliography?
(a) APA (b) CMS
(c) MLA (d) None of the above

17. Small gathering or an academic meeting where specialist and experts deliver lecture is called:
(a) Congress (b) Conference
(c) Colloquium (d) Workshop

18. Match List-I with List-II and choose the correct answer from the codes given below:

List-I	List-II
A. Experimental method	(i) Future action
B. Survey method	(ii) Vision
C. Historical method	(iii) Past events
D. Philosophical method	(iv) Exceptional cases

Codes:

	(A)	(B)	(C)	(D)
(a)	(ii)	(iv)	(iii)	(i)
(b)	(i)	(ii)	(iii)	(iv)
(c)	(iv)	(i)	(iii)	(ii)
(d)	(ii)	(i)	(iii)	(iv)

19. Which of the following belong to research ethics:
(i) Honesty (ii) Authenticity
(iii) Subjectivity (iv) Confidentiality

Choose the correct answer from the options given below:

(a) i, ii, iii (b) i, ii, iv
(c) ii, iii (d) i, ii, iii, iv

20. Which of the following are the sources of secondary data?
(i) Public records
(ii) Unpublished biographies
(iii) Autobiographies
(iv) Historical documents

Choose the correct answer from the options given below:

(a) i, iv (b) i, iii, iv
(c) i, ii, iv (d) i, ii, iii, iv

21. In which of the following research, generalization and interpretations are difficult to make?
(a) Empirical research
(b) Conclusive research
(c) Exploratory research
(d) None of the above

22. If a sample is to be chosen from people visiting a cinema hall, then which type of sampling would it be?
(a) Simple random sampling
(b) Cluster sampling
(c) Stratified random sampling
(d) None of the above

23. 'It is also known as casual research and is similar to descriptive research.' Which type of research is being talked about in the above sentence?
(a) Action research
(b) Explanatory research
(c) One-time research
(d) Longitudinal research

24. Which of the following can be used in surveys:
(i) Quota sampling
(ii) Multi-stage sampling
(iii) Stratified random sampling
(iv) Cluster sampling

Choose the correct answer from the options given below:

(a) i, ii, iv (b) i, iii, iv
(c) i, ii, iii, iv (d) i, iv

25. Arrange the following steps of format of thesis in correct sequence:
(i) Bibliography
(ii) Title of page

(iii) Acknowledgement
(iv) List of tables and figures
(v) Chapters
(vi) Appendix

Choose the correct answer from the options given below:

(a) ii, iii, iv, v, i, vi (b) i, ii, iii, iv, v, vi
(c) ii, i, iii, iv, v, vi (d) ii, iii, iv, v, vi, i

26. The important requirement of a researcher in science, social sciences, and humanities are:
(a) Manager, topic, critical analysis, patience
(b) Records, manager, topic, lab skills
(c) Pliant in thinking, manager, topic, records
(d) Topic, manager, good temperament, prejudice

27. Which of the following statements about Hypothesis are correct?
(i) Hypothesis should be stated before conducting the research
(ii) Hypothesis enhances objectivity
(iii) Hypothesis prevents blind research
(iv) Hypothesis provides a direction to research by defining the variables

Choose the correct answer from the options given below:

(a) i, ii, iii (b) i, iii, iv
(c) ii, iv (d) i, ii, iii, iv

28. Skin problems are caused by the chemicals in make-up products. Which type of hypothesis is this?
(a) Non-directional hypothesis
(b) Declarative hypothesis
(c) Directional hypothesis
(d) Hypothesis of no difference

29. Which of the following are the techniques used in data analysis?
(i) Percentage (ii) Mean
(iii) Frequency (iv) Standard deviation

Choose the correct answer from the options given below:

(a) i, iii, iv (b) ii, iv
(c) i, iv (d) i, ii, iii, iv

30. Kurt Lewin, a German –American social psychologist coined the term of:
(a) Empirical research
(b) Action research
(c) Fundamental research
(d) Ex-post-facto research

31. Which among the following is opposite to Ex-post-facto research?
(a) Action research
(b) Fundamental research
(c) Experimental research
(d) Incremental research

32. Research design is prepared after:
(a) Reviewing the literature
(b) Selection of topic
(c) Formulating hypothesis
(d) Collection of data

33. Which of the following research integrates scientific investigation with education and political action?
(a) Participatory research
(b) Action research
(c) Explanatory research
(d) None of the above

34. Which of the following are the characteristics of good research?
(i) It should be auditable.
(ii) It should not be future oriented.
(iii) It should act as a catalyst to research.
(iv) It should be intricate.

Choose the correct answer from the options given below:

(a) i, ii, iii (b) ii, iii, iv
(c) i, iv (d) i, iii

35. Which of the following data analysis techniques is used to study the cause-and-effect relationship between dependent and independent variables?
(a) Regression (b) Correlation
(c) Mean (d) Standard deviation

36. Which of the following is ***not*** correct regarding Review article?
(a) It has nothing new about the topic.

(b) It generally provides a critical view.
(c) It is based on primary sources.
(d) None of the above

37. Which of the following statements is ***not*** correct regarding 'Term paper'?
(a) It has to be submitted by the end of the term.
(b) Term paper is not usually written by students.
(c) It is subject to evaluation and grading.
(d) Communication skill of students improve by presenting the term paper.

38. Which type of error occurs when you correctly reject the null hypothesis, but it is rejected for the wrong reasons?
(a) Type I error (b) Type II error
(c) Type III error (d) None of the above

39. If the null hypothesis is true, but it has been rejected. This will be considered as a:
(a) Type I error (b) Type II error
(c) Type III error (d) None of the above

40. Match List-I (Interviews) with List-II (Meaning) and choose the correct answer from the codes given below:

List-I (Interviews)	**List-II (Meaning)**
A. Clinical interviews	(i) Attention on the questions to be answered
B. Structured interviews	(ii) Individual life experience
C. Unstructured interviews	(iii) Predetermined questions
D. Focused interviews	(iv) Greater flexibility approach

Codes:

	(A)	**(B)**	**(C)**	**(D)**
(a)	(ii)	(iii)	(iv)	(i)
(b)	(iii)	(iv)	(ii)	(i)
(c)	(iii)	(iv)	(i)	(ii)
(d)	(i)	(ii)	(iii)	(iv)

41. Which of the following is true about Type II error?
(a) Null hypothesis is false and it is rejected
(b) Null hypothesis is false, but it is not rejected
(c) Null hypothesis is true and it is not rejected
(d) Null hypothesis is true and it is not rejected

42. Which of the following is used to cite sources authored by more than two authors?
(a) op. ed. (b) ibid
(c) et. al. (d) None of these

43. Research work ***cannot*** be published in:
(i) Journals (ii) Newspaper
(iii) Books (iv) Magazines
Choose the correct answer from the options given below:
(a) i, ii, iii (b) ii, iii, iv
(c) iii, iv (d) i, iv

44. Field-work based research is classified as:
(a) Biographical (b) Empirical
(c) Explanatory (d) Historical

45. Which of the following statement is ***not*** correct about positivism approach of research?
(a) It should be scientifically verified.
(b) Conclusion should be purely based on intuition.
(c) Believe in objective reality.
(d) None of the above

46. Which of the following statement is ***not*** correct about post-positivistic approach?
(a) It is also called as Methodological pluralism.
(b) Here only common sense is important.
(c) Believe in the subjectivity of reality.
(d) None of the above

47. Which of the following is ***not*** correct about 'Exploratory Research Design'?
(a) It is also called as formulative research design.
(b) Its objective is to develop new ideas.
(c) It begins with a narrow problem.
(d) None of the above

48. Which of the following is correct regarding application of ICT in research?
    (i) Collection of data
    (ii) Storing data
    (iii) Processing data
    (iv) Interpreting data
    Choose the correct answer from the options given below:
    (a) i, ii, iii (b) i, ii, iv
    (c) i, ii, iii, iv (d) i, iv

49. Which of the following is a technique of probability sampling?
    (a) Systematic sampling
    (b) Multi-stage sampling
    (c) Cluster sampling
    (d) None of the above

50. The objective of research can be written in:
    (a) Hypothetical form
    (b) Statement form
    (c) Question form
    (d) None of the above

ANSWER KEY

1. (c)	2. (c)	3. (d)	4. (c)	5. (c)	6. (a)	7. (a)	8. (a)	9. (c)	10. (b)
11. (b)	12. (b)	13. (c)	14. (a)	15. (a)	16. (b)	17. (c)	18. (b)	19. (a)	20. (c)
21. (c)	22. (c)	23. (b)	24. (c)	25. (a)	26. (a)	27. (d)	28. (b)	29. (d)	30. (b)
31. (c)	32. (c)	33. (a)	34. (d)	35. (a)	36. (c)	37. (b)	38. (c)	39. (a)	40. (a)
41. (b)	42. (c)	43. (b)	44. (d)	45. (b)	46. (c)	47. (c)	48. (c)	49. (c)	50. (b)