

**UGC NET
PAPER-1****GENERAL
APTITUDE****Solved Paper
June 2015****Time Allotted: 1 Hour****Maximum Marks: 100****Important Instructions:**

1. Each question carries 2 marks.
2. There are 50 questions to be attempted out of 60 questions.
3. Each item has four alternative responses marked (a), (b), (c) and (d). You have to darken the oval as indicated below on the correct response against each item.
Example: where (c) is the correct response.
4. Your responses to the items are to be indicated in the **Answer Sheet**.
5. **Use of any calculator or log table etc., is prohibited.**
6. **Negative Marking: For each incorrect answer 0.5 marks shall be deducted.**

1. Which of the following is the highest level of cognitive ability?
(a) Knowing (b) Understanding
(c) Analysing (d) Evaluating
2. Which of the following factors does not impact teaching?
(a) Teacher's knowledge
(b) Class room activities that encourage learning
(c) Socio-economic background of teachers and students
(d) Learning through experience
3. Which of the following statements about teaching aids are correct?
 1. They help in retaining concepts for longer duration.
 2. They help students learn better.
 3. They make teaching learning process interesting.
 4. They enhance rote learning.Select the correct answer from the codes given below:
(a) 1, 2, 3 and 4 (b) 1, 2 and 3
(c) 2, 3 and 4 (d) 1, 2 and 4
4. Techniques used by a teacher to teach include:
 1. Lecture
 2. Interactive lecture
 3. Group work
 4. Self studySelect the correct answer from the codes given below:
(a) 1, 2 and 3 (b) 1, 2, 3 and 4
(c) 2, 3 and 4 (d) 1, 2 and 4
5. Achievement tests are commonly used for the purpose of:
(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
6. A good teacher is one who:
(a) gives useful information
(b) explains concepts and principles
(c) gives printed notes to students
(d) inspires students to learn
7. Which of the following statements regarding the meaning of research are correct?
(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) 1, 2 and 3 (b) 2, 3 and 4
(c) 1, 3 and 4 (d) 1, 2, 3 and 4
8. A good thesis writing should involve:
 1. reduction of punctuation and grammatical errors to a minimum.

2. careful checking of references.
3. consistency in the way the thesis is written.
4. a clear and well written abstract.

Select the correct answer from the codes given below:

- | | |
|-------------------|----------------|
| (a) 1, 2, 3 and 4 | (b) 1, 2 and 3 |
| (c) 1, 2 and 4 | (d) 2, 3 and 4 |
9. Jean Piaget gave a theory of cognitive development of humans on the basis of his:
 - (a) Fundamental Research
 - (b) Applied Research
 - (c) Action Research
 - (d) Evaluation Research
 10. "Male and female students perform equally well in a numerical aptitude test." This statement indicates a:
 - (a) research hypothesis
 - (b) null hypothesis
 - (c) directional hypothesis
 - (d) statistical hypothesis
 11. The conclusions/findings of which type of research cannot be generalized to other situations?
 - (a) Historical Research
 - (b) Descriptive Research
 - (c) Experimental Research
 - (d) Causal Comparative Research
 12. Which of the following steps are required to design a questionnaire?
 1. Writing primary and secondary aims of the study.
 2. Review of the current literature.
 3. Prepare a draft of questionnaire.
 4. Revision of the draft.

Select the correct answer from the codes given below:

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

Direction for questions 13 to 18:

Read the following passage carefully and answer the questions.

Story telling is not in our genes. Neither it is an evolutionary history. It is the essence of what makes us Human,

Human beings progress by telling stories. One event can result in a great variety of stories being told about it. Sometimes those stories differ greatly. Which stories are picked up and repeated and which ones are dropped and

forgotten often determines how we progress. Our history, knowledge and understanding are all the collections of the few stories that survive. This includes the stories that we tell each other about the future. And how the future will turn out depends partly, possibly largely, on which stories we collectively choose to believe.

Some stories are designed to spread fear and concern. This is because some story-tellers feel that there is a need to raise some tensions. Some stories are frightening, they are like totemic warnings: "Fail to act now and we are all doomed." Then there are stories that indicate that all will be fine so long as we leave everything upto a few especially able adults. Currently, this trend is being led by those who call themselves "rational optimists". They tend to claim that it is human nature to compete and to succeed and also to profit at the expense of others. The rational optimists however, do not realize how humanity has progressed overtime through amiable social networks and how large groups work in less selfishness and in the process accommodate rich and poor, high and low alike. This aspect in story-telling is considered by the 'Practical Possibles', who sit between those who say all is fine and cheerful and be individualistic in your approach to a successful future, and those who ordain pessimism and fear that we are doomed.

What the future holds for us is which stories we hold on to and how we act on them.

Answer the following questions:

13. Our knowledge is a collection of:
 - (a) all stories that we have heard during our life-time
 - (b) some stories that we remember
 - (c) a few stories that survive
 - (d) some important stories
14. Story telling is:
 - (a) an art
 - (b) a science
 - (c) in our genes
 - (d) the essence of what makes us human
15. How the future will turn out to be, depends upon the stories?
 - (a) We collectively choose to believe in
 - (b) Which are repeatedly narrated
 - (c) Designed to spread fear and tension
 - (d) Designed to make prophecy

16. Rational optimists:
1. Look for opportunities.
 2. Are sensible and cheerful.
 3. Are selfishly driven.
- Identify the correct answer from the codes given below:
- (a) 1, 2 and 3 (b) 1 only
(c) 1 and 2 only (d) 2 and 3 only
17. Humans become less selfish when:
- (a) they work in large groups
 - (b) they listen to frightening stories
 - (c) they listen to cheerful stories
 - (d) they work in solitude
18. 'Practical Possibles' are the ones who:
- (a) follow Midway Path
 - (b) are doom-mongers
 - (c) are self-centred
 - (d) are cheerful and carefree
19. Effectiveness of communication can be traced from which of the following?
1. Attitude surveys
 2. Performance records
 3. Students attendance
 4. Selection of communication channel
- Select the correct answer from the codes given below:
- (a) 1, 2, 3 and 4 (b) 1, 2 and 3
(c) 2, 3 and 4 (d) 1, 2 and 3
20. **Assertion (A):** Formal communication tends to be fast and flexible.
- Reason (R):** Formal communication is a systematic and orderly flow of information.
- (a) Both (A) and (R) are correct and (R) is correct explanation of (A)
 - (b) Both (A) and (R) are correct, but (R) is not correct explanation of (A)
 - (c) (A) is correct but, (R) is false
 - (d) (A) is false but, (R) is correct
21. Which of the following are the characteristic features of communication?
1. Communication involves exchange of ideas, facts and opinions.
 2. Communication involves both information and understanding.
 3. Communication is a continuous process.
 4. Communication is a circular process.
- Select the correct answer from the codes given below:
- (a) 1, 2 and 3 (b) 1, 2 and 4
(c) 2, 3 and 4 (d) 1, 2, 3 and 4
22. The term 'grapevine' is also known as:
- (a) Downward communication
 - (b) Informal communication
 - (c) Upward communication
 - (d) Horizontal communication
23. Which of the following is not a principle of effective communication?
- (a) Persuasive and convincing dialogue
 - (b) Participation of the audience
 - (c) One-way transfer of information
 - (d) Strategic use of grapevine
24. In communication, the language is
- (a) The verbal code
 - (b) Intrapersonal
 - (c) The symbolic code
 - (d) The non-verbal code
25. The next term in the series is:
2, 5, 9, 19, 37, ?
- (a) 73 (b) 75
 - (c) 78 (d) 80
26. In certain code MATHURA is coded as JXQEROX. The code of HOTELS will be:
- (a) LEQIBP (b) ELQBIP
 - (c) LEBIQP (d) ELIPQB
27. One day Prakash left home and walked 10 km towards south, turned right and walked 5 km, turned right and walked 10 km and turned left and walked 10 km. How many km will he have to walk to reach his home straight?
- (a) 10 (b) 20
 - (c) 15 (d) 30
28. A girl introduced a boy as the son of the daughter of the father of her uncle. The boy is related to the girl as:
- (a) Brother (b) Uncle
 - (c) Nephew (d) Son
29. In an examination 10,000 students appeared. The result revealed the number of students who have:
- passed in all five subjects = 5583
passed in three subjects only = 1400
passed in two subjects only = 1200
passed in one subject only = 735
failed in English only = 75

failed in Physics only = 145
 failed in Chemistry only = 140
 failed in Mathematics only = 200
 failed in Bio-science only = 157

The number of students passed in at least four subjects is:

- (a) 6300 (b) 6900
 (c) 7300 (d) 7900

30. At present a person is 4 times older than his son and is 3 years older than his wife. After 3 years the age of the son will be 15 years. The age of the person's wife after 5 years will be:

- (a) 42 (b) 48
 (c) 45 (d) 50

31. If we want to seek new knowledge of facts about the world, we must rely on reason of the type:

- (a) Inductive (b) Deductive
 (c) Demonstrative (d) Physiological

32. A deductive argument is invalid if:

- (a) Its premises and conclusions are all false
 (b) Its premises are true but its conclusion is false
 (c) Its premises are false but its conclusion is true
 (d) Its premises and conclusions are all true

33. Inductive reasoning is grounded on:

- (a) Integrity of nature
 (b) Unity of nature
 (c) Uniformity of nature
 (d) Harmony of nature

34. Among the following statements two are contradictory to each other. Select the correct code that represents them:

Statements:

- All poets are philosophers.
- Some poets are philosophers.
- Some poets are not philosophers.
- No philosopher is a poet.

Codes:

- (a) 1 and 2 (b) 1 and 4
 (c) 1 and 3 (d) 2 and 3

35. Which of the codes given below contains only the correct statements? Select the code:

Statements:

- Venn diagram represents the arguments graphically.

- Venn diagram can enhance our understanding.
- Venn diagram may be called valid or invalid.
- Venn diagram is clear method of notation.

Codes:

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

36. When the purpose of a definition is to explain the use or to eliminate ambiguity the definition is called:

- (a) Stipulative (b) Theoretical
 (c) Lexical (d) Persuasive

Direction for questions 37 to 42:

Answer the questions based on the tabular data given below.

A company has 20 employees with their age (in years) and salary (in thousand rupees per month) mentioned against each of them:

| S.No. | Age (in years) | Salary (in thousand rupees per month) |
|-------|----------------|---------------------------------------|
| 1. | 44 | 35 |
| 2. | 32 | 20 |
| 3. | 54 | 45 |
| 4. | 42 | 35 |
| 5. | 31 | 20 |
| 6. | 53 | 60 |
| 7. | 42 | 50 |
| 8. | 51 | 55 |
| 9. | 34 | 25 |
| 10. | 41 | 30 |
| 11. | 33 | 30 |
| 12. | 31 | 35 |
| 13. | 30 | 35 |
| 14. | 37 | 40 |
| 15. | 44 | 45 |
| 16. | 36 | 35 |
| 17. | 34 | 35 |
| 18. | 49 | 50 |
| 19. | 43 | 45 |
| 20. | 45 | 50 |

37. Classify the data of age of each employee in class interval of 5 years. Which class interval of 5 years has the maximum average salary?

- (a) 35-40 years (b) 40-45 years
 (c) 45-50 years (d) 50-55 years

38. What is the frequency (%) in the class interval of 30-35 years?
 (a) 20% (b) 25%
 (c) 30% (d) 35%
39. What is the average age of the employees?
 (a) 40.3 years (b) 38.6 years
 (c) 47.2 years (d) 45.3 years
40. What is the fraction (%) of employees getting salary ₹ 40,000 per month?
 (a) 45% (b) 50%
 (c) 35% (d) 32%
41. What is the average salary (in thousand per month) in the age group 40-50 years?
 (a) 35 (b) 42.5
 (c) 40.5 (d) 36.5
42. What is the fraction of employees getting salary less than the average salary of all the employees?
 (a) 45% (b) 50%
 (c) 55% (d) 47%
43. Encoding or scrambling data for transmission across a network is known as:
 (a) Protection (b) Detection
 (c) Encryption (d) Decryption
44. Which of the following is not an output device?
 (a) Printer (b) Speaker
 (c) Monitor (d) Keyboard
45. Which of the following represents one billion characters?
 (a) Kilobyte (b) Megabyte
 (c) Gigabyte (d) Terabyte
46. Which of the following is not open source software?
 (a) Internet explorer
 (b) Fedora Linux
 (c) Open office
 (d) Apache Hi IF server
47. Which one of the following represents the binary equivalent of the decimal number 25?
 (a) 10101 (b) 01101
 (c) 11001 (d) 11011
48. Which is an instant messenger that is used for chatting?
 (a) Altavista (b) MAC
 (c) Microsoft Office (d) GoogleTalk
49. In which of the countries per capita use of water is maximum?
 (a) USA (b) European Union
 (c) China (d) India
50. India's contribution to total global carbon dioxide emissions is about:
 (a) ~3% (b) ~6%
 (c) ~10% (d) ~15%
51. Two earthquakes A and B happen to be of magnitude 5 and 6 respectively on Richter Scale. The ratio of the energies released EB/EA will be approximately:
 (a) ~8 (b) ~16
 (c) ~32 (d) ~64
52. Which of the following combinations represent renewable natural resources?
 (a) Fertile soil, fresh water and natural gas
 (b) Clean air, phosphates and biological diversity
 (c) Fishes, fertile soil and fresh water
 (d) Oil, forests and tides
53. In the recently launched Air Quality Index in India, which of the following pollutants is not included?
 (a) Carbon monoxide
 (b) Fine particulate matter
 (c) Ozone
 (d) Chlorofluorocarbons
54. The factors which are most important in determining the impact of anthropogenic activities on environment are:
 (a) Population, affluence per person, land available per person
 (b) Population, affluence per person and the technology used for exploiting resources
 (c) Atmospheric conditions, population and forest cover
 (d) Population, forest cover and land available per person
55. The session of the parliament is summoned by:
 (a) The President
 (b) The Prime Minister
 (c) The Speaker of the Lok Sabha
 (d) The Speaker of the Lok Sabha and the Chairman of the Rajya Sabha
56. Civil Service Day is celebrated in India on:
 (a) 21st April (b) 24th April
 (c) 21st June (d) 7th July

57. The South Asia University is situated in the city of:
- (a) Colombo (b) Dhaka
(c) New Delhi (d) Kathmandu
58. The University Grants Commission was established with which of the following aims?
1. Promotion of research and development in higher education
 2. Identifying and sustaining institutions of potential learning
 3. Capacity building of teachers
 4. Providing autonomy to each and every higher educational institution in India
59. The Gross Enrolment Ratio (GER) in institutions of higher education in India at present (2015) is about:
- (a) 8 percent (b) 12 percent
(c) 19 percent (d) 23 percent
60. The total number of central universities in India in April 2015 was:
- (a) 08 (b) 14
(c) 27 (d) 43

□□□

Select the correct answer from the codes given below:

Answer Key

| Q.No. | Answer | Topic's Name | Chapter's Name |
|-------|--------|----------------------------------|---------------------|
| 1 | d | Bloom's taxonomy | Teaching aptitude |
| 2 | c | Classroom teaching | Teaching aptitude |
| 3 | b | Teaching aids | Teaching aptitude |
| 4 | a | Teaching techniques | Teaching aptitude |
| 5 | d | Types of test | Teaching aptitude |
| 6 | d | Qualities of good teachers | Teaching aptitude |
| 7 | d | Meaning of research | Research aptitude |
| 8 | a | Qualities of good thesis | Research aptitude |
| 9 | a | Types of research | Research aptitude |
| 10 | b | Types of hypothesis | Research aptitude |
| 11 | a | Types of research | Research aptitude |
| 12 | d | Questionnaire | Research aptitude |
| 13 | c | Inference based | Comprehension |
| 14 | d | Fact based | Comprehension |
| 15 | a | Inference based | Comprehension |
| 16 | a | Inference based | Comprehension |
| 17 | a | Inference based | Comprehension |
| 18 | a | Inference based | Comprehension |
| 19 | b | Effective communication | Communication |
| 20 | d | Types of communication | Communication |
| 21 | d | Characteristics of communication | Communication |
| 22 | b | Terminology in communication | Communication |
| 23 | c | Effective communication | Communication |
| 24 | a | Characteristics of communication | Communication |
| 25 | b | Number series | Logical reasoning |
| 26 | b | Alphabetical series | Logical reasoning |
| 27 | c | Direction | Logical reasoning |
| 28 | a | Blood relation | Logical reasoning |
| 29 | a | Data analysing | Logical reasoning |
| 30 | d | Age and ratio | Logical reasoning |
| 31 | a | Types of argument | Logical reasoning |
| 32 | b | Deductive argument | Logical reasoning |
| 33 | c | Inductive argument | Logical reasoning |
| 34 | c | Syllogism | Logical reasoning |
| 35 | b | Venn diagram | Logical reasoning |
| 36 | c | Types of definition | Logical reasoning |
| 37 | d | Data interpretation | Data interpretation |
| 38 | d | Data interpretation | Data interpretation |
| 39 | a | Data interpretation | Data interpretation |
| 40 | a | Data interpretation | Data interpretation |

| | | | |
|----|---|---------------------------------|--|
| 41 | b | Data interpretation | Data interpretation |
| 42 | c | Data interpretation | Data interpretation |
| 43 | c | Terminology in communication | Communication |
| 44 | d | Input-output devices | Information communication & technology |
| 45 | c | Terminology | Information communication & technology |
| 46 | a | Types of software | Information communication & technology |
| 47 | c | Binary numbers | Information communication & technology |
| 48 | d | Software | Information communication & technology |
| 49 | b | Per capita consumption of water | People and environment |
| 50 | b | Environment protection | People and environment |
| 51 | c | Energy resources | People and environment |
| 52 | c | Energy resources | People and environment |
| 53 | d | Air quality index | People and environment |
| 54 | b | Environment protection | People and environment |
| 55 | a | Parliament and polity | People and environment |
| 56 | a | Important days | People and environment |
| 57 | c | Universities of india | Higher education system of india |
| 58 | b | University Grants Commission | Higher education system of india |
| 59 | d | Enrollment ratio | Higher education system of india |
| 60 | d | Universities of india | Higher education system of india |

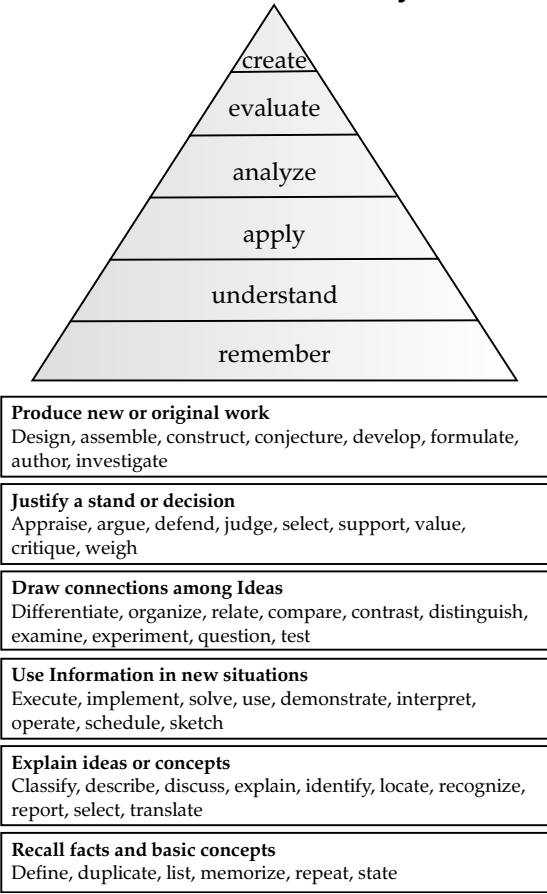
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|---|--|--|

ANSWERS WITH EXPLANATIONS

1. **Option (d) is correct.**

Evaluating is the highest level of cognitive ability from the given options. Levels of Bloom's taxonomy are:

Bloom's Taxonomy



2. **Option (c) is correct.**

Knowledge, classroom activities encouraging learning and experiential learning impact the teaching learning process but social and economical environment does not affect the teaching. Even a teacher from a backward social group or poor or middle class family can be a good teacher with his/her teaching and encouraging skills.

3. **Option (b) is correct.**

Teaching aids are the audio, visual and audio-visual tools which are helpful in learning easily. From the given statements only A, B and C are correct as teaching aids help to make learning long, they help to learn easily and quickly and make the learning process interesting. (Rote, punishment, ignoring are the words which are having negative meaning which should be avoided during exam if question is having positive aspects.)

4. **Option (a) is correct.**

Techniques which are used by a teacher in teaching do not include self study. Self study is a technique of learning not of teaching.

5. **Option (d) is correct.**

Any test that measures the accomplishment of an individual after a period of training or learning (NM DOWNIE).

6. **Option (d) is correct.**

Motivation in the teaching learning process is the most important thing. A teacher should inspire all the students to learn which helps in various ways like making learning easy and smooth, permanent learning and many other things like this.

7. **Option (d) is correct.**

All the given statements are correct with reference to research. Following are the characteristics of research:

1. Research refers to a series of systematic activities.
2. These activities are undertaken to find out the solution of a problem.
3. Research is logical and unbiased
4. It is a process
5. It is done with various objectives
6. Research should be valid and reliable
7. It should be objective, not subjective

8. Option (a) is correct.

All the given statements are correct with reference to a good thesis.

Thesis is the research result or output which a research scholar writes after conducting his/her research. A good thesis should be

1. Reliable
2. Valid
3. Objective
4. Accurate
5. Systematic
6. Clear
7. Well written
8. With least grammatical errors

9. Option (a) is correct.

Cognitive theory of Jean Piaget is a fundamental research. Fundamental research is the research in which original and new data is used. It is done with the objective of creating new theories and better understanding of the phenomenon. Fundamental research is not likely to have any practical application at present nor even in future.

Applied research is when results of fundamental research are applied to any other situation.

Action research is a cyclic research in which the researcher tries to find out a solution for an immediate problem.

Evaluation research is done to evaluate the performance with the help of testing in various ways.

10. Option (b) is correct.

In null hypothesis, no perception is made by the researcher. It is assumed that all the variables are equal or they have no relationship between the variables. In Other words, the Null hypothesis believes that there is no significant relationship between the variables. For example: Men and women are equally intelligent, there is no effect of sunlight on the growth of plants etc.

11. Option (a) is correct.

Findings of historical research can not be applied or generalized to other situations because historical research is basically a descriptive research in which any situation, event, process or phenomenon is described which had occurred in history. This aims to describe the past situation and it helps to make decisions for the present and future.

12. Option (d) is correct.

All given steps are required to design a questionnaire. Questionnaire is a set of questions which are formed to take surveys or data from the desired population. The steps to form a questionnaire are:

1. Deciding the required information
2. Determining primary and secondary objectives of the study
3. Review the literature which are available
4. Prepare a draft of the questionnaire
5. Review the drafted questionnaire to detect errors and improvements.
6. Forming the final questionnaire.

13. Option (c) is correct.

According to the passage, our knowledge is a collection of a few stories that survive.

14. Option (d) is correct.

Storytelling is an essence of life this is shown by the line of passage. "It is the an essence what makes us human."

15. Option (a) is correct.

According to the given passage our future turns out to be dependent upon the stories that we collectively believe in.

16. Option (a) is correct.

As per the passage, all given statements are the qualities of rational optimists. They are always try to seek opportunities, they are cheerful and sensible and they work less selfishly.

17. Option (a) is correct.

According to the passage, people work less selfishly when they work in large groups.

18. Option (a) is correct.

Practical possible people are the ones who try to find and follow the midway path. They sit between the people who are fully cheerful or fine and the people who ordain pessimism and have fear.

(Exam tip: Questions should be read first and then a student should go to the passage as reading passage tends to take more time and confusion in exam time.)

19. Option (b) is correct.

Effective communication refers to conveying the messages to others or the receiver in an effective and efficient way and with the meaning by which it was sent by the sender. All the given statements are the characteristics

of effective communication except student attendance.

20. Option (d) is correct.

The Assertion-Formal communication tends to be fast and flexible is incorrect because this characteristic is of informal communication. But the statement of reason that formal communication is a systematic and orderly flow of information is correct.

21. Option (d) is correct.

All the statements are correct with the reference to the characteristics of communication. Communication is a two way, continuous and circular process which involves the exchange of ideas, facts, information and other messages with the motive of information circulation and creating understanding between sender and receiver.

22. Option (b) is correct.

Grapevine communication is another name of informal communication. Informal communication is done with friends and family Where no formalities are followed.

Downward and upward communication are the sub types of vertical communication.

Horizontal communication is the communication which is done between the people working on the same level or position.

23. Option (c) is correct.

One way communication is not a principle of effective communication. An effective communication is always two way interaction. Where messages and ideas are conveyed from both sides and feedback is needed in a communication process to make it effective.

24. Option (a) is correct.

Language is in verbal code in communication.

25. Option (b) is correct.

$$2 \times 2 + 1 = 5$$

$$5 \times 2 - 1 = 9$$

$$9 \times 2 + 1 = 19$$

$$19 \times 2 - 1 = 37$$

$$37 \times 2 + 1 = 75$$

26. Option (b) is correct.

Step-1 Number the alphabet. For example a-1, b-2 in every alphabetical reasoning question to understand the pattern.

In this coding every alphabet is replaced with the alphabet having 3 back numbers.

M (number-13) is replaced by j (number-10) and a (number-1) is replaced by x(number-24)

M A T H U R A

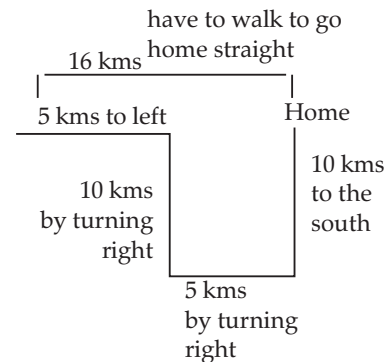


J X Q E R O X

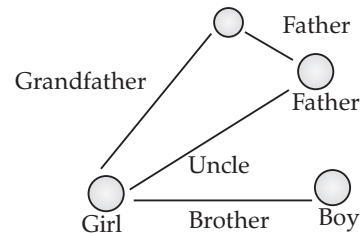
H O T E L S will be coded as E L Q B I P

27. Option (c) is correct.

Prakash has to walk 15 kms straight to reach home. (Exam tip: Imagine yourself walking with the same directions as given in the question. Solution will be easy.)



28. Option (a) is correct.



29. Option (a) is correct.

Students passed in all 5 subjects = 5583 (they must have passed 4 subjects) Students failed in each subject only (they passed rest 4 subjects) = 75 + 145 + 140 + 200 + 157 = 717 students
 Total students passed at least 4 subjects = 5583 + 717 = 6300 students.

30. Option (d) is correct.

Let the age of Son = X. Then as per the question age of his father will be = 4X Age of his mother = 4X - 3.

After 3 years the son will be of 15 years (given)
 Current age of the son = 15 - 3 = 12 years
 Current age of his father = 12 × 4 = 48 years
 Current age of his mother = 48 - 3 = 45 years.

Age of his mother after 5 years = 45 + 5 = 50 years.

31. Option (a) is correct.

Inductive research is used to get new knowledge. In inductive research, the researcher starts observation and formulates a generalized theory. It goes from specific to general. For example, a kid observes that a jug of glass is broken and he saw that mirror broken out with a hit. Then he formulates the theory that all the things of glass get broken.

Deductive research is just opposite to inductive research.

32. Option (b) is correct.

Conclusion can not be false of a valid deductive argument. Deductive argument is valid if its premises and conclusion are both true. Value of an argument is not a guarantee of a valid conclusion.

33. Option (c) is correct.

Base of inductive argument or reasoning is uniformity of nature. It goes from specific to general.

34. Option (c) is correct.

Contradictory statements are those statements that can not be true at the same time. Statement C "some poets are not philosopher" is contradictory to statement A "All poets are philosophers".

35. Option (b) is correct.

All the given statements are correct with reference to venn diagram except the statement that venn diagram may be called valid or invalid. Being called valid or invalid is a characteristic of an argument.

36. Option (c) is correct.

Lexical definition is the definition which is given with the purpose of explaining the use or eliminating ambiguity of the term.

37. Option (d) is correct.

| Age groups | Frequency | Average salary |
|------------|-----------|--|
| 30-35 | 7 | $20 + 20 + 25 + 30 + 35 + 35 + 35 / 7 = 28.57$ |
| 35-40 | 2 | $40 + 30 / 2 = 37.5$ |
| 40-45 | 6 | $35 + 35 + 50 + 30 + 45 + 45 / 6 = 40$ |
| 45-50 | 2 | $50 + 50 / 2 = 50$ |
| 50-55 | 3 | $55 + 60 + 45 / 3 = 53.33$ |

38. Option (d) is correct.

Frequency of class 30–35 = 7 Total number of workers = 20

% of frequency of group 30–35 = $7 \times 100 / 20 = 35\%$

39. Option (a) is correct.

Average age of employees = Sum of ages/no. of workers

Sum of ages = $44 + 32 + 54 + 42 + 31 + 53 + 42 + 51 + 34 + 41 + 33 + 31 + 30 + 37 + 44 + 36 + 34 + 49 + 43 + 45 = 806$

Number of workers = 20

Average age of workers = $806 / 20 = 40.3$ years.

40. Option (a) is correct.

Workers getting salary equal or more than 40000 = 9 workers

Total workers = 20

Fraction (%) of workers getting equal or more than 40000 salary = $9 \times 100 / 20 = 45$ workers.

41. Option (b) is correct.

Employees in the group 40–50 = 8 employees

Sum of salaries of this age group = $35 + 35 + 50 + 30 + 45 + 50 + 45 + 50 = 340$

Average salary of this age group = $340 / 8 = 42.5$ (in thousands)

42. Option (c) is correct.

Average salary of all the employees = $35 + 20 + 45 + 35 + 20 + 60 + 50 + 55 + 25 + 30 + 30 + 35 + 35 + 40 + 45 + 3$

$5 + 35 + 50 + 45 + 50 = 775$

No. of employees = 20 Average salary = 38.75 (000)

Employees getting salary less than 38.75 = 11 employees

% of employees getting salary less than average salary of all employees = $11 \times 100 / 20 = 55\%$.

43. Option (c) is correct.

Encoding data for transmission across a network is known as Encryption.

Decryption refers to decoding the encoded data.

44. Option (d) is correct.

Keyboard is an input device.

45. Option (c) is correct.

Gigabyte represents about one billion characters. It is a common modem hardware unit. 1 Gigabyte = 1024 megabyte.

Prefixes

| | | | |
|----------|---|-------------------|------------|
| • Tera | T | 1,000,000,000,000 | 10^{12} |
| • giga- | G | 1,000,000,000 | 10^9 |
| • mega- | M | 1,000,000 | 10^6 |
| • kilo- | k | 1,000 | 10^3 |
| • deci- | d | 0.1 | 10^{-1} |
| • centi- | c | 0.01 | 10^{-2} |
| • milli- | m | 0.001 | 10^{-3} |
| • micro- | m | 0.000001 | 10^{-6} |
| • nano- | n | 0.000000001 | 10^{-9} |
| • pico- | p | 0.000000000001 | 10^{-12} |

46. Option (a) is correct.

Internet explorer is not an open source software. Open source software is made by many people and distributed under a license to use, study and make changes.

47. Option (c) is correct.

Binary number of number 25 is 11001.

Step 1: keep dividing the number with 2. (ignore decimal number)

Step 2: give code 1 to the odd number and number 0 to even numbers.

Step 3: write the binary code number from the last one. In this- 11001.

| | | |
|---|----|---|
| 2 | 25 | 1 |
| 2 | 12 | 0 |
| 2 | 6 | 0 |
| 2 | 3 | 1 |
| 2 | 1 | 1 |

48. Option (d) is correct.

Google talk is a chatting site by Google.

49. Option (b) is correct.

The answer for this question is the European Union but now Estonia is the country with maximum per capita water use with 1213.4 cubic meter per capita use of water annually.

50. Option (b) is correct.

contribution of India in global carbon dioxide emission was 6% in 2015 but now it is 7% as per the recent reports. Country emits about 3 gigatonnes of carbon dioxide per year. India is the third largest carbon dioxide emission country after China and the United States.

51. Option (c) is correct.

Richter scale is a very common scale to measure magnitude of earthquake. If two earthquakes happen with magnitudes 5 and 6, the ratios of the energies will be 32:1. Measurements and their effects on this scale are:

| Richter magnitude | Earthquake effects |
|-------------------|---|
| 0-2 | Not felt by people |
| 2-3 | Felt little by people |
| 3-4 | Ceiling lights swing |
| 4-5 | Walls crack |
| 5-6 | Furniture moves |
| 6-7 | Some buildings collapse |
| 7-8 | Many buildings destroyed |
| 8-Up | Total destruction of buildings, bridges and roads |

52. Option (c) is correct.

Fishes, fertile soil and freshwater are renewable natural resources. Renewable resources refers to the resources which can be used repeatedly and will not go out of use or stock because they are naturally replaced and we can get it again.

53. Option (d) is correct.

EPA calculates the AQI for five major air pollutants: 1- ground level ozone, 2- particle pollution, 3- carbon monoxide, 4- sulfur dioxide, 5- nitrogen dioxide.

54. Option (b) is correct.

Pollution, Exploitation of natural resources and affluence of activities on personal health and environment are the major factors which helps to determine the impact of anthropogenic activities on the environment. Anthropogenic activities are the processes, activities or effects which are generated by various human activities like mining, Greenhouse gasses effect etc.

55. Option (a) is correct.

The president can summon the session of the parliament. The president is the former chairman of Lok Sabha and Joint session of Lok Sabha and Rajya Sabha. In present, The president of India is Mr. Ram Nath Kovind and Speaker of Lok Sabha is Mr. Om Birla.

56. Option (a) is correct.

Civil Service Day is celebrated on 21st April every year.

57. Option (c) is correct.

South Asia University is situated in New Delhi. It is sponsored by the eight member countries of South Asian Association For Regional Cooperation (SAARC).

58. Option (b) is correct.

The University Grant Commission (UGC) was established in 1956 by an act. This was established with the following objectives:

1. Coordination
2. Standardization in higher education institutes.
3. Providing recognition in universities in India
4. Promotion of research and development in higher education in India.
5. Promotion of qualities of teachers in higher education institutes.

6. Capacity building of teachers with research, training and standardization.

7. Identifying institutes with a potential learning environment.

59. Option (d) is correct.

Gross enrolment ratio or GER is the ratio of students completing higher secondary and the students getting enrolled in higher educational institutions. This was 23% in 2015 and now it is 27.1% as per the survey of AISHE in 2019-20.

60. Option (d) is correct.

The number of central universities in India according to the list published by UGC on 31st March, 2021 is 54. In which Uttar Pradesh has a maximum number of central universities with 6 universities.

