

# UGC NET PAPER-1

## GENERAL APTITUDE

# Solved Paper December 2018

Time Allotted: 1 Hour

Maximum Marks: 100

### Important Instructions:

- Each question carries 2 marks.
- This paper consists of fifty (50) multiple-choice type of questions.
- 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.
- Your responses to the items are to be indicated in the **Answer Sheet**.
- Use of any calculator or log table etc., is prohibited.**
- Negative Marking:** For each incorrect answer 0.5 marks shall be deducted.

- Identify those stages/steps of research in which ethical considerations become relevant. Choose from the code to give your answer.
  - Identifying and defining research question.
  - Postulating relationships among variables to advance a solution.
  - Collecting data through use of research tools.
  - Defining the population and sampling procedure.
  - Data analysis and procedure employed.
  - Reporting procedure of findings/results.

(a) 3, 5 and 6                      (b) 2, 3 and 4  
(c) 1, 2 and 3                      (d) 2, 3 and 6
- In the two sets given below, Set-I specifies the methods of research while Set-II describes the critical feature associated with a method of research. Match the two and select from the code to indicate your answer.

Set-I (Research methods)	Set-II (Critical features associated)
(a) Experimental method	(i) Generalizing to the population from a large sample
(b) Ex post facto method	(ii) Establishing the patterns of events which have happened, through primary and secondary sources

(c) Historical method	(iii) Studying shared behaviour patterns
(d) Ethnographic method	(iv) Establishing cause and effect through control
	(v) Probing into the causal factors from the observed effects

### Code:

- |         |       |       |       |
|---------|-------|-------|-------|
| (a)     | (b)   | (c)   | (d)   |
| 1. (iv) | (v)   | (ii)  | (iii) |
| 2. (i)  | (ii)  | (iii) | (iv)  |
| 3. (ii) | (i)   | (iv)  | (iii) |
| 4. (ii) | (iii) | (iv)  | (v)   |
- The paradigm of research which focuses on the development of professional expertise of the researcher-practitioner is called:
    - Pure research
    - Applied research
    - Action research
    - Qualitative research
  - For organizing an effective teaching-learning system, which of the following combinations of statements would reflect the most appropriate concern? Select from the code to indicate your answer.
    - Determining what will be the intended learning outcome.
    - Deciding as to what strategy and tactics will be used.

3. Formally approving the academic qualifications of teachers.
4. Determining the evaluation tool to be used.
5. Deciding the size of the classroom.
6. Assessing the prior academic experience of the learner.
  - (a) 1, 2, 3 and 4                      (b) 1, 3, 4 and 5
  - (c) 1, 2, 4 and 6                      (d) 3, 4, 5 and 6
5. In order to promote direct learning, which of the following methods would be best suited?
  - (a) Lecture with examples
  - (b) Project method
  - (c) Discussion session
  - (d) Team teaching method
6. From the following list of learner characteristics identify those which will be helpful in ensuring effectiveness of teaching. Select your answer from the code.
  1. Extent to which learner obeys the school rules
  2. Learner's level of motivation
  3. Feelings of learners towards the social system
  4. Learner's interest in sports and games
  5. Prior experience of the learner
  6. Interpersonal relations of learners
  - (a) 2, 5 and 6                      (b) 3, 4 and 5
  - (c) 1, 3 and 5                      (d) 1, 2 and 3
7. Which devices from the list given below will form part of formative evaluation? Give your answer by selecting from the code.
  1. Conducting a quiz session
  2. Giving multiple-choice type questions in post-instructional sessions
  3. Giving a master test
  4. Providing corrective feedback during discussions
  5. Encouraging opportunity for metacognitive thinking
  6. Grading students' performance on a five-point scale
  - (a) 4, 5 and 6                      (b) 2, 3 and 4
  - (c) 1, 2 and 3                      (d) 1, 4 and 5
8. Below are given a number of key behaviours as well as helpful behaviours of effectiveness of teaching based on research evidence. Identify those which are key behaviours and indicate your answer by selecting from the code.
  1. Structuring through comments by the teacher in respect of what is to come.
  2. Questioning through content and process level questions.
  3. Lesson clarity implying the extent to which presentations are not involved.
  4. Probing which implies statements to encourage students to elaborate.
  5. Engagement rate devoted to learning when students are actually on task.
  6. Rate at which students understand and correctly comprehend assignments and exercises.
    - (a) 2, 3 and 4                      (c) 3, 5 and 6
    - (b) 1, 4 and 5                      (d) 2, 4 and 5
9. Which of the following statements best reflect the meaning and characteristics of research? Select from the code to give your answer.
  1. Research means challenging the status quo.
  2. Research is an endeavour to collect facts and information.
  3. Research is a synthesis of deductive and inductive processes.
  4. Research means proving one's assertions and beliefs.
  5. Research is a careful review of reported studies.
  6. Research is a critical and passionate search for knowledge.
    - (a) 1, 5 and 6                      (b) 2, 4 and 5
    - (c) 1, 3 and 6                      (d) 1, 2 and 3
10. In the two sets given below, Set-I provides the format of presentation and Set-II gives the distinct features to go with them. Match the two sets and select from the code to indicate your answer.

Set-I (Format of presentation)	Set-II (Distinctive features)
(a) Thesis/ dissertation	(i) Based on free-wheeling of ideas
(b) Research paper	(ii) Target oriented group based reflection
(c) Workshop	(iii) Reflective deliberations based on specific themes
(d) Seminar	(iv) Presentation on a summary of research done
	(v) Systematic prescribed format

**Code:**

- |    | (a)   | (b)   | (c)   | (d)   |
|----|-------|-------|-------|-------|
| 1. | (iii) | (i)   | (ii)  | (v)   |
| 2. | (ii)  | (iii) | (iv)  | (v)   |
| 3. | (v)   | (iv)  | (ii)  | (iii) |
| 4. | (i)   | (ii)  | (iii) | (v)   |

**Direction for questions 11 to 15:**

Read the following passage carefully and answer the questions.

One of the findings of the research into successful leadership is the fact that respect is always a two-way street. No matter how powerful you are, no matter what your experience, skills, and accomplishments, you will not be respected by others if you consistently treat them disrespectfully. Friendliness - that is, treating others politely and showing interest in them - is a way of showing your respect for other people, and in return they respect you. If as a manager you are respected, your preventive maintenance strategy will be accepted as a sincere attempt to resolve problems rather than a mean-spirited attempt to cause problems.

As important as friendliness is, I want to make sure you are not misled into believing that friendliness will replace or correct poor management. I have seen effective managers who didn't use this friendliness element but could have been more effective if they did use it. I have seen very friendly managers who were ineffective because they were not doing effective management things. In other words, managers who intervene effectively in a friendly way are always more effective than managers who intervene effectively in a non-friendly way. Maintaining a friendly relationship is another part of maintaining work performance. It also helps you avoid having people try to hurt you because they don't like you. It might save your life.

11. The preventive maintenance strategy used by a respected manager will mean to the subordinates:
- An attempt to become mean-spirited
  - An attempt to cause problems
  - An attempt to become sincere
  - An attempt to resolve problems
12. The passage highlights which of the following features of a successful leadership?
- Dependence of the leader
  - Reciprocity of the leader
  - Independence of the leader
  - Least concern for relationship by the leader
13. The central idea of the passage is:
- Friendliness improves work-ethos.
  - Friendliness avoids chances of feeling hurt.
  - Friendliness is a negative factor for management
  - Friendliness is necessary for management.
14. What is reported in respect of successful leadership?
- Respect depends on the accomplishments of the leader.
  - Respect depends on experience of the leadership
  - Respect depends on the skills of the leadership
  - Respect comes out of respect.
15. According to the passage friendliness in management terms implies:
- Making management ineffective
  - Replacing poor management
  - Correcting ineffective management
  - Making management effective
16. Which of the following is a powerful determinant for effective assertive communication whether written or spoken?
- 'I' messages
  - 'We' messages
  - 'They' messages
  - 'You' messages
17. The number of marble slabs of size 20 cm × 30 cm required to pave the floor of a square room of side 3 meters is:
- 100
  - 225
  - 25
  - 150
18. In the sequence of numbers 2, 8, 26, 62, 122, 212,  $x$ , ....., the term  $x$  is:
- 338
  - 248
  - 332
  - 302
19. Given below is a statement followed by three assumptions made from it. Which assumptions are implicit in the context of the given statement? Select the correct answer from the code given below.
- Statement:** 'Smoking is injurious to health.' A warning printed on the cigarette packets.
- Assumptions:**
- People read printed matter on a cigarette packet.
  - People make careful note of a warning.
  - Non-smoking promotes health.
- 1 only
  - 2 and 3
  - 1 and 2
  - 2 only

20. In conveying the same meanings, which of the following is incongruous?  
 (a) Flourish (b) Thrive  
 (c) Excite (d) Prosper
21. A teacher decides to form six groups of students and assigns a sub-theme to each group for discussion and reporting. Which kind of communication model will best describe his/her strategy in this regard?  
 (a) Transactional model  
 (b) Horizontal model  
 (c) Linear model  
 (d) Interactional model
22. Five persons Amit, Anil, Ajay, Atul and Anand live in a five storey building on different floors. Amit lives above Ajay but below Anand. Atul lives above Ajay but below Amit. Anil lives below Anand but above Atul. On which floor does Anil live?  
 (a) Second floor  
 (b) Fourth floor  
 (c) Third floor  
 (d) Either third floor or fourth floor
23. ₹ 9000 were divided among a certain number of persons. Had there been 20 more persons, each would have got ₹ 160 less. The original number of persons was:  
 (a) 30 (b) 45  
 (c) 55 (d) 25
24. Which of the following constitute the paralanguage in communication? Select from the code to indicate your answer.  
 1. Pitch of the voice  
 2. Internal noise  
 3. External noise  
 4. Use of pauses  
 5. Rate and volume of speech  
 (a) 1, 4 and 5 (b) 1, 2 and 5  
 (c) 1, 2 and 3 (d) 2, 3 and 4
25. Which of the following would influence the effectiveness of communication in classroom instruction in a critical way?  
 (a) Academic intelligence and personality characteristics of the teacher  
 (b) Teaching style preferred by the teacher while transacting  
 (c) Teaching aids used by the teacher while making presentations  
 (d) Subject knowledge of the teacher
26. In communicating in a classroom situation which one of the following approaches will be considered most appropriate?  
 (a) Personal and emulative  
 (b) Assertive and conformist  
 (c) Technical and domineering  
 (d) Empathetic and pragmatic
27. In a certain code, LIFE is written as KMHJEGDF. How is WORD written in that code?  
 (a) XVPNSQEC (b) VXNPQSEC  
 (c) XVPNSQCE (d) VXNPQSCE
28. Given below are two premises with four conclusions drawn from them (taken singly or together). Which conclusions are valid drawn? Select the correct answer from the code given below.  
**Premises:** (i) All politicians are honest persons.  
 (ii) All honest persons are fair.  
**Conclusions:** 1. Some honest persons are politicians.  
 2. No honest person is a politician.  
 3. Some fair persons are politicians  
 4. All fair persons are politicians.  
 (a) 2 and 4 only (b) 1 and 3 only  
 (c) 1, 2 and 4 (d) 2 and 3 only
29. In terms of the relationship indicated below, which word will correctly pair to replace the question mark (?)?  
 \_\_\_?\_\_\_ : play :: sing : song  
 (a) Field (b) Scene  
 (c) Act (d) Theatre
30. Mr. Rajesh, his sister, his son, and his daughter are fond of golf and often play together. The following statements are true for all the four:  
 1. The best player's twin and worst player are of the opposite sex.  
 2. The best player and the worst player are of the same age.  
 Assuming that both twins are members of the group of four, who is the best player?  
 (a) Sister of Mr. Rajesh  
 (b) Mr. Rajesh  
 (c) Daughter of Mr. Rajesh  
 (d) Son of Mr. Rajesh

**Direction for questions 31 to 35:**

Consider the following two tables (I and II) in which table I shows the percentage of students who joined and successfully completed the Ph.D. programme from the Universities A to G and table II shows the number of foreign Ph.D. students enrolled in the University C. These percentages have been rounded to the nearest whole number. There are a total of 855 Ph.D. students in the University C and a total of 5700 students successfully completed the Ph.D. programme from all the seven Universities together. In accordance with the tables I and II, answer the questions that follow.

**I. Students University-wise**

Name of University	% of students who joined Ph.D.	% of students who successfully completed Ph.D. (out of 5700)
A	22	18
B	15	17
C	10	13
D	17	16
E	08	09
F	12	15
G	16	12

**II. Foreign Ph.D. Students in University C**

Foreign Students	Number of Ph.D. students in University C
American	65
Australian	46
African	25
European	35

31. In case, there are 21 African students in University E, then approximately, what is their percentage in that University?  
 (a) 3% (b) 5%  
 (c) 4% (d) 2%
32. The number of students who completed the Ph.D. programme from Universities A and D together exceeds the number of students who joined the Universities C and E together, by:  
 (a) 399 (b) 304  
 (c) 278 (d) 369

33. What percentage of students in University C is that of foreign students?  
 (a) 30% (b) 15%  
 (c) 20% (d) 25%
34. Which University has the highest percentage of students who successfully completed the Ph.D. programme out of the students who joined that University?  
 (a) C (b) F  
 (c) E (d) B
35. What is the ratio of students who successfully completed the Ph.D. programme to the students who joined University G?  
 (a) 6:11 (b) 9:17  
 (c) 1:2 (d) 3:4
36. Which organisation in India oversees the functioning and quality aspect of teacher education programmes?  
 (a) University Grants Commission (UGC)  
 (b) National Council for Teacher Education (NCTE)  
 (c) National Council of Educational Research and Training (NCERT)  
 (d) Association of Indian Universities (AIU)
37. Which of the following activities/programmes in a University aims at Value Education in a holistic' frame?  
 (a) Yoga Education and Wellness Centres  
 (b) Inter-University Competitions  
 (c) Fine Arts and Musical Concerts  
 (d) National Cadet Corps (NCC)
38. Below are given two sets. Set-I mentions the types of pollution, while Set-II indicates their source. Match the two sets and select your answer from the code.

Set-I (Pollution Type)	Set-II (Source)
(a) Air	(i) Point and non-point sources such as discharges from industries etc.
(b) Land	(ii) Industries, thermal power plants and motor vehicles emissions.
(c) Water	(iii) Roadway, aircraft, industrial as well as high intensity sonar.
(d) Noise	(iv) Over use of chemical fertilizers.

**Code:**

	(a)	(b)	(c)	(d)
1.	(iv)	(iii)	(ii)	(i)
2.	(i)	(ii)	(iii)	(iv)
3.	(ii)	(iv)	(i)	(iii)
4.	(iii)	(i)	(ii)	(iv)

39. Mohan tells his friends, Sohan (sohan@gmail.com), Rohan (rohan@yahoo.com) and John (john@gmail.com), date of his birthday party through an email as shown below:

To	: sohan@gmail.com
Cc	: rohan@yahoo.com
Bcc	: john@gmail.com
Subject	: My Birthday Party is on 15/01/2019
Hello all,	
Call me if you can come.	
Mohan	

Which of the following cannot be derived from this email?

- (a) Sohan knows that the birthday party will be held on 15/01/2019.  
 (b) Sohan knows that Rohan receives the email.  
 (c) Rohan knows that John receives the email.  
 (d) John knows that both Sohan and Rohan receive the email.
40. Which of the following bodies/units in a University has a statutory function to perform?  
 (a) Finance Committee  
 (b) Board of Management  
 (c) Research Degree Committee  
 (d) Board of Studies
41. Using a word processing software, an image on page two of a document is to be repeated on page four of the same document. Which of the following would enable this to happen?  
 (a) Copy and Paste  
 (b) Find and Replace  
 (c) Cut and Paste  
 (d) Format and Replace
42. There are two sets given below. Set-I specifies the IT related acronyms, while Set-II indicates their functions. Match the two and give your answer by selecting the appropriate code.

Set-I (Acronyms)	Set-II (Functions)
(a) CPU	(i) Type of technology used on a flat-screen monitor.
(b) RAM	(ii) Controls all the functions performed by the computer's other components.
(c) ROM	(iii) Temporary storage, also known as primary storage.
(d) LCD	(iv) Permanent storage that is not erased when the computer's power is turned off.

**Code:**

- |    | (a)  | (b)   | (c)   | (d)  |
|----|------|-------|-------|------|
| 1. | (i)  | (iv)  | (iii) | (ii) |
| 2. | (ii) | (iii) | (iv)  | (i)  |
| 3. | (ii) | (iv)  | (iii) | (i)  |
| 4. | (i)  | (iii) | (iv)  | (ii) |
43. The gap between those individuals in a society who are computer literate and have access to information resources like the Internet and those who do not, is referred to as the \_\_\_\_\_.  
 (a) Terabyte divide  
 (b) Digital divide  
 (c) ICT divide  
 (d) Information overload
44. Which of the following provisions are directly covered in the Environment Protection Act, 1986?  
 (a) Prevention and control of water pollution  
 (b) Protection and conservation of forests and matters connected therewith  
 (c) Protection and improvement of quality of environment and preventing, controlling and abating environmental pollution  
 (d) Protection and safety of wild animals, birds and plants and for matters connected therewith
45. In the two sets given below. Set-I specifies H<sub>2</sub>S level in a water sample, while Set-II provides observations. Match the two sets and indicate your answer from the code given below:

Set-I (H <sub>2</sub> S level in Water Sample)	Set-II (Observation)
1. No H <sub>2</sub> S is produced	(i) Dark black-high water pollution
2. H <sub>2</sub> S is produced and is small in quantity	(ii) No colour-clean water
3. H <sub>2</sub> S is produced and is medium in quantity	(iii) Light black-low water pollution
4. H <sub>2</sub> S is produced and is high in quantity	(iv) Black-moderate water pollution

**Code:**

	<b>(a)</b>	<b>(b)</b>	<b>(c)</b>	<b>(d)</b>
1.	(iv)	(i)	(ii)	(iii)
2.	(ii)	(iii)	(iv)	(i)
3.	(i)	(ii)	(iii)	(iv)
4.	(iii)	(iv)	(i)	(ii)

46. Which of the following statements correctly describe the functions/status of the National Institute of Educational Planning and Administration for deemed to be University?

1. Capacity building and research in planning and management of education
2. Educational Planning and Administration
3. Fully maintained by the Government of India like any Central University
4. A Statutory Institute of Educational Planning and Administration

Select the correct answer from the code given below:

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

47. Which of the following statements are indicative of the vision of Blue-Revolution? For your answer select from the code:

1. Promoting development of Botanical Gardens.
2. Creating an enabling environment for the full potential of fisheries in the country.
3. Improving the income status of fish farmers keeping in view the sustainability concerns.

4. Encouraging scientific research in forestry to increase the vegetative cover.

5. Promoting integrated development of fisheries of the country.

6. Undertaking research in new areas like marine fish.

(a) 2, 3 and 5                      (b) 1, 2 and 3

(c) 1, 4 and 6                      (d) 3, 4 and 5

48. In the context of a School/University which of the following aspects of environment determine the academic ethos?

(a) Latest lab equipments

(b) Attractive physical campus

(c) Patterns of human relations as evident in workplace

(d) Well-equipped lecture halls

49. For promoting Human Values through programmes of the University System in India, which of the following activities have great potential?

(a) Association of NGOs

(b) Lectures by experts

(c) Inviting dignitaries/heads from national level organisations

(d) Mentoring by senior faculty members

50. In computer terminology, which of the following best describes a device driver?

(a) Software that allows interaction between peripheral devices and the operating system.

(b) Software that allows the user to control the operating system.

(c) Hardware that allows interaction between peripheral devices and the operating system

(d) Hardware that allows the user to control the operating system.

□□□

## Answer Key

Q.No.	Answer	Topic's Name	Chapter's Name
1	a	Research ethics	Research aptitude
2	a	Research methods	Research aptitude
3	c	Types of research	Research aptitude
4	c	Factors affecting teaching	Teaching aptitude
5	b	Methods of teaching	Teaching aptitude
6	a	Characteristics of a learner	Teaching aptitude
7	d	Evaluation system	Teaching aptitude
8	b	Effective teaching	Teaching aptitude
9	c	Meaning of research	Research aptitude
10	c	Terminology in research	Research aptitude
11	d	Inference based	Comprehension
12	b	Fact based	Comprehension
13	a	Fact based	Comprehension
14	d	Fact Based	Comprehension
15	d	Inference based	Comprehension
16	a	Effective communication	Communication
17	d	Area and Perimeter	Mathematical aptitude
18	a	Number series	Mathematical aptitude
19	c	Argument & Conclusion	Logical reasoning
20	c	Terminology	Logical reasoning
21	a	Models of teaching	Teaching aptitude
22	d	Direction & Seating Arrangement	Logical reasoning
23	d	Dividation	Logical Reasoning
24	a	Barriers of communication	Communication
25	b	Effective communication	Communication
26	d	Classroom communication	Communication
27	d	Coding & Decoding	Logical reasoning
28	b	Argument & Conclusion	Logical reasoning
29	c	Use of language	Logical reasoning
30	c	Deductive reasoning	Logical reasoning
31	a	Data interpretation	Data interpretation
32	a	Data interpretation	Data interpretation
33	c	Data interpretation	Data interpretation
34	a	Data interpretation	Data interpretation
35	c	Data interpretation	Data interpretation
36	b	Governance and administration	Higher education system
37	a	Value education	Higher education system
38	c	Type of pollution	People, development and environment
39	c	Email	Information and communication technology
40	b	Governance and administration	Higher education system



41	a	Computer Operations	Information and communication technology
42	b	Hardware & Software	Information and communication technology
43	b	Computer Literacy	Information and communication technology
44	c	Environmental protection act	People, development and environment
45	b	Pollutants	People, development and environment
46	b	Governance and administration	Higher education system
47	a	Sustainable development goals	People, development and environment
48	c	Environmental education	Higher education system
49	d	Value education	Higher education system
50	a	Terminology	Information and communication technology

**ANSWERS WITH EXPLANATIONS**

- Option (a) is correct.**

Ethical considerations while conducting any research has a major impact on the findings of the study. They become relevant mostly at the time of data collection, analysis and reporting the findings of the study.
- Option (a) is correct.**

Experimental method involves studying the variable in a controlled environment for establishing cause and effect relationships. Ex post facto research is done after the occurrence of an event or an incident to identify the causes of its occurrence. Historical research is done to study something which has happened in the past by using secondary and primary methods both. Ethnographic research is the study of common people in their existing environment by using various tools.
- Option (c) is correct.**

Action research is a study conducted by a person while working or being employed at a particular place to improve the present situations or methods.
- Option (c) is correct.**

For an effective teaching-learning process the organizer needs to accurately identify the expected outcome from the process, the process or strategies which will be followed, how the performance will be evaluated and what is the level of the learners.
- Option (b) is correct.**

Designing a well-structured project for learners will be the best tool to promote direct learning in students.
- Option (a) is correct.**

The key learner's characteristics to ensure an effective teaching learning process will be high motivation level in learners, past experience of learners and the kind of interpersonal dynamics among them.
- Option (d) is correct.**

Formative assessment includes various methods used by teachers to gauge the learning level of students and identify the gaps which need to be filled. Methods like quiz, providing feedback and using five-point scale are few good options.
- Option (b) is correct.**

Key behaviour for effective learning will include ensuring lesson clarity, engagement of students and understanding the rate at which students understand the exercises.
- Option (c) is correct.**

Research is challenging the existing concepts, breaking down concepts to reach a conclusion and passionate hunt for knowledge.
- Option (c) is correct.**

Thesis has a systematic format of writing. Research paper is normally a brief summary of any study being conducted. Workshop is conducted for enhancing knowledge in the group of audience. Seminars are conducted to encourage and create an insight into a topic through discussion among the experts of the field.
- Option (d) is correct.**

If a manager is respected by subordinates, then the preventive strategies will be considered as a sincere attempt to solve problems.
- Option (b) is correct.**

The passage highlights that if a leader will respect the subordinates, then he will receive respect from them.

- 13. Option (a) is correct.**  
Central idea of the passage is that friendliness on the part of a leader will improve the overall work environment.
- 14. Option (d) is correct.**  
According to the passage, respect comes from respect.
- 15. Option (d) is correct.**  
Friendliness in management means making good management better. By being friendly, an effective manager can be more effective.
- 16. Option (a) is correct.**  
Assertive communication means sharing an honest opinion in a powerful and respectful way. A person can take responsibility of their own actions without blaming others.
- 17. Option (d) is correct.**  
Area of the marble =  $20 \times 30 = 600 \text{ (cm)}^2$   
Side of square room = 3 meters = 300 cm  
Area of room =  $300 \times 300 = 90000 \text{ (cm)}^2$   
No. of marble required =  $90000/600 = 150$  Marbles
- 18. Option (a) is correct.**  
We will make 3 series to solve this question.  
In the first series: 2, 8, 26, 62, 122, 212 the difference in digits is:  
2nd series: 6, 18, 36, 60, 90; and in series no. 2 the difference in digits is:  
3rd Series: 12, 18, 24, 30; and in series 3 the difference in digit is of 6 between each digit.  
Now we will add numbers backwards. Hence, we need to add 6 in the last number of series no. 3 for next term which will be  $(30 + 6)$  i.e., 36.  
Add 36 to the last number of series no. 2 for the next number in that series. It will be  $90 + 36$  i.e., 126.  
Now add 126 to the last number of the first series to get next number of that series. It will be  $212 + 126$  i.e., 338.
- 19. Option (c) is correct.**  
From the statement we can assume that people will take warnings seriously and non-smoking will promote health.
- 20. Option (c) is correct.**  
Flourish, thrive and prosper all convey similar meaning. Only excite is different.
- 21. Option (a) is correct.**  
Transactional model of communication involves continuous communication or exchange of ideas between sender and receiver. The best example will be any type of face-to-face meeting.
- 22. Option (d) is correct.**  
From the question it is clear that Amit lives above Ajay and Atul but below Anand. Anil lives above Atul but below Anand. But it is not clear whether Anil lives above or below Amit.
- 23. Option (d) is correct.**  
Number of people = A  
Each will get =  $9000/A$   
If there were 20 more people =  $A + 20$   
Each will get =  $9000/(A + 20)$   
According to the problem  
 $9000/(A+20) = 9000/A - 160$   
 $160 = 9000/A - 9000/(A + 20)$   
 $160 = [9000(A+20) - 9000A]/A(A + 20)$   
 $160 = [9000A + 180000 - 9000A]/A(A + 20)$   
 $160 = 180000/A^2 + 20A$   
 $A^2 + 20A - 1125 = 0$   
 $(A + 45)(A - 25) = 0$   
Answer cannot be negative, hence 25 numbers.
- 24. Option (a) is correct.**  
Paralanguage are non-verbal elements of communication like tone, voice modulations, facial expression.
- 25. Option (b) is correct.**  
Classroom communication will be highly dependent on the style or method of teaching adopted by the teacher.
- 26. Option (d) is correct.**  
In classroom communication, an empathetic and practical style of teaching will be most effective. Understanding the problems faced by learners and trying to resolve them is the key.
- 27. Option (d) is correct.**  
For coding, the one prior and next alphabet of each alphabet is written. Like K L M, H I J, etc. Hence, WORD will be coded as VXNPQSCE.
- 28. Option (b) is correct.**  
Since all politicians are Honest and All honest person are Fair. Hence All politicians are Fair. So, it can be concluded that Some Honest persons are politicians and Some Fair persons are politicians.

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

Person sings a song

Hence, Person plays in act.

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

The best player is a twin and worst player is a male.

The best player and worst player are of same age.

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

Total students in university C (10% of total) = 855

Total students who joined Ph.D. in all universities =  $855/10 \times 100 = 8550$

Total students in E =  $8550 \times 8/100 = 684$

Percentage of African students =  $21/684 \times 100 = 3\%$

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

Total students who joined successfully completed = 5700

Students completed from university A =  $5700 \times 18/100 = 1026$

Students completed from university D =  $5700 \times 16/100 = 912$

Students joined university E = 684

Students joined university C = 855

Difference =  $1938 - 1539 = 399$

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

Total students in university C = 855

Total foreign students in university C = 171

Percentage of foreign students =  $171/855 \times 100 = 20\%$

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

Total students who joined Ph.D. in all universities = 8550

Total students who joined successfully completed = 5700

Total students joined university C = 855

Total students joined university E = 684

Total students joined university F =  $8550 \times 12/100 = 1026$

Total students joined university B =  $8550 \times 15/100 = 1283$

Students who completed from C =  $5700 \times 13/100 = 741$

Students who completed from E =  $5700 \times 9/100 = 513$

Students who completed from F =  $5700 \times 15/100 = 855$

Students who completed from B =  $5700 \times 17/100 = 969$

Percentage of C =  $741/855 \times 100 = 86.6\%$

Percentage of E =  $513/684 \times 100 = 75\%$

Percentage of F =  $855/1026 \times 100 = 83.3\%$

Percentage of B =  $969/1283 \times 100 = 75.5\%$

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

Total students who joined Ph.D. in all universities = 8550

Total students who joined successfully completed = 5700

Total students joined university G =  $8550 \times 16/100 = 1368$

Students who completed from G =  $5700 \times 12/100 = 684$

Ratio =  $684:1368 = 1:2$

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

NCTE regulates and plans the promotion of teacher education programmes across India. It ensures maintenance of rules and standards in teacher education programmes.

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

Yoga and wellness centres in educational institutes ensure the holistic development of learners along with providing value education.

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

The main source of air pollution is vehicle, industrial and thermal plants emissions.

The main source of Land pollution is excessive use of fertilizers.

The main source of Water pollution is industrial and residential discharges and wastes.

The main source of Noise pollution is noise from aircrafts, industries, vehicles and other SONAR sounds.

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

Since John is in BCC of the email, hence receivers in To and CC fields will not know about it

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

Statutory function means anything prescribed by statute (a law passed by legislative body). BOM performs statutory functions in a university.

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

In Word documents, any image, written content, etc. can be copied from one page and pasted in any other page of the same document.

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

The CPU is the main part which controls the functioning of all the other parts of computer.

RAM is a temporary storage device in a computer.

ROM is a permanent storage device in computers.

LCD is a technology used in flat screen monitors or television sets nowadays.

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

Digital divide is the difference or gap between people who do not have access to technology to those who have access to information and technology.

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

The objective of the environment protection act, 1986 is to protect and improve the environment and to control pollution in the country.

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

Hydrogen sulphide level in water represents the quality of water. Presence of High  $H_2S$  in

household water can cause many diseases. Water may be dark black in colour.

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

National institute of educational planning and administration undertake and promote research in various fields of education planning. It is a research university in Delhi established by MHRD IN 1979.

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

Blue revolution refers to the intensive increase in the production of marine and fish products in India. It includes promotion of fisheries and the development of people associated with it.

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

Human relations in present in any academic institutes reflects the academic ethos in such institutes.

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

Mentorship programmes from experienced faculties of the universities will be best for promoting human values in students.

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

Device driver is a software that controls and helps in operation of any external device attached to the computer system.

