

UGC NET PAPER-1

GENERAL APTITUDE

SOLVED PAPER AUGUST 2024

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 options marked (a), (b), (c) and (d). You have to select the correct option.
Example: where (c) is the correct option then you will select it like this (a) (b) (c) (d) .
- Use of any calculator or log table, etc., is prohibited.
- There is no negative marking for incorrect answers.

Direction for Questions (1-5):

The following table shows the percentage (%) distribution of the number of students (Boys and Girls) and the number of girls who are enrolled in five different games, namely, Basketball, Soccer, Badminton, Cricket and Tennis, in a school during the session 2022-2023. A total number of 6,000 students are enrolled in all the five games in the school in which the number of girls is 3,500. Based on the data in the table, answer the questions that follow:

Game-wise Enrollment of Students in a School

Game	Percentage distribution of	
	Students Enrolled (Out of 6,000)	Girls Enrolled (Out of 3,500)
Basketball	16%	14%
Soccer	21%	28%
Badminton	14%	16%
Cricket	29%	20%
Tennis	20%	22%

- Q.1.** Number of boys enrolled in Soccer is ____ % of the number of boys who are enrolled in all the five sports games.
(a) 10.2 (b) 11.2 (c) 12.2 (d) 13.2
- Q.2.** What is the number of boys enrolled in the game of Basketball?
(a) 805 (c) 430 (b) 840 (d) 470
- Q.3.** Number of boys enrolled in Cricket is approximately ____% more than the number of students enrolled in Badminton.
(a) 21.79 (b) 22.71 (c) 23.81 (d) 25.91
- Q.4.** What is the difference between the number of girls and the number of boys who are enrolled in the game of Tennis?
(a) 340 (b) 370 (c) 390 (d) 320

- Q.5.** How many boys are enrolled in Soccer and Tennis together?
(a) 610 (b) 640 (c) 720 (d) 710
- Q.6.** Which of the following is concerned with the question whether the measure of a concept truly represents that concept?
(a) Internal validity (b) External validity
(c) Construct validity (d) Transferability
- Q.7.** Which of the following are the parts of AYUSH undergraduate education?
(A) Siddha (B) Sowa-Rigpa
(C) Yoga-Shastra (D) Homeopathy
(E) Sanjeevani
Choose the correct answer from the options given below:
(a) A, B and E only (c) A, B and D only
(b) B, C and D only (d) A, C and E only
- Q.8.** In the context of learning, which of the following **DOES NOT** represent the self-concept?
(a) It is what an individual feels about others.
(b) It is what an individual feels how other think/perceive of him/her.
(c) It is an awareness of the individual about his/her strengths.
(d) It is an awareness of the individual about his/her weaknesses.
- Q.9.** Identify the number that occurs in the series 2, 10, 30, 68, 130, ...
(A) 738 (B) 349 (C) 520 (D) 222
Choose the correct answer from the options given below:
(a) A, B and C only (c) A, C and D only
(b) B, C and D only (d) A, B and D only
- Q.10.** Based on the source of their food, organisms occupy a specific place in the food chain, known as:
(a) Trophic level (c) Standing crop
(b) Top level organism (d) Species level

Q.11. Arrange the following gases in the ascending order of their global warming potential (GWD):

- (A) CO_2 (B) CH_4
 (C) SF_6 (D) CFC-11
 (E) N_2O

Choose the correct answer from the options given below:

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

Q.12. Match List I with List II:

LIST I (Word)	LIST II (Unique Code)
A. PRIME	I. 69
B. SIGHT	II. 72
C. QUITE	III. 63
D. RHYME	IV. 61

Choose the correct answer from the options given below:

- (a) A-I, B-II, C-III, D-IV (c) A-IV, B-III, C-II, D-I
 (b) A-II, B-III, C-IV, D-I (d) A-III, B-IV, C-I, D-II

Q.13. Who sends what to whom in a communication process?

- (A) Channel sends the message to sender.
 (B) Sender sends messages to receiver.
 (C) Sender sends the feedback to receiver.
 (D) Receiver sends messages to sender.

Choose the correct answer from the options given below:

- (a) A only (c) B only
 (b) A and D only (d) B and C only

Q.14. Arrange the data sets with the following pairs of mean (\bar{x}) and standard deviation (σ) in the increasing order of their coefficient of variation.

- (A) $\bar{x} = 50, \sigma = 12$
 (B) $\bar{x} = 55, \sigma = 10$
 (C) $\bar{x} = 60, \sigma = 14$
 (D) $\bar{x} = 70, \sigma = 15$

Choose the correct answer from the options given below:

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

Q.15. Which among the following are global scale phenomenon?

- (A) Ozone layer depletion
 (B) Global warming
 (C) Forest fire
 (D) Sea level rise
 (E) Air pollution

Choose the correct answer from the options given below:

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

Q.16. If $(L)_M$ represents a number L in base - M number system, then identify the correct descending order of the following number A–D, when converted to base-10 number system.

- (A) $(9C)_{16}$ (B) $(233)_8$
 (C) $(313)_7$ (D) $(10011110)_2$

Choose the correct answer from the options given below:

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

Q.17. What can be inferred from the following?

“Because $x = 3$ and $y = 5$, then $x + y = 8$ ”

It is a

- (a) deductive argument based on elimination.
 (b) deductive argument based on Mathematics.
 (c) inductive argument from Authority.
 (d) inductive argument from Principle of Charity.

Q.18. “Education is the manifestation of perfection already in man.” is a statement by:

- (a) Rabindranath Tagore (b) M.K. Gandhi
 (c) Sri Aurobindo (d) Swami Vivekananda

Q.19. 90 persons consume 810 kg of food in 27 days. In how many days will 60 persons consume 300 kg of food?

- (a) 12 days (c) 15 days
 (b) 13 days (d) 18 days

Q.20. Match List I with List II:

LIST I (Learning style)	LIST II (Characteristics)
A. Converger	I. They are best at concrete experience and reflective observation. Their strength is their imaginative ability. They tend to be interested in people and emotional elements.
B. Diverger	II. They are good at abstract conceptualisation and active experiment like solving problems; practical application of ideas.
C. Assimilator	III. They enjoy and seek new experience and adopt to new situations; and are intuitive, risk-takers open minded.
D. Accommodator	IV. Ability to create theoretical models; possess sound logic, inductive reasoning, analytic less interested in people.

Choose the correct answer from the options given below:

- (a) A-IV, B-III, C-II, D-I (c) A-II, B-I, C-IV, D-III
 (b) A-III, B-II, C-I, D-IV (d) A-I, B-II, C-III, D-IV

Q.21. 'I never teach my pupils; I only attempt to provide the conditions in which they can learn' is a statement by:

- (a) Swami Vivekananda (b) Albert Einstein
 (c) Sri Aurbindo (d) Aristotle

Q.22. Match List I with List II.

LIST I (Concept)	LIST II (Description)
A. Statement	I. A statement in an argument that is intended to be proved or supported by the premises.
B. Premise	II. A sentence that can be viewed as True or False.
C. Conclusion	III. Group of statements intended to prove or support another statement.
D. Argument	IV. Reasons why we should accept another statement or conclusion.

Choose the correct answer from the options given below:

- (a) A-III, B-I, C-II, D-IV (c) A-IV, B-I, C-II, D-III
 (b) A-II, B-IV, C-I, D-III (d) A-II, B-III, C-IV, D-I

Q.23. Match List I with List II.

LIST I (Type of Variable)	LIST II (Example)
A. Nominal	I. Distance
B. Ordinal	II. Marital status
C. Interval	III. Movie ratings
D. Ratio	IV. Location of places in latitude degrees

Choose the correct answer from the options given below:

- (a) A-III, B-II, C-I, D-IV (c) A-III, B-IV, C-II, D-I
 (b) A-II, B-III, C-I, D-IV (d) A-II, B-III, C-IV, D-I

Q.24. Match List I with List II.

LIST I (Internal Meetings)	LIST II (Key Objectives)
A. Kyoto protocol	I. Global warming
B. Montreal protocol	II. Biodiversity conservation
C. Rio summit	III. Ozone depletion
D. Paris agreement	IV. Solar Alliance

Choose the correct answer from the options given below:

- (a) A-I, B-III, C-II, D-IV (c) A-III, B-I, C-IV, D-II
 (b) A-II, B-III, C-I, D-IV (d) A-II, B-II, C-IV, D-III

Q.25. Match List I with List II.

LIST I (Communication Terms)	LIST II (Description)
A. Effective verbal communication	I. Knowledge and skills
B. Effective communication	II. Insufficient knowledge
C. Effective non-verbal communication	III. Effective speaking
D. Barrier of communication	IV. Body language

Choose the correct answer from the options given below:

- (a) A-I, B-II, C-IV, D-III (c) A-II, B-I, C-III, D-IV
 (b) A-II, B-III, C-I, D-IV (d) A-III, B-I, C-IV, D-II

Q.26. According to UGC Regulations 2018 on plagiarism, a student's registration in the Ph.D. program will be cancelled for which of the following similarities percentage in the thesis?

- (A) 37% (B) 46% (C) 58%
 (D) 62% (E) 78%

Choose the correct answer from the options given below:

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

Q.27. Devanshi Narada is treated as the first communicator because:

- (a) He always speaks against the others.
 (b) He reports from the spot, meditates among the parties and thinks for the betterment of society.
 (c) He is not everywhere everytime.
 (d) He is faithful to his lord.

Q.28. Consider the following snapshot of MS-EXCEL worksheet:

	A	B	C
1	90	70	
2	60	170	
3	150	20	
4	30	110	
5	50	40	
6	130	30	
7			

What will be the value of the cell C1 containing the formula = SUMIF(A1:A6, ">100", B1:B6) in the above marksheet?

- (a) 90 (b) 50 (c) 390 (d) 420

- Q.29.** Where did nuns and monks meditate, debate and discuss with leaned for their quest for knowledge?
(a) Monasteries **(c)** Churches
(b) Basadis **(d)** Ghatika
- Q.30.** Which of the following is not a primary air pollutant?
(a) CO **(b)** O₃ **(c)** NO **(d)** SO₂
- Q.31.** ChatGPT is an AI chatbox developed by OpenAI and was launched in November 2022. What does ChatGpt stand for?
(a) Chat Generative Pre-trained Transmission
(b) Chat General Pre-trained Technology
(c) Chat Generalised Pre-trained Technique
(d) Chat Generalised Pre-trained Transformer
- Q.32.** Survey research on a single case with a view, revealing important features about its nature, corresponds to which of the following research designs?
(a) Cross-sectional **(c)** Longitudinal
(b) Case study **(d)** Comparative
- Q.33.** What among the following can be claimed of deductive argument correctly?
(A) If the premises are true, then the conclusion is probably true.
(B) If the premises to be true and the conclusion false.
(C) It is unlikely for the premises to be true and the conclusion false.
(D) The conclusion follows necessarily from the premises.
(E) It is impossible for all the premises to be true and the conclusion false.

Choose the correct answer from the options given below:

- (a)** A, B and C only **(c)** B, D and E only
(b) A and C only **(d)** A, D and E only

- Q.34.** Write the following types of communication in proper sequence.
(A) Group
(B) Public
(C) Mass communication
(D) Intrapersonal
(E) Interpersonal

Choose the correct answer from the options given below:

- (a)** D, E, A, B and C **(c)** A, B, D and E only
(b) E, D, C, B and A **(d)** B, A, C, D and E

- Q.35.** Match List I with List II.

LIST I (MOOCs Quadrant)	LIST II (Component)
A. Quadrant I	I. e-Tutorial
B. Quadrant II	II. e-Content
C. Quadrant III	III. Web Resources
D. Quadrant IV	IV. Self Assessment

Choose the correct answer from the options given below:

- (a)** A-II, B-I, C-III, D-IV **(c)** A-II, B-IV, C-I, D-III
(b) A-I, B-III, C-II, D-IV **(d)** A-IV, B-I, C-III, D-II

- Q.36.** Which among the following is not a common pattern of deductive reasoning?

- (a)** Hypothetical Syllogism
(b) Categorical Syllogism
(c) Argument from Definition
(d) Predictive Argument

- Q.37.** Arrange the following open universities according to their year of establishment in chronological order (Older - New):

- (A)** Yashwant Rao Chaval Maharashtra Open University
(B) Karnataka State Open University
(C) U.P. Rajarshi Tandon Open University
(D) Kota Open University
(E) Madhya Pradesh Bhoj Open University

Choose the correct answer from the options given below:

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

- Q.38.** Match List I with List II.

LIST I (Initiatives in Higher Education)	LIST II (Description)
A. GIAN	I. Translation of research knowledge into viable technology (products and processes)
B. IMPRINT-2	II. Achieve three Cardinal principles of Education policy namely, access, equity and quality
C. DIGILOCKER	III. Tap the talent pool of scientists and entrepreneurs internationally
D. SWAYAM	IV. Issuance and Verification or documents and certificates in a digital way

Choose the correct answer from the options given below:

- (a)** A-III, B-I, C-II, D-IV
(b) A-II, B-I, C-IV, D-III
(c) A-I, B-III, C-II, D-IV
(d) A-III, B-I, C-IV, D-II

Q.39. Match List I with List II.

LIST I (Types of Toxicants)	LIST II (Affected Organ)
A. Upanaya	I. The knowledge of Pksadharmata as qualified by Vyapti.
B. Paramarsa	II. The invariable relation or association of the middle term in the minor team.
C. Vyapti	III. The application of the universal concomitance to the present case.
D. Paksadharmata	IV. The invariable association of the middle term with the major term.

Choose the correct answer from the options given below:

- (a) A-II, B-I, C-III, D-IV
 (b) A-III, B-II, C-IV, D-I
 (c) A-IV, B-III, C-II, D-I
 (d) A-III, B-I, C-IV, D-II

Q.40. Arrange the following fraction in decreasing order:

- (A) $\frac{12}{19}$ (B) $\frac{7}{12}$ (C) $\frac{11}{17}$ (D) $\frac{17}{28}$

Choose the correct answer from the options given below:

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

Q.41. Who invented the Printing Process?.

- (a) G. Macroni (c) William Caxton
 (b) Tang Dynasty (d) Johannes Gutenberg

Q.42. Arrange the following themes of Sustainable Development Goals according to their goal number in increasing order.

- (A) Gender equality
 (B) Zero hunger
 (C) Peace and justice
 (D) Climate action
 (E) Quality education

Choose the correct answer from the options given below:

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

Q.43. What are the advantages of using computing word processing software?

- (A) The user does not have to install word processing software on the computer.
 (B) The user does not have to allocate space to install software in the hard disk.

(C) Storage space to store the document is provided by the cloud provide. The user can open or edit the document from any computer which has internet facility.

(D) If the user has slow Internet connection, he/she would not face any problems accessing or downloading his/her documents.

Choose the correct answer from the options given below:

- (a) A and B only (c) B, C and D only
 (b) A and C only (d) A, B and C only

Q.44. 'A' takes twice as much time as 'B' to complete a work and 'C' does it in the same time as both 'A' and 'B' together do it. If all three of them work together and complete the work in 5 days, then the time taken by 'B' to complete the work alone is:

- (a) 12 days (c) 15 days
 (b) 14 days (d) 18 days

Q.45. Which of the following correctly represent characteristics of teaching?

- (A) To provide guidance and training to students.
 (B) Interaction between authorities.
 (C) To provide formal and informal education.
 (D) An art to impart knowledge to students in an effective way.
 (E) To prepare policies for corporate bodies.

Choose the correct answer from the options given below:

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

Direction for Questions (46–50):

Read the passage given below and answer the following questions.

After being constituted into a separate state, Jharkhand has been consistently making progress in all fields, including culture. Its efforts to create awareness among the people about the state's built heritage by organising archeological workspace have been particularly helpful. There are also initiatives taken to organise state-level festivals to promote the arts and crafts of the local people with its natural endowments, the state has become a favourite destination for visitors from all over the country and abroad. Places like Baba Baidyanath Temple, Suraj kund, Maithon Dam, Noori Masjid are some such places which witness large number of visitors. The state along with tribal paintings and the stone carving activities. In the fields of education, Ranchi, once considered to be a hub of quality education, is regaining its reputation. In the field of sports too the state has earned national recognition. This is specially in the case of games like hockey, archery and cricket at both the national and international levels.

Q.46. In which combination of sports has Jharkhand gained national and international recognition?

- (a) Cricket, archery and hockey
 (b) Cricket, archery and shooting

- (c) Croquet, cricket and archery
(d) Cricket, football and hockey
- Q.47.** Jharkhand has become a favourite destination for visitors from India and abroad because of its:
(a) Stone carving activities
(b) Mineral wealth
(c) Natural attraction
(d) Central location
- Q.48.** Which of the following activity is NOT included with state government initiatives for enrichment ?
(a) Bamboo and woodcraft
(b) Tribal painting
(c) Stone carving
(d) Rock painting
- Q.49.** Which city was once considered as the hub of education in Jharkhand?
(a) Deoghar (b) Ranchi
(c) Jamshedpur (d) Koderma
- Q.50.** The organisation of archeological workshops has helped to create awareness about:
(a) Arts and crafts
(b) Built heritage
(c) Bamboo and woodcraft
(d) Games and sports

Answer Key			
Q. No.	Answer	Topic	Unit/Chapter
1	b	Data interpretation	Data interpretation
2	d	Data interpretation	Data interpretation
3	c	Data interpretation	Data interpretation
4	a	Data interpretation	Data interpretation
5	d	Data interpretation	Data interpretation
6	c	Validity and reliability	Research aptitude
7	d	Government initiatives	Higher education
8	a	Concepts	Communication
9	c	Number system	Mathematical reasoning
10	a	Ecosystem	People and environment
11	b	Pollutants	People and environment
12	c	Alphabetical series	Mathematical reasoning
13	d	Communication process	Communication
14	b	Analysing data	Research aptitude
15	b	Terminology	People and environment
16	c	Number system of computers	ICT
17	c	Types of Argument	Research aptitude
18	d	Statement by educationists	Teaching aptitude
19	c	Work and time	Mathematical reasoning
20	c	Learning model	Teaching aptitude
21	b	Statement by educationists	Teaching aptitude
22	b	Argument	Logical reasoning
23	d	Scales	Research aptitude
24	a	International conventions	People and environment
25	d	Effective communication	Communication
26	d	General awareness	Research aptitude
27	b	Effective communication	Communication
28	c	Excel	ICT
29	a	General awareness on ancient education	Higher education
30	d	Pollutants	People and environment
31	d	ChatGPT/ General awareness	ICT

32	c	Types of research	Research aptitude
33	c	Types of argument	Logical reasoning
34	a	Types of communication	Communication
35	a	Government initiatives	Higher education
36	d	Types of argument	Logical reasoning
37	b	Committees on higher education	Higher education
38	d	Government initiatives	Higher education
39	d	Indian logic system	Logical reasoning
40	b	Fraction	Mathematical reasoning
41	d	General awareness	ICT
42	a	SDGs	People and environment
43	d	Hardware and software	ICT
44	c	Work and time	Mathematical reasoning
45	c	Meaning of teaching	Teaching aptitude
46	a	Reading comprehension	Reading comprehension
47	c	Reading comprehension	Reading comprehension
48	d	Reading comprehension	Reading comprehension
49	b	Reading comprehension	Reading comprehension
50	b	Reading comprehension	Reading comprehension

Answers with Explanations

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

Game	Percentage		Girls		Boys
	Total students (6000)		(3500)		(2500)
Basketball	16%	960	14%	490	470
Soccer	21%	1,260	28%	980	280
Badminton	14%	840	16%	560	280
Cricket	29%	1,740	20%	700	1,040
Tennis	20%	1,200	22%	770	430
Total	100%	6,000	100%	3,500	2,500 (6,000-3,500)

Number of boys in Soccer = 280

Number of boys in all games = 2,500

$$\text{Percentage} = \frac{280 \times 100}{2,500} = 11.2\%$$

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

With the help of above table, we can identify that boys enrolled in the game of basketball = 470

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

No. of boys in cricket = 1,040

No. of students in badminton = 840

$$\text{Percent of more students} = \frac{1,040 - 840}{840} \times 100$$

$$= \frac{200}{840} \times 100 = 23.81\%$$

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

No. of boys in Tennis = 430

No. of girls in Tennis = 770

Difference = 340

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

No. of boys in Soccer = 280

No. of boys in Tennis = 430

Total 280 + 430 = 710

6. **Option (c) is correct.**
 The two main characters of a research are validity and reliability.
 A tool of research is said to be valid if it is measuring what it was made to measure for.
 Reliability refers to the consistent result every time the measurement is done.
 Mainly the validity is of four types they are:
Face validity: Face validity is also called external validity it is connected with the overall look of the tool of measurement as it is appropriate.
Content validity: Content validity includes the limits or the area which a tool includes to measure.
Construct validity: Construct validity is also called internal validity it means the tool is majoring what it was actually made to be measured.
Criterion validity: Criterion validity is a relationship between the tool of measurement in research with some external criteria.

7. **Option (d) is correct.**
 The ministry of AYUSH was formed on 9th November of 2014 with a vision of reviving the profound knowledge of our ancient system of medicine and ensuring the optimal development and propagation of the Ayush healthcare system.
 The department of Indian system of medicine and homeopathy was formed in 1995 but it was renamed as the department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy in November 2003 with focus on Rohan education and research in these fields.

11. **Option (b) is correct.**
 Global warming potential of gases in ascending order are carbon dioxide, methane, nitrous oxide, HFC's, sulphur hexafluoride, PFCs.

Greenhouse Gas (GHG)	Atmospheric Lifetime (yrs)	Global Warming Potential (GWP)	Primary Current Sources	High GWP gases
Carbon dioxide (CO ₂)	50-200	1	Fossil fuel use, land use, cement	
Methane (CH ₄)	12 + 3	21	Fossil fuel use, agriculture	
Nitrous oxide (N ₂ O)	120	310	Mostly agriculture, ~ 1/3 are anthropogenic	
Hydrofluorocarbons (HFCs)	1.5 to 209	150 to 11,700	Alternative to ozone depleting substances	
Perfluorocarbons (PFCs)	2,600 to 50,000	6,500 to 9,200	Primary aluminum production; semiconductor manufacturing	
Sulfur hexafluoride (SF ₆)	3,200	23,900	Used in electric power transmission, magnesium and semiconductor industries	

12. **Option (c) is correct.**
 Given Pattern:
 Sum of the numerical place value of given alphabets.
 P R I M E → By Adding
 16 18 9 13 5 61

Undergraduate AYUSH courses include:

- Bachelor of Ayurvedic Medicine and Surgery (BAMS)
- Bachelor of Homeopathic Medicine and Surgery (BHMS)
- Bachelor of Unani Medicine and Surgery (BUMS)
- Bachelor of Naturopathy and Yoga Science (BNYS)
- Bachelor of Siddha Medicine and Surgery (BSMS)

8. **Option (a) is correct.**
 Self concept is person's belief in him or her. Therefore option (a) is correct answer as per the question.

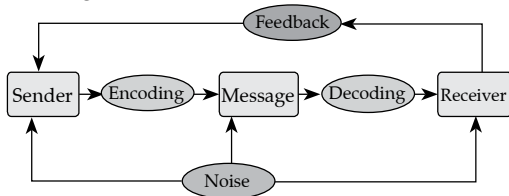
9. **Option (c) is correct.**
 Given Pattern:
 Series of cubes + ascending numbers
 $1^3 + 1 = 1 + 1 = 2$
 $2^3 + 2 = 8 + 2 = 10$
 $3^3 + 3 = 27 + 3 = 30$
 missing number = $6^3 + 6 = 216 + 6 = 222$
 $= 7^3 + 7 = 350$
 $= 8^3 + 8 = 520$
 $= 9^3 + 9 = 738$

So, the option A, C and occurs in the series then the option (c) is correct.

10. **Option (a) is correct.**
 A trophic level is a position in the food chain or a food web or an ecological pyramid that is occupied by the group of organisms having a similar feeding mode. Another word for the specific place each organism occupies in a food chain, food web or ecosystem is trophic level.

S I G H T → 63
 19 9 7 8 20
 Q U I T E → 72
 17 21 9 20 5
 R H Y M E → 69
 18 8 25 13 5

13. **Option (d) is correct.**
 From the given options, option b and c are correct with related to the communication process.
 Channel sends the message to the receiver not the sender and hence, the option (a) is incorrect.
 Sender sends the message to receiver and hence, option d is incorrect.
 Communication process can be expressed with the following flow chart:



14. **Option (b) is correct.**
 Coefficient of variation = Standard deviation/mean
 A - 0.24
 B - 0.18
 C - 0.23
 D - 0.21
 Ascending order - B, D, C, A
15. **Option (b) is correct.**
 Global scale phenomena are the weather patterns related to the atmospheric circulation of heat, wind, and moisture from the tropics to the poles or across the Earth's surface area.
 In other words, global-scale phenomena are weather patterns that affect the entire planet.
 For example, ocean heat, global warming, ozone layer depletion, forest fire, sea level rise, etc.

16. **Option (c) is correct.**
 A = $(9C)_{16} \text{ --- } ()_{10}$
 $(6C)_{16} \text{ --- } ()_{10}$
 $(16^1 \times 9) + (16^0 \times 12)$
 $= (16 \times 9) + (1 \times 12)$
 $= 144 + 12$
 $= (156)_{10}$
 B = $(233)_8 \text{ --- } ()_{10}$
 $= (2 \times 8^2) + (3 \times 8^1) + (3 \times 8^0)$
 $= 2 \times 64 + 3 \times 8 + 3 \times 1$
 $= 128 + 24 + 3$
 $= (155)_{10}$
 C = $(313)_7 \text{ --- } ()_{10}$
 $= 3 \times 7^2 + 1 \times 7^1 + 3 \times 7^0$
 $= 3 \times 49 + 1 \times 7 + 3 \times 1$
 $= 147 + 7 + 3$
 $= (157)_{10}$
 D = $(10011110)_2 \text{ --- } ()_{10}$
 $= (1 \times 2^7) + (0 \times 2^6) + (0 \times 2^5) + (1 \times 2^4) +$
 $(1 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$
 $= 128 + 0 + 0 + 16 + 8 + 4 + 2 + 0$
 $= (158)_{10}$

17. **Option (c) is correct.**
 Inductive argument goes from specific to general. In other words, when we infer something from our previous examples or previous knowledge, it is an inductive argument.
 Deductive argument includes going from general to specific or from theory to example.
 Here, the previous knowledge or previous examples are used to enforce something general and hence, it is an inductive argument.

18. **Option (d) is correct.**
 Swami Vivekanand has said, "Education is the manifestation of perfection already in the men."
 According to Swami Vivekananda, education must build character and manifest real nature. The strength of the mind should be increased with the help of education.

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

$$\frac{M_1 D_1 H_1}{W} = \frac{M_2 D_2 H_2}{W} \quad (\text{Hours are not given})$$

$$\frac{90 \times 27}{810} = \frac{60 \times x}{300} \quad [(\text{Here}) \frac{\text{Men} \times \text{Days}}{\text{Work}}]$$

$$\Rightarrow 3 = \frac{6x}{30}$$

$$\Rightarrow \text{By cross multiply,}$$

$$\Rightarrow 30 \times 3 = 6x$$

$$\Rightarrow \frac{90}{6} = x = 15 \text{ days}$$

20. **Option (c) is correct.**
 Various learning models in the current scenario are accommodate, assimilator, diverger and converger. The characteristics of these models are given in the question.

21. **Option (b) is correct.**
 Albert Einstein said, "I never teach my pupils, I only provide the conditions in which they can learn."

22. **Option (b) is correct.**
 A statement is a sentence that can be viewed as true or false.
 Premises are the sentences of the reason why we should accept another statement or conclusion.
 Conclusion is a statement in an argument which is supported by the premises.
 Argument is a group of sentences or statements intended to prove or support another statement.

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

Scale/Variables	Quality
1. Nominal	Classification
2. Ordinal	Classification and order
3. Interval	Classification, order and equal units
4. Ratio	Classification, order, equal units and absolute zero

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

LIST I (Internal Meetings)	LIST II (Key Objectives)
Kyoto protocol	Global Warming
Montreal protocol	Ozone depletion
Rio summit	Biodiversity conservation
Paris agreement	Solar Alliance

The Kyoto Protocol is an international treaty with a goal of reducing major greenhouse gasses.

Some facts or key points about this protocol are as follows:

1. It was signed in 1997 but came into affect from 16th February, 2005.
2. The first commitment period of the Kyoto Protocol was from 2008 to 2012.
3. The second commitment period which is also called the Doha amendment was 2013 to 2020.
4. 84 countries were signatories of this protocol.
5. Currently, there are 192 member countries in Canada withdrawn from this Protocol in 2012.
6. The USA has never ratified it.
7. It was adopted in Kyoto, Japan on 11th December, 1997.
8. The Kyoto Protocol was negotiated under the UNFCCC or United Nations Framework convention on climate change which was signed in 1992 in New York.
9. The aim of this protocol was to focus on the ethnographic greenhouse gas emission.

Montreal protocol:

- Montreal protocol was enforced in 1989.
- It was related to the ozone depletion substance.
- As it was done on 16 September 1987, Ozone Day is celebrated on 16th September.
- It was decided that all Nations should not be treated equally and equally, but every Nation should have differentiated responsibilities.
- The target was set for the ozone layer to return to the level of 1980 between the years 2050 and 2070.
- Chlorofluorocarbons were declared the most bounded ozone depletion substance.
- Multilateral funds were set up in 1991 by four organizations, UNEP, UNDP, UNIDO, and World Bank, to help developing countries.
- India enforced "Ozone Depleting Substance (Regulation and Control) Act 2000" under the Environmental Protection Act 1986.

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

Effective verbal communication is collected with effective speaking.

Body language, paralanguage, gesture, and posture are the elements of effective nonverbal communication.

Some communication barriers are insufficient knowledge, physical elements, mental elements, knowledge level of receivers, etc.

All these contribute to effective communication. In other words, knowledge skills, including verbal and nonverbal communication, form effective communication.

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

According to UGC Regulations 2018 on plagiarism, more than 60% similarities with an other work of Ph.D. programs make the thesis cancelled.

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

Devarshi Narad is treated as a first communicator because he reports from the spot middle among the party and things for the betterment of the society.

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

With the given formula (condition formula), the value of C1 will be 50.

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

Nuns and monks used to meditate, debate, and discuss with the learned in the Monasteries or Viharas.

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

Air pollutants can be primary or secondary.

Primary air pollution is the pollutant which is released from the original source either natural or man made source.

The secondary pollutants are formed through chemical reactions in the lower atmosphere or troposphere.

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

ChatGPT stands for Chat Generative Pre-trained Transformer.

Chat GPT is a famous AI tool, nowadays. This can be used for a variety of purposes like answering questions, writing content, writing email, reading comprehension, coding formatting text, etc.

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

Case study is a survey research or single keys to reveal important features about its nature.

Cross-sectional study or cross-sectional research refers to a survey or a study on a single case through more than one tool to check the validity and reliability.

Longitudinal research is a single case, element or variable over a long period of time through the same tool of survey to check reliability and to observe changes.

Comparative research or comparative study is the study of more than two variables for comparison.

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

In deductive argument, if premises are true, then the conclusion must be true.

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

Types of communication are arranged on the basis of the quantity of the receiver or the audience included in:

Intrapersonal communication is with self, which is usually used for thinking, imagination, practicing etc.

Interpersonal communication is between two people.

Group communication is between more than two people or among a group.

Public communication and mass communication, both, include a large number of receivers. The only difference is that public communication is for limited people and includes feedback whereas mass communication is one-sided communication.

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

MOOC courses have four quadrants:

E-tutorial - Direct teaching content.

E-Content - Supplementary resources for teaching content.

Discussion forums - Interactive learning or student active learning.

Assessment - Evaluation tools.

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

There are five common models of deductive reasoning or deductive argument:

- Hypothetical syllogism
- Categorical syllogism
- Argument from elimination
- Argument from definition
- Argument based on mathematics

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

Yashwant Rao Chavan Maharashtra open University → 1989

Karnataka State Open University → 1996

UP Rajarshi Tandon Open University → 1999

Kota Open University → 1987

Madhya Pradesh Bhoj Open University → 1991

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

GIAN stands for the global initiative of academic networks.

- It is an initiative of Government of India for the field of education in the science stream.
- A triangular network framework is the base of this initiative; this triangle includes innovation, investment and enterprise.
- The Ministry of Education of Government of India funds this program.
- This program aimed at tapping the international talent from the school of faculty members, scientists, entrepreneurs and encourages their engagement with institutions of higher education in India.

SWAYAM - This program is an initiative by the Government of India in the field of education to achieve the three cardinal principles of education policy: Access, equality and quality.

- This objective is achieved through a platform that facilitates hosting old courses, including total classes from class 9 to post-graduation.

- SWAYAM Stands for Study Webs of Active Learning for Young Aspiring Minds.
- It was developed by the All-India Council for Technical Education in 2016.
- More than 1,000 faculty and teachers nationwide, especially chosen faculty and teachers, have participated.
- 10 national co-ordinators have been appointed.
- They are: AICTE, NPTEL, UGC, CEC, NCERT, NIOS, IGNOU, IIMB, NITTTR, INI.
- The current SWAYAM platform is developed by the Ministry of Education, NPTEL and IIT Madras with the help of Google Incorporation and Persistence System limited.

DIGILOCKER is an initiative towards paperless governance.

- This initiative includes all the government documents on one platform which any person or citizen of India can access through their Aadhar Card.
- This platform was developed by the Ministry of Electronic and Information Technology in 2015.

IMPRINT-2 - Impacting Research Innovation and Technology.

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

- (A) Upanaya- (III) The application of the universal concomitance to the present case.
- (B) Paramarsa - (I) The knowledge of Paksadharmata as qualified by Vyāpti.
- (C) Vyapti - (IV) The invariable association of the middle term with the major term.
- (D) Pakṣadharmatā - (II) The invariable relation or association of the middle term in the minor term.

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

$$\frac{12}{19}, \frac{7}{12}, \frac{11}{17}, \frac{17}{28}$$

By making denominators equal by LCM,

LCM of 19, 12, 17 and 28 = 27, 132

By arranging in descending order,

$$\frac{12}{19} = \frac{17,136}{27,132}$$

$$\frac{7}{12} = \frac{204}{27,132}$$

$$\frac{11}{17} = \frac{17,556}{27,132}$$

$$\frac{17}{28} = \frac{16,473}{27,132}$$

$$\text{Correct sequence} = \frac{11}{17}, \frac{12}{19}, \frac{17}{28}, \frac{7}{12}$$

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

Printing was invented by Johannes Gutenberg.

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

Sustainable development goals came into effect in 2016 and its targets have to be achieved by 2030.

It consists of 17 goals and 169 targets.

These goals replaced the Millennium development goals which were 8 in numbers and were established in 2000.

Millennium development goals were replaced by sustainable development goals in 2015 but Sustainable development goals came into effect in 2016.

The 17th sustainable development goals (SDGs) are:

1. No poverty
2. Zero hunger
3. Good health and wellbeing
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, innovation and infrastructure
10. Reduced inequality
11. Sustainable cities and communities
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace and justice strong institution
17. Partnership to achieve the goal

Agenda 2030 is related to SDGs.

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

Google docs is a very popular cloud computing word processing software. While Microsoft Word is a software which users have to install on all the computer and the have to be transferred for editing or viewing on another device.

Computing word processing software or Google talk is not required to be installed. A person's Google account can open that file on any device to use and edit with the help of the internet.

Pashu internet connection will be a barrier for using cloud computing work processes.

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

Time taken by $A = \frac{1}{x}$

By B = $\frac{1}{2x}$

Then,

Time taken by $C = \frac{1}{x} + \frac{1}{2x} = \frac{3}{2x}$

Time taken by all of them together = 5 days (given)

Therefore,

$$\Rightarrow \frac{1}{x} + \frac{1}{2x} + \frac{3}{2x} = \frac{1}{5}$$

$$\Rightarrow \frac{2+1+3}{2x} = \frac{1}{5} \Rightarrow \frac{6}{2x} = \frac{1}{5}$$

\Rightarrow By cross-multiply,

$$6 \times 5 = 2x$$

$$\Rightarrow 30 = 2x$$

$$\Rightarrow x = 15$$

Time taken by B alone = 15 days.

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

Generally, teaching is to guide the rainforest, either informally or informally.

Teaching is the art of imparting knowledge to students effectively to change their behavior and permanently learn the concepts.

Interaction between authority and preparing policy for corporate bodies are not included in teaching.

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

According to the given passage, Jharkhand is getting national recognition for sports. This recognition is mainly in cases like hockey, archery, and cricket at national and international levels.

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

In the given passage, it is mentioned that [Jharkhand has become a favorite destination for visitors from India] because of its natural endowment or natural attraction and places like Baba Baidhyanath Temple, Surajkund etc.

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

Bamboo and woodcraft along with tribal painting and stone carving are the fields in which initiative has been taken to organise space level festivals to promote local art and crafts.

Rock painting is not mentioned in the passage.

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

Ranchi is considered the hub of education in Jharkhand, according to the above passage.

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

Archaeological workshops are to create awareness about the heritage of these state.