

NTA UGC

NET/JRF/SET

General Paper-1 (Compulsory)

TEACHING & RESEARCH APTITUDE

24

PREVIOUS
YEARS' SOLVED
PAPERS

(Dec. 2019 – 2006)

&

35

PRACTICE
SETS

Completely Based on March 2020 Notification with New Syllabus and Exam Pattern

NTA
UGC
NET/JRF/SET
General Paper-1 (Compulsory)

TEACHING & RESEARCH APTITUDE

24 SOLVED PAPERS &
35 PRACTICE SETS

Team Prabhat




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Edition

2020

UGC NET/JRF/SET GENERAL PAPER-I (COMPULSORY)

TEACHING & RESEARCH APTITUDE

(24 Solved Papers & 35 Practice Sets)

by Team Prabhat

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Solved Papers

UGC/NET/JRF/SET EXAMINATION

Teaching & Research Aptitude

Solved Paper-I, December-2019

1. In which year is the ratio of income to expenditure of company A the maximum?

- (a) 2013 (b) 2017
(c) 2015 (d) 2018

2. If the expenditure of company A in the year 2013 and company B in the year 2018 are the same, and the income of company B in the year 2018 is ₹ 77 lakhs, then what is the income of company A in the year 2013?

- (a) 55 lakhs (b) 66 lakhs
(c) 56 lakhs (d) 64 lakhs

3. If the sum of expenditure of company B in the years 2014 and 2017 together is ₹ 48 lakhs, then what is the total income of company B in these two years together?

- (a) ₹ 62.4 lakhs
(b) ₹ 36.2 lakhs
(c) ₹ 64.0 lakhs
(d) ₹ 65.5 lakhs

4. If the expenditure of company B in the year 2013 was ₹ 17 lakhs, then what was its income in that year?

- (a) ₹ 22.95 lakhs
(b) ₹ 23.15 lakhs
(c) ₹ 24.50 lakhs
(d) ₹ 25.65 lakhs

5. If the income of company A in the year 2017 is ₹ 26 lakhs, then what is the expenditure of company A in that year?

- (a) ₹ 33.8 lakhs (b) ₹ 22.5 lakhs
(c) ₹ 21.6 lakhs (d) ₹ 20.0 lakhs

6. Given below are two statements - one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion (A): No social activity is possible without communication.

Reasons (R): Communication plays vital role in our daily life.

In the light of the above statements choose the correct option:

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

7. Schistosomiasis, a common water contact disease, is spread by which of the following?

- (a) Giardia (b) E. Coli
(c) Cercaria (d) Amoeba

8. Which one of the following statements is correct with reference to a deductive argument?

- (a) The relation between premises and conclusion is one of matter of fact
(b) The relation between premises and conclusion is one of logical necessity
(c) The relation between premises and conclusion is that of empirical necessity
(d) The relation between premises and conclusion is a matter of ascertainment of probability

9. With regard to "Digilocker", which of the following statements are correct?

- (a) It is a digital locker system offered by the Government under Digital India Programme
(b) It provides financial and technical assistance to young start-up entrepreneurs
(c) It allows users to access their e-documents irrespective of physical location

Choose the correct option:

- (a) (a) and (b) only
(b) (a) and (c) only
(c) (b) and (c) only
(d) (a), (b) and (c)

10. Spotting gaps in the research literature is the chief way of identifying research questions. In this context, 'spotting gaps' in the research literature refers to:

- (a) Identifying under-researched areas
(b) Recognizing the gap between two researchers' background
(c) Identifying inconsistent findings in an area of research
(d) Recognizing gap in the characteristics of sample and population

Select correct option:

- (a) (a) and (c) only
(b) (b) and (d) only
(c) (a) and (b) only
(d) (c) and (d) only

11. Given below is a question followed by three statements.

Identify the statements, which is/are necessary to answer the question.

'What is the speed of the train?'

- (a) The train crosses another train running in opposite direction in 20 seconds
(b) The train crosses a platform of length 300 m in 30 seconds
(c) The train crosses a pole in 10 seconds

Choose the most appropriate option:

- (a) (a) and (b) only
(b) (a) and (c) only
(c) (b) and (c) only
(d) (a), (b) and (c)

12. Given below are two statements - one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion (A): A researcher can draw a definitive conclusion even if there is a little evidence to support it.

Reasons (R): Statistical test of significances helps a researcher in drawing logically correct inferences from the data.

In the light of the above statements choose the correct option:

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

13. Match the List-I containing name of the Commissions with List-II containing the recommendation of that commission

List-I (Commissions)	List-II (Recommendation)
A. Radha-krishnan Commission	1. Introduction of 3 years of secondary and 4 years of higher education system
B. Mudaliar Commission	2. Restructuring curriculum for multi-disciplinary professionals
C. Kothari Commission	3. Integrating secondary and higher education
D. Sam Pitroda Commission	4. Three years of degree and 4 years of honours degree courses

Choose the correct option from those given below:

	A	B	C	D
(a)	1	2	3	4
(b)	2	4	1	3
(c)	3	1	4	2
(d)	4	3	1	2

14. Which one of the following factors is a deterrent for the students to do well in higher education?

- (a) Political orientation
 (b) Academic strategies
 (c) Comprehension ability
 (d) Academic discourse

15. Consider the following statements:

- (a) The Millennium Development Goals were to be achieved by 2015
 (b) The Sustainable Development Goals will guide United Nations Development Programme Policy until 2035
 (c) The Sustainable Development Goals came into effect in January 2016

Which of the above statements are correct?

- (a) (a) and (b) only
 (b) (b) and (c) only
 (c) (a) and (c) only
 (d) (a), (b) and (c)

16. Which of the following statements fails to indicate the intent of purposive sampling?

- (a) Purposive sampling is not the fundamental principle for selecting cases and individuals in qualitative research
 (b) Purposive sampling places the investigator's research questions at the forefront of sampling considerations
 (c) Theoretical saturation is a useful principle for making decision about sample size
 (d) There is considerable disagreement about what is an acceptable minimum sample size in qualitative research

17. Three taps A, B and C can fill a tank in 8, 10 and 12 hours respectively. The tap A is open all the time continuously. But taps B and C are open for one hour each alternately. How long will it take the tank to be full?

- (a) 4 hours
 (b) $4\frac{16}{27}$ hours
 (c) $4\frac{2}{3}$ hours
 (d) $4\frac{1}{3}$ hours

18. "According to one paradigm of research, following sequence is followed by the researchers:

Theory → Generation of hypotheses → Data collection → Data analysis and results → Hypotheses confirmed or rejected → Revision of theory

This way of conceptualizing research is based on which of the following:

- (a) Inductive approach
 (b) Deductive approach
 (c) Qualitative approach
 (d) Interpretative approach

19. Given below are two statements one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion (A): Forests help in improving the air quality of a place.

Reasons (R): Some tree species emit volatile organic compounds (VOCs) such as isoprene which may contribute to formation of tropospheric ozone.

In the light of the above statements choose the correct option:

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

20. Given below are two statements – one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion (A): Motivational aspects of learning and communication efficacy are not inter related.

Reasons (R): Communication as a social product has its own variables in a learning environment.

In the light of the above statements choose the correct option:

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

21. Match List-I with List-II

List-I (Digital Initiatives)	List-II (Purpose)
A. SWAYAM	1. Integrated Library Management software
B. Spoken Tutorial	2. Robotics competition
C. e-Granth-alaya	3. Promotes IT literacy through open source software
D. e-Yantra	4. Personalized and adaptive learning

Choose the correct option:

A	B	C	D
(a) 1	4	2	3
(b) 2	1	3	4
(c) 3	2	4	1
(d) 4	3	1	2

22. In a developing country like India which among the following statements is indicative of challenges in the context of computer based testing?

- (a) Many teachers do not have knowledge of computer
 (b) Computer will destroy guru-shishya relationship

- (c) Indian government can't afford to buy a large number of computers
 (d) In remote locations availability of computer and electricity is not feasible

23. Match the following national co-ordinators of SWAYAM (List I) with their distinguishing programmes (List II)

List-I	List-II
A. NPTEL	1. School education
B. CEC	2. Engineering programme
C. NCERT and NIOS	3. Teacher training programme
D. NITTR	4. Under-graduate education

Choose the correct option from those given below:

A	B	C	D
(a) 3	2	4	1
(b) 2	4	1	3
(c) 1	3	2	4
(d) 4	1	3	2

24. Montreal protocol was signed in order to address which of the following environmental issues?

- (a) Tropospheric ozone pollution
 (b) Depletion of ozone in the stratosphere
 (c) Global warming
 (d) Acid rain

25. "Fire is cold, because it is a substance" – is an instance of which one of the hetuābhāsas (fallacy of inference)

- (a) A siddha (unproved middle term)
 (b) Bādhīta (non-inferential contradicted middle)
 (c) Virūdhā (contradictory middle)
 (d) Saryābhicāra (irregular middle)

26. Identify the form of education having high potential for providing optimism, self-esteem and commitment to personal fulfillment, ethical judgement and social responsibility from the following:

- (a) Formal education
 (b) Technical education
 (c) Moral education
 (d) Value education

27. Match the following environmental disasters with the words or phrases associated with them.

List-I	List-II
A. Bhopal gas tragedy	1. Dumping of Hazardous substances
B. Chernobyl disaster	2. Peroxyacetyl Nitrates (PAN)
C. Love Canal tragedy	3. Nuclear accident
D. Los Angeles smog	4. Methyl Isocyanide

Choose the correct option from those given below:

A	B	C	D
(a) 2	3	4	1
(b) 4	3	1	2
(c) 2	1	4	3
(d) 4	1	3	2

28. Which of the following statements is/are correct?

- (a) It is usually faster to access data stored in RAM than that in hard drive
 (b) The hexadecimal number 99 is the same as the decimal number 99

Choose the correct option:

- (a) (a) only
 (b) (b) only
 (c) Both (a) and (b)
 (d) Neither (a) nor (b)

29. Choose the oriental learning institutes in India from the following:

- (a) Asiatic Society
 (b) Madras Sanskrit College
 (c) Tezpur University
 (d) Mythic Society

Choose the correct option:

- (a) (a), (b) and (d) only
 (b) (a), (b) and (c) only
 (c) (a), (c) and (d) only
 (d) (b), (c) and (d) only

30. Select the option that contains only computer input devices

- (a) Keyboard, Mouse, Joystick, Printer
- (b) Mouse, Monitor, Joystick, Keyboard
- (c) Joystick, Keyboard, Digitiser, Monitor
- (d) Joystick, Keyboard, Mouse, Digitiser

31. If two propositions are related in such a way that they cannot both be true together, although both may be false together, then such a relation is considered to be

- (a) Contrary (b) Contradictory
- (c) Subaltern (d) Sub-contrary

32. Identify the technical term used to describe body language from the following

- (a) Proxemics (b) Chronemics
- (c) Kinesics (d) Haptics

33. If income of X is 20% more than that of Y and income of Y is 25% less than that of Z, then the total income of X, Y and Z are in which of the following ratios?

- (a) 18:15:20 (b) 18:15:10
- (c) 18:10:15 (d) 18:12:15

34. Which one of the following is true with respect to the first figure of categorical syllogism?

- (a) The middle term is the subject of the major premise and the predicate of the minor premise
- (b) The middle term is the predicate of the major premise and subject of the minor premise
- (c) The middle term is the subject of the major premise and the predicate of the conclusion
- (d) The middle term is the subject of the minor premise and the predicate of the conclusion

35. Identify the correct sequence of one way process of communication, from the following sequences

- (a) Sender, Decoding, Message, Channel, Encoding, Receiver
- (b) Sender, Encoding, Message, Channel, Decoding, Receiver

- (c) Receiver, Encoding, Message, Channel, Decoding, Sender
- (d) Sender, Message, Decoding, Encoding, Channel, Receiver

36. Consider the following statements regarding noise pollution:

- (a) Noise levels decrease as we move away from the source of noise
- (b) Materials with high surface/mass density act as good noise barriers
- (c) Sound pressure of 2μ Pa corresponds to a noise of zero decibel

Choose the correct option from those given below:

- (a) (a) and (b) only
- (b) (b) and (c) only
- (c) (a) and (c) only
- (d) (a), (b) and (c)

37. Match the items given under Column-II providing description with the items under Column-I indicating the basis.

Column-I (Basis)	Column-II (Description)
A. Cognitive	1. Ability to relate to other
B. Emotional	2. Ability to articulate the idea
C. Social	3. Ability to read others' facial expression
D. Verbal	4. Ability to solve abstract problem

Choose the correct option:

A	B	C	D
(a) 1	3	4	2
(b) 4	3	1	2
(c) 4	3	2	1
(d) 4	1	2	3

38. Identify the skills promoted by communication from the following:

- (a) Reading and Listening
- (b) Listening and helping
- (c) Helping and speaking
- (d) Speaking and writing

Choose the correct option:

- (a) (a) and (b) only
- (b) (b) and (c) only
- (c) (a) and (d) only
- (d) (c) and (d) only

39. In educational institutions, students usually have group journals/magazines and write in them on regular basis. Which of the following statements are correct about journaling as a method of informal assessment.

- (a) As a tool that provides opportunity to the students to express their thoughts and ideas
- (b) As an opportunity to showcase what they have learned
- (c) As a way to cope with the stress
- (d) As a tool to settle scores with the authority

Choose the correct option:

- (a) (a) and (c) only
- (b) (b) and (c) only
- (c) (a) and (b) only
- (d) (c) and (d) only

40. Consider the following statements:

- (a) Earth would be safer without greenhouse effect
- (b) Major contribution to the greenhouse effect comes from carbon dioxide
- (c) Earth's climate was changing even before man appeared on earth

Which of the above statements are correct?

- (a) (a) and (b) only
- (b) (b) and (c) only
- (c) (a) and (c) only
- (d) (a), (b) and (c)

41. In a class, there are 60% female students and the remaining are male. 40% of the female students and 70% of the male students have opted for the research methodology course. If in all, 60 students have not opted for the research methodology course, which of the following is the total number of students in the class?

- (a) 120 (b) 125
- (c) 130 (d) 140

42. Which among the following is least important for the academic success of students?
- Cognitive competence
 - Emotional competence
 - Legal competence
 - Social competence
43. Which of the following statements are correct?
- Google's web browser is called 'Chrome'
 - Apple's web browser is called 'Safari'
 - "Mozilla firefox" is an open source web browsing software
- Choose the correct option:
- (a) and (b) only
 - (a) and (c) only
 - (b) and (c) only
 - (a), (b) and (c)
44. Consider the example of anumāna given below:
- The mountain is fiery
 - Because it has smoke
 - Wherever there is smoke, there is fire.
- Which one of the following expresses Vyāpti (relation of invariable concomitance)?
- The relation of invariable concomitance between mountain and fire
 - The relation of invariable concomitance between mountain and smoke
 - The relation of invariable concomitance between fire and smoke
 - The relation of invariable concomitance between perceiver and the smoke
45. Which of the two following is the correct sequence of greenhouse gases according to their relative global warming potential in increasing order?
- Nitrous oxide, Methane, Carbon dioxide, Chlorofluorocarbons
 - Carbon dioxide, Methane, Nitrous oxide, Chlorofluorocarbons
 - Methane, Nitrous oxide, Carbon dioxide, Chlorofluorocarbons
 - Carbon dioxide, Nitrous oxide, Methane, Chlorofluorocarbons
46. What kind of art is the best type as per the passage?
- The one which lends greater importance to content
 - The one which lends greater importance to form
 - The one in which form subserves the content
 - The one in which content subserves the form
47. Content of the art is defined in the passage as
- the form it exhibits
 - the language it uses
 - the meaning it subsumes
 - the meaning it expresses
48. What is legitimate function of form?
- To obverse the content
 - To reject the content
 - To subserve the content
 - To subsume the content
49. What constitutes the content of poetry according to the passage?
- Figurative ideas
 - Musical language
 - Sentiments it expresses
- Choose the correct code from below:
- Only (a) and (b)
 - Only (a) and (c)
 - Only (b) and (c)
 - Only (b)
50. Which of the following is correct with respect to the form of poetry as per the passage?
- Form doesn't vary from one art to another
 - Form is technical
 - Form is figurative
 - Form constitutes musical language
- Choose the correct option from below:
- Only (a) and (b)
 - Only (b) and (d)
 - Only (b), (c) and (d)
 - Only (a), (c) and (d)

Answers with Explanations

1. (c) The profit % in 2015 was highest for company A. This means that this year the income is quite higher than expenditure. This situation automatically mean that the ratio of income to expenditure in 2015 will be maximum for company A.

2. (b) Expenditure of Company A in year 2013 = Expenditure of Company B in 2018.

Income of Company B in 2018 is = 77 Lakhs.

$$\text{Therefore, Profit \%} = I - E/E \times 100$$

$$40 = 77 - E/E \times 100$$

$$E = 55 \text{ lakhs}$$

Therefore, the income of A in 2013 is:

$$20 = I - 55/55 \times 100$$

$$I = 66 \text{ Lakhs}$$

3. (a) Expenditure of B in 2014 and 2017 together = 48 Lakhs

So, the total income of B will be:

$$30 = I - 48/48 \times 100$$

$$I = 62.4 \text{ Lakhs}$$

4. (a) Expenditure of B in year 2013 = 17 Lakhs.

$$\text{Income} = 35 = I - 17/17 \times 100$$

$$\text{Income} = 22.95 \text{ Lakhs}$$

5. (d) Income of A in 2017 is = 26 lakhs

So, Expenditure will be:

$$30 = 26 - E/E \times 100$$

$$E = 20.0 \text{ lakhs}$$

6. (a) Communication is a process which involves verbal or non-verbal interaction among people. It is a socialization process

and it always involve more than one person. Hence the Assertion statement is correct that “No social activity is possible without communication” and the reason behind it that “communication plays a vital role in our daily life.

7. (c) Schistosomiasis is a type of parasitic disease, which usually caused by Schistosoma organisms. It has the potential to cause acute and chronic infection. Symptoms of schistosomiasis infection usually include fever, blood in stools or urine, and abdominal discomfort. The infectious form of the parasite, known as cercaria, emerge from the snail into the water. You can become infected when your skin comes in contact with contaminated freshwater.

8. (b) Deductive Argument works on the principles of Deductive reasoning. This means conclusion or a deductive argument must be logically derived from the premises. A deductive argument is an argument in which it is thought that the premises provide a guarantee of the truth of the conclusion.

9. (b) DigiLocker is nothing but a digital locker to store all your documents. DigiLocker is linked to both Aadhaar card and cellphone number of the user. It eliminates the use of physical documents as part of the government’s Digital India drive, since all data is stored in the cloud.

10. (a) Spotting gaps or Neglect Spotting in an existing literature is the most common mode of constructing research questions in our sample. It tries to identify a topic or an area where no (good) research has been carried out. Searching for under-researched areas in existing literature is another common version of neglect spotting.

11. (c) Speed of a moving object can be identified by knowing the time it takes to cross a fixed spot (Pole). It can also be found out by knowing the time taken to cross a moving object. Another way of finding the speed is the time taken by object to cover a given distance. Hence all three statements are correct, and option (c) is correct.

12. (d) A researchers conclusion would be biased or incomplete if there is

little evidence to support it. A complete conclusion can’t be derived from incomplete evidence. Hence, ‘Assertion statement’ is false. The statistical test is used by the researchers to check the logical validity of the data. Hence, ‘Reason statement’ is true.

13. (c) Radhakrishnan Commission – Recommended integration of secondary and Higher education.

Mudaliar Commission – Recommended 3 year of secondary and 4 year of higher education system.

Kothari Commission – Recommended Three year of degree and 4 year of honours degree courses.

Sam Pitroda Commission – Restructuring Curriculum for multi disciplinary professionals.

14. (a) It is considered that the political orientation of students during their academic year usually refrain them from achieving unbiased knowledge. It also deter them from doing well in higher education.

15. (c) The Millennium development goals were adopted in 2000 and need to be adopted by 2015. The Sustainable development goals will guide united nation development programme policy until 2030 and not 2035. SDG are adopted in 2016.

16. (a) A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. Purposive sampling is different from convenience sampling and is also known as judgmental, selective, or subjective sampling.

17. (b) To solve this, first we have to find out the total work that would be LCM of 8,10,12 = 120 (Capacity of tank).

Now, find out the individual work of A, B, C

$$A = 120/8 = 15$$

$$B = 120/10 = 12$$

$$C = 120/12 = 10$$

Now,

$$A + B = 27/\text{hr}$$

$$A + C = 25/\text{hr}$$

$$\text{Total} = 55/\text{hr}$$

$$\text{Total Capacity} = 120 \times 2/55$$

$$= 4.59 \text{ hrs}$$

The mixed form of this will be option (b).

18. (b) A deductive approach is concerned with “developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the hypothesis”. The Deductive research approach follows following trajectory:

Theory	Hypothesis	Observation/ Test	Confirmation/ Rejection
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19. (b) Plants emit signaling chemicals these chemicals are called volatile organic compounds (VOCs), are ubiquitous. The smell of freshly cut grass is caused by a VOC. “Most VOCs emitted in the atmosphere are actually emitted from plants, predominantly from leaf surfaces.” Yes, forests help in improving the air quality as they work as the air purifier on earth.

20. (d) Assertion statement is false as there are relation between communication and learning as well as motivation. The Reason statement is correct.

21. (d) SWAYAM – Motivates Personalized and adaptive learning

Spoken Tutorial – Promotes IT literacy through open source software.

E-Granthalaya – Integrated Library management software.

E-Yantra – Robotics competition

22. (d) In India computer based learning is not getting its required success because the availability of computer and electricity in remote location is not feasible.

23. (b) NPTEL – Engineering Programme

CEC – Undergraduate Education

NCERT and NIOS – School Education

NITTR – Teacher Training Programme

24. (b) The Montreal Protocol, finalized in 1987, is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances (ODS).

25. (b) Bād̥h̥ita or the non-inferential contradicted middle. When the conclusion brought out by the middle term is disproved by some other praman, this fallacy arises.

26. (d) Values education is teaching and learning about the ideals that a society deems important. The aim is for students not only to understand the values, but

also to reflect them in their attitudes and behavior, and contribute to society through good citizenship and ethics.

27. (b) Bhopal Gas Tragedy – Methyl Isocyanide

Chernobyl Disaster – Nuclear Accident
Love Canal Tragedy – Dumping of Hazardous Substance

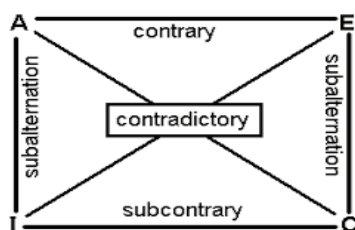
Los Angeles Smog – Peroxyacetyl Nitrates (PAN)

28. (a) With RAM, writing data is much faster and lightening process whereas ROM, writing data speed is much slower as compared to RAM. Hexadecimal of 99 is 63.

29. (a) Tezpur University is situated in Assam founded in 1994. It is a modern central university and not oriental learning Institute.

30. (d) Input devices are Joystick, Keyboard, Mouse and Digitiser.

31. (a) Situation where both arguments can't be true together but can be false together is known as Contrary.



32. (c) Kinesic communication is the technical term for body language, i.e., communicating by body movement. We call the study of kinesic communication kinesics.

33. (a)

34. (a) A categorical syllogism is an argument consisting of exactly three categorical propositions (two premises and a conclusion) in which there appear a total of exactly three categorical terms, each of which is used exactly twice. The major and the minor terms should only be universal in the conclusion if they are universal in the premises.

35. (b) In one-way communication, information is transferred from the sender to the receiver without any opportunity

for the receiver to give feedback to the sender. One-way communication is most often used to give factual information or to persuade or manipulate the receiver to act a certain way. The sequence of one way communication will be: Sender, Encoding, Message, Channel Decoding, Receiver.

36. (a) Sound travel fastest in material with high density. So, statement 2 is wrong as it will not work as a barrier. And the noise level decreases as we move away from the source of noise.

37. (b) Cognitive – Ability to solve abstract problems

Emotional – Ability to read other's facial expression

Social – Ability to relate to other

Verbal – Ability to articulate ideas

38. (c) Communication is a process which ideally enhance the speaking quality of a person. It also provides his skills for listening and learning. Communication also in a way help in improving writing.

39. (c) Group journals and magazines in colleges and universities provide students a first hand experience of shared ideas and thoughts. Through these journals students can showcase their view, their research work and experience people response over that.

40. (b) Green House phenomena is mainly responsible to make Earth a habitable planet. Life exists on earth just because of greenhouse gas phenomenon. Carbon dioxide is the most abundant GHG. Climate change has a long history on earth.

41. (b)

42. (c) A student needs to be cognitive, social as well as emotional in nature to get a better understanding of his course. On the other hand legal knowledge or official administration is not that important for his educational success.

43. (d) All the statements given are correct. Google Chrome is a web browser of Google. Safari is launched by Apple for browsing purpose. Mozilla Firefox is an open source web browser and not like Internet Explorer which is a closed source web browser.

44. (c) Here the invariable concomitance is between fire and smoke which means to establish that smoke can't cause without the presence of fire. This represent vyapti logic.

45. (b)

Green House Gas	GWP	Lifetime (y)
Carbon Dioxide (CO ₂)	1	Variable
Methane (CH ₄)	21	12.2
Nitrous Oxide (NO ₂)	206	120
Hydrofluorocarbons (HFC)	140-11700	1.5-264
Perfluorocarbons (PFC)	6500-9200	3200-50000
Sulfur Hexafluoride (SF ₆)	23000	3200
Chlorofluorocarbons (CFC)	12000-16000	

46. (c) As per the passage an Art form that subserve the content can be considered as the best art form. An Art form should not just give greater importance to the form, its main purpose is to make content expressible.

47. (d) Content in art is the meaning or message it wishes to express to the audience. The content constitute the most significant part of any art form.

48. (c) According to the passage, the legitimate function of the form is to subserve the content. Form helps in expression of content. And if form became more important than content than that art can't be considered as an ideal art.

49. (b) In poetry, the content is constituted by figurative ideas and sentiments it expresses. On the other hand form by the musical language through which they find expression.

50. (b) According to the passage form varies much from one art to another, and it is also technical. Form find its expression through Musical Language.

UGC/NET/JRF/SET EXAMINATION

Teaching & Research Aptitude

Solved Paper-I, June-2019

1. A shift in attitude in respondents between two points during data collection is called

- (a) Reactive effect
- (b) Maturation effect
- (c) Regression effect
- (d) Conditioning effect

2. The time-frame in which a study explores a situation or problem is also called the

- (a) Reference period
- (b) Age
- (c) Longitudinal
- (d) Retrospective time

3. The major characteristic of correlation analysis is to seek out

- (a) Differences among variables
- (b) Variations among variables
- (c) Association among variables
- (d) Regression among variables

4. Which of the learner characteristics will influence his/her perspective in a course of study?

- (i) Learner's commitment
- (ii) Parents interest in the learner
- (iii) Prior knowledge of the learner
- (iv) Skill of the learner in the concerned area
- (v) Family size of the learner
- (vi) Socio-economic background of the family to which the learner belongs

Choose the correct answer from the options given below:

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

5. The performance of a student is compared with another student in which type of testing?

- (a) Criterion referenced testing
- (b) Diagnostic testing

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

6. From the list given below identify those which are called non-probability sampling procedures:

- (i) Simple random sampling
- (ii) Dimensional sampling
- (iii) Snowball sampling
- (iv) Cluster sampling
- (v) Quota sampling
- (vi) Stratified sampling

Choose the correct option

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

7. The conceptual framework in which a research is conducted is called a

- (a) Synopsis of research
- (b) Research design
- (c) Research hypothesis
- (d) Research paradigm

8. Which of the following is an example of a maximum performance test?

- (a) Personality tests
- (b) Projective personality tests
- (c) Aptitude tests
- (d) Interest and attitude scales

9. Which of the strategies in the list given below will be associated with direct teaching?

- (i) Providing examples and explanation
- (ii) Promoting inquiry
- (iii) Focusing on concepts
- (iv) Giving review and recapitulation
- (v) Ordering practice and feedback
- (vi) Problem raising and problem-solving

Choose the correct answer from the options given below:

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

10. From the list given below identify those questions which are called process rather than content based questions?

- (i) Convergent questions
- (ii) Divergent questions
- (iii) Fact based questions
- (iv) Concept based questions
- (v) Open questions
- (vi) Closed questions.

Choose the correct answer from the options given below:

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

Direction: Read the passage and answer the following questions (11-15):

Geography seeks to understand the physical and human organization of the surface of the Earth. In the field of geography, inter-related themes are frequently seen. These are scale, pattern and process. Scale is defined as the level of structure on organisation at which a phenomenon is studied. Pattern is defined as the variation observed in a phenomenon studied at a particular scale. The third theme, process, further connects the first two. Process is defined as the description of how the factors that are phenomenon act to product a pattern at a particular scale. For instance, when a passenger on an aircraft looks out of the window, the View changes according to the scale. At the global scale when the aircraft maintains its height, he can see the chunks of clouds in all their pattern, the sun or the moon, as per the time. When the aircraft loses a little height, passengers can see the land and water masses in

their different colours and the shape of land masses. At the continental scale, the passengers can see the shapes of the land features and how they are distributed. The pattern emerges as the variation of land and water and the proportion of each. Looking carefully, passengers can note how each land mass aligns with the others and how each mountain bears the signs of the process through which it emerged.

The processes in a geography change in a regular and repetitive manner. One instance of this is the annual solar cycle of the sun and the earth. Most systems in nature display time cycles that are organised in a rhythm of their own as these time cycles and natural processes are always active, the environment of the earth is always in a state of dynamism. This environmental change is not only the result of natural process but also the result of human activity. Physical geography works towards understanding the interaction between man and nature and also the results of this interaction in order to manage global climate change better.

11. **The time cycles of the system of nature follow their own**
 - (a) Path
 - (b) Rhythm
 - (c) Process
 - (d) Cycle
12. **The view seen by a passenger looking out of the window of an aircraft; will be affected by the**
 - (a) Process
 - (b) Pattern
 - (c) Scale
 - (d) Rhythm
13. **Physical geography studies the results of the interaction between man and nature in order to**
 - (a) Understand global climate change
 - (b) Study the impact of man's activities on nature
 - (c) Address the issue of global climate change
 - (d) Reduce man—animal conflict
14. **In geography, pattern studies the variation observed in a phenomenon at**
 - (a) A particular scale
 - (b) Any scale
 - (c) Every scale
 - (d) Most scales

15. **The alignment of landmass with other elements can be seen by a passenger on a flight on a**

- (a) Global scale
- (b) Continental scale
- (c) Local scale
- (d) Time scale

16. **Match Set 'A' with Set 'B'.**

A (Media)	B (Transmission/ Communication)
A. Audio	(i) Bandwidth
B. Advertising	(ii) Linear communication
C. Internet	(iii) Non personal Communication
D. Newspaper	(iv) Frequency modulation

Choose the correct answer from the options given below:

- | | | | |
|----|----|----|----|
| A. | B. | C. | D. |
|----|----|----|----|
- (a) (iii) (iv) (ii) (i)
 - (b) (i) (ii) (iii) (iv)
 - (c) (iv) (iii) (i) (ii)
 - (d) (ii) (i) (iv) (iii)
17. **When subject and predicate of both the premises are the same but they differ in quality only, it is known as**
 - (a) Contradictories
 - (b) Contraries
 - (c) Sub altern
 - (d) Super altern
 18. **Which of the following fractions is the result of the sum of an integer and its reciprocal?**
 - (a) 15/8
 - (b) 26/5
 - (c) 36/7
 - (d) 37/5
 19. **Mass media do not have pre-determined functions for everyone and people use them the way they like. This is suggestive of the fact that,**
 - (a) Audiences are active
 - (b) Content is of little significance
 - (c) Content lacks plurality
 - (d) Audiences are homogeneous
 20. **If proposition 'All republics are grateful' is taken to be true, then which of the following propositions can be false?**
 - (i) Republics are not grateful
 - (ii) Some republics are not grateful
 - (iii) No republics are grateful
 - (iv) Some republics are grateful

- (i) Republics are not grateful
- (ii) Some republics are not grateful
- (iii) No republics are grateful
- (iv) Some republics are grateful

Select the correct answer from the options given below:

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

21. **Sanjay sold an article at a loss of 25%. If the selling price had been increased by ₹ 175, there would have been a gain of 10%. What was the cost price of the article?**

- (a) ₹ 350
- (b) ₹ 400
- (c) ₹ 500
- (d) ₹ 750

22. **A communication process can be considered complete when**

- (a) The sender transmits the message
- (b) The message enters the channel
- (c) The message leaves the channel
- (d) The receiver understands the message

23. **A customer writes to a bank, 'Kindly send me a statement of my transactions in my savings bank account 'A' during the last three months'. In terms of communication it will be called**

- (a) Input
- (b) Message
- (c) Output
- (d) Feedback

24. **A train leaves Agra at 5 am and reaches Delhi at 9 am. Another train leaves Delhi at 7 am and reaches Agra at 10:30 a.m. At what time do the two trains cross each other?**

- (a) 6:36 am
- (b) 6:56 am
- (c) 7 am
- (d) 7:56 am

25. **The proposition 'No red is black is equivalent to which of the following propositions?**

- (i) No black is red
- (ii) All red are black
- (iii) Some red are not black
- (iv) Red is not black

Select the correct answer from the options given below:

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

26. Given below are two premises with four conclusions drawn from them.

Which of the following conclusions could be validly drawn from the premises?

Premises:

- (i) Some bags are tables
(ii) All bags are chairs

Conclusions:

- A. Some tables are chairs
B. No chair is table
C. Some chairs are bags
D. Some bags are not tables

Select the correct answer from the options given below:

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

27. The average of 35 raw scores is 18. The average of first seventeen of them is 14 and that of last seventeen is 20. Find the eighteenth raw score.

- (a) 42 (b) 46
(c) 52 (d) 56

28. Identify the reasoning in the following argument: Pre-active stage of classroom teaching is important just as pre-learning preparation stage of communication'

- (a) Hypothetical
(b) Deductive
(c) Inductive
(d) Analogical

29. In the context of communication, usual sequence is

- (a) Language → Communication → Society → Civilization
(b) Communication → Society → Language → Civilization
(c) Communication → Language → Society → Civilization
(d) Language → Society → Communication → Civilization

30. If REASON is coded as 5 and GOVERNMENT as 9, then what is the code for ACCIDENT?

- (a) 6 (b) 7
(c) 8 (d) 9

Directions (Ques. 31-35): Consider the following options that shows expenditures of a company (in lakh rupees) per annum over the given years. Answer the questions based on the data contained in the table:

Year	Salary	Transport	Bonus	Interest on Loans	Taxes
2008	150	90	2.00	20.0	80
2009	180	100	2.50	30.5	95
2010	200	110	2.75	35.5	105
2011	240	115	3.00	40.0	85
2012	250	125	3.25	42.5	100

31. The approximate ratio between the total expenditure on taxes for all the years and the total expenditure on transport for all the years is

- (a) 31 : 40 (b) 25 : 36
(c) 27 : 30 (d) 31 : 36

32. The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period?

- (a) 0.9% (b) 1.3%
(c) 1.6% (d) 2.0%

33. Total expenditure of all the items in 2008 was approximately what percent of the total expenditure in 2012?

- (a) 66% (b) 69%
(c) 72% (d) 75%

34. The approximate ratio between the total expenditure of the company in the year 2008 and the total expenditure of the company in the year 2009 is

- (a) 57 : 75 (b) 52 : 68
(c) 57 : 68 (d) 68 : 57

35. What is the average amount of interest per year which the company had to pay (in Rupees) during this period?

- (a) 30.5 Lakh (b) 32.7 Lakh
(c) 33.7 Lakh (d) 35.5 Lakh

36. Which of the following statements represent the main functions of UGC?

- (i) Recognition of institutions
(ii) Maintenance of quality and standards
(iii) Appointment of Vice Chancellor
(iv) Giving grants to institutions
(v) Making state governments responsible for educational development

Choose the correct answer from the options given below:

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

37. The main aim of the faculty recharge scheme of UGC was to

- (a) Address the shortage of faculty in higher education institution
(b) Upgrade the teaching skills of the faculty
(c) Upgrade the research infrastructure for the faculty in colleges and universities
(d) Strengthen the academia — industry linkage

38. Which of the following is an online store house of all academic awards like certificates, diplomas, degrees mark sheets etc?

- (a) SWAYAM
(b) National Digital Library
(c) National Academic Library
(d) National Academic Depository

39. The convenient place to store contact information for quick retrieval in e-mail is

- (a) Address box
(b) Message box
(c) Address book
(d) Message book

40. Montreal protocol aims at

- (a) Reduction in emissions of green house gases
(b) Phasing out ozone depleting substances
(c) Prohibiting trans-boundary movement of hazardous waste
(d) Enhancing cooperation among UN member states for peaceful uses of nuclear energy

- 41. SMTP is an acronym for**
 (a) Simple Mail Transport Protocol
 (b) Simple Mail Terminal Protocol
 (c) Simple Mail Transfer Protocol
 (d) Simple Mail Transition Protocol
- 42. In large parts of Eastern India, the ground water is contaminated by**
 (a) Arsenic (b) Lead
 (c) Mercury (d) Nickel
- 43. Taj Mahal is mainly threatened by the deleterious effects of**
 (a) Sulphur dioxide
 (b) Chlorine
 (c) Oxygen
 (d) Hydrogen
- 44. Two statements are given**
Statement I: Earthquake 'A' is 5 on Richter scale and Earthquake 'B' is 8 on the same scale. Earthquake 'B' has 1000 times the wave amplitude compared to 'A'.
Statement II: The energy released in 'B' is three times that of 'A'
- Choose the correct option:**
 (a) Statement I is correct and Statement II is incorrect
 (b) Statement I and II are correct
 (c) Statement II is correct and I is incorrect
 (d) Statement I and II are incorrect
- 45. A computer has main memory of 960 K Bytes. What is the exact number of bytes contained in this memory?**
 (a) 960×8
 (b) 960×1000
 (c) 960×1024
 (d) $960 \times 1024 \times 1024$
- 46. Name the scheme which facilitates academic and research collaboration between Indian Institution and the best institution in the world.**
 (a) ICSSR — IMPRESS
 (b) State Development Scheme
 (c) SPARC
 (d) Institutional Development Scheme
- 47. Which of the following file format is not a video file format?**
 (a) AW (b) MOV
 (c) MP4 (d) JPEG
- 48. For the day to day administration of University, which of the following bodies is responsible?**
 (a) Senate
 (b) Syndicate/ Executive council
 (c) Student council
 (d) Academic council
- 49. Efficiency of electrical power generation is least amongst the following sources of energy in case of**
 (a) Solar (b) Wind
 (c) Geothermal (d) Nuclear
- 50. Which of the following is a non-conventional learning programme in higher education?**
 (a) Swayam
 (b) Face-to-face teaching-learning
 (c) Tutorial class
 (d) Seminar

Answers with Explanations

1. (c) Regression effect is a powerful statistical method that allows you to examine the relationship between two or more variable of interest. Due to regression effect we experience a shift in attitude in respondents during data collection. This causes due to the presence of dependent as well as independent variables.

2. (a) A reference period is the time period for which statistical results are collected or calculated and to which, as a result, these values refer. This ensures the relevancy of a study and determine that the study is time bound. As every problem is directive of a specific time frame, then the study of that problem and figuring out the solution must be based on some reference period to make it relevant.

3. (c) Correlation is a statistical technique that is used to measure and describe a relationship between two variables. Correlations have three important characteristics. They can tell us about the direction of the relationship, the form (shape) of the relationship, and

the degree (strength) of the relationship between two variables. Hence the main objective of correlation analysis is to seek out the level or degree of association among the variables.

4. (a) The commitment of learner toward the objective of his/ her study will determine the probability of completion of the study. The prior knowledge of the subject matter will ensure the familiarity and help in interest development. The social-economical background of the learner will determine his perspective as well as his approach toward the study.

5. (d) Norm-referenced tests report whether test takers performed better or worse than a hypothetical average student, which is determined by comparing scores against the performance results of a statistically selected group of test takers, typically of the same age or grade level, who have already taken the exam.

6. (d) Non-probability sampling is a sampling technique in which the researcher selects samples based on the subjective

judgment of the researcher rather than random selection. There are five types of non-probability sampling technique that you may use when doing a dissertation at the undergraduate and masters level: quota sampling, convenience sampling, purposive sampling, self-selection sampling and snowball sampling. Dimensional sampling is an extension of quota sampling under non-probability sampling procedure.

7. (b) A research design is a systematic approach that a researcher uses to conduct a study. It is the overall synchronization of identified components and data resulting in a plausible outcome. Research design provides insights about "how" to conduct research using a particular methodology. Every researcher has a list of research questions which need to be assessed – this can be done with research design.

8. (c) Aptitude tests are used to determine an individual's ability/potential to succeed in a certain task, with no prior knowledge or training. Aptitude tests can be used in school exams and

are frequently used as part of a pre-employment assessment. Aptitude test are different from conventional test. It try to enquire about the commitment and determination of the a person in approaching an non-familiar task.

9. (c) Direct instruction is the use of straightforward, explicit teaching techniques, usually to teach a specific skill. It is a teacher-directed method, meaning that the teacher stands in front of a classroom and presents the information. Providing examples and explanation for better understanding. Giving review and recapitulation and ordering practice and feedback are few direct teaching strategies.

10. (d) Process based question require the processing and analysis of the information provide as well as the enquiry of any other relevant information related to the topic. Divergent question lead to the fragmentation of the information and combining them together require processing. The fact based question require the investigation of the fact related to the topic. The open question require a comprehensive approach while appearing them and this require processing.

11. (b) Most systems in nature display time cycles that are organised in a rhythm of their own as these time cycles and natural processes are always active, the environment of the earth is always in a state of dynamism.

12. (c) Scale is defined as the level of structure on organization at which a phenomenon is studied. , when a passenger on an aircraft looks out of the window, the view changes according to the scale.

13. (c) Physical geography works towards understanding the interaction between man and nature and also the results of this interaction in order to manage global climate change better.

14. (a) In the field of geography, inter-related themes are frequently seen. These are scale, pattern and process. Pattern is defined as the variation observed in a phenomenon studied at a particular scale.

15. (b) Process is defined as the description of how the factors that are phenomenon act to product a pattern at a particular scale. At the continental scale, the passengers can see the shapes of the

land features and how they are distributed. The pattern emerges as the variation of land and water and the proportion of each.

16. (c) Media involves multiple ways of communication and transmission on the basis of the target audience. Advertising is a way of linear communication and Newspaper is a form of Non personal communication. The quality of audio is determined on the basis of frequency modulation and Internet's is transmitted through bandwidth.

17. (b) Two universal categorical propositions with the same subject and predicate are contraries if one is an affirmation and the other a denial. Contraries may both be false but cannot both be true. Contradictories are such that one of them is true if and only if the other is false.

18. (b)

19. (a) The statement in the question suggests that the mass media did not specify any role to any individual and this lead people to use it according to their own choice. This statement lead us to the conclusion that the people are themselves interested in using mass media and are actively participating in it.

20. (c) The proposition given in the question is in absolute form. It mean that all republic without any exception are grateful, hence statement which having words like 'some', 'not' makes them automatically wrong.

21. (c)

22. (d) A communication process start with a sender transmitting the message to the receiver after that the message enters into the transmission channel, the next level involve the receiving of message to the receiver and the last or final stage involve the understanding of the message by the receiver.

23. (b) This request by the customer to his bank is a message to receive some information. Customer wrote a formal message to his bank and requested for transaction details of last three month. Here customer is neither giving any feedback on back service and neither providing any input or output.

24. (d)

25. (c) Here the proposition in the question is absolute in nature. Second option is exactly opposite to the proposition and the third option is using word 'some'. Hence both of them are wrong. Option one and four are only equivalent to the proposition.

26. (a) According to the premises, 'Some bags are tables' and 'All bags are chairs'. this lead use to the conclusion that some table are also chairs and some chairs can be bags. Hence option one is correct.

27. (c)

28. (d) An analogy is a comparison between two objects, or systems of objects, that highlights respects in which they are thought to be similar. In the question the argument is analogically relating the pre-active stage with pre-learning stage and hence making Pre-active stage of classroom teaching as and important part of learning process.

29. (c) The need of communication among individual lead to the creation of language by human and then the linguistic interaction developed the relationship among individual which lead to the formation of society. The society with its values, culture and tradition result into the formation of Civilization.

30. (b) 'REASON' has 6 alphabets but it is represented by 5 which is one less than 6. Similarly 'GOVERNMENT' has 10 alphabet but represented as 9. Hence 'ACCIDENT' should be represented by 7 because it has 8 alphabets.

31. (d) 32. (b) 33. (a) 34. (c)

35. (c)

36. (c) UGC Roles and Functions are:

- Set some standards for the universities for being UGC Approved Universities.

- Promote and coordinate university education.

- Frame rules on minimum standards of education.

- Setting standards for examination like ICAR NET, UGC NET & CSIR UGC NET

- Scrutinize growth in the field of college and university education.

- Allow grants to the universities and colleges.

37. (a) Taking note of steep decline in research environment in Indian Universities and stagnation of faculty and infrastructure, the Government of India, through the University Grants Commission, has decided to launch a new Programme called “UGC-Faculty Recharge Programme” to redress this situation.

38. (d) National Academic Depository (NAD) is an initiative of Government of India, facilitated by MHRD. NAD is a national database set up to hold academic awards issued by Academic Institutions (AI) in an electronic form. The NAD helps in validating the authenticity of these awards and ensuring their safe storage and easy retrieval. Maintaining academic awards in a Digital Depository benefits provide benefits to Educational institutions, Students and Employers by enabling online access and retrieval, elimination fraudulent practices such as faking/forging of certificates and mark-sheets and facilitate validation. NAD is an online web based system with 24x7 access to the Stakeholders.

39. (c) The Web Mail Address Book is a convenient tool for storing the email addresses and other contact information of people you frequently email. The Address Book screen displays the Name, Email Address, and Phone number of each contact that you have added to your address book.

40. (b) The Montreal Protocol, finalized in 1987, is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances (ODS). The stratospheric ozone layer filters out harmful ultraviolet radiation, which is associated with an increased prevalence of skin cancer and cataracts, reduced agricultural productivity, and disruption of marine ecosystems.

41. (c) SMTP is a set of communication guidelines that allow software to transmit

an electronic mail over the internet is called Simple Mail Transfer Protocol. It is a program used for sending messages to other computer users based on e-mail addresses.

42. (a) Arsenic contamination of groundwater is a form of groundwater pollution which is often due to naturally occurring high concentrations of arsenic in deeper levels of groundwater. It is a high-profile problem due to the use of deep tubewells for water supply in the Ganges Delta, causing serious arsenic poisoning to large numbers of people. In India after West Bengal and the bordering districts of Bangladesh, arsenic in groundwater was detected in part of Assam, Arunachal Pradesh, Manipur, Nagaland and Tripura.

43. (a) The outer surface of the Taj Mahal is turning yellow is mostly due to atmospheric pollution and also due to (suspected) excessive presence of Sulphur dioxide in the air due to the Mathura refinery nearby areas.

44. (a) The Richter scale is a base-10 logarithmic scale, meaning that each order of magnitude is 10 times more intensive than the last one. In other words, a two is 10 times more intense than a one and a three is 100 times greater. In the case of the Richter scale, the increase is in wave amplitude. That is, the wave amplitude in a level 6 earthquake is 10 times greater than in a level 5 earthquake, and the amplitude increases 100 times between a level 7 earthquake and a level 9 earthquake. The amount of energy released increases 31.7 times between whole number values.

45. (c) In digital memory storage system 1 KB is equal to 1024 Bytes. Hence 960 KB will be equal to 960×1024 Bytes.

46. (c) The Scheme for Promotion of Academic and Research Collaboration (SPARC) aims at improving the research ecosystem of India’s Higher Educational Institutions by facilitating academic and research collaborations between Indian Institutions and the best institutions in

the world from 28 selected nations to jointly solve problems of national and/or international relevance.

47. (d) JPEG compression is used in a number of image file formats. JPEG is the most common image format used by digital cameras and other photographic image capture devices. The name “JPEG” stands for Joint Photographic Experts Group, the name of the committee that created the JPEG standard and also other still picture coding standards.

48. (b) The syndicate is the executive body of the University and exercises general supervision over the affairs and management of the University. The Syndicate has the powers to:

- To consider the annual report, the annual and revised budget estimates.

- To transfer and accept transfer of movable property on behalf of the University.

- To enter into, modify, carry out and cancel contracts on behalf of the University.

- To cause proper books of account to be kept for all sums of money received and expended by the University and for the assets and liabilities of the University.

49. (c) Around 70% of the geothermal resource world-wide has a temperature < 150 °C. Due to its low temperature, the thermal efficiency of plant is usually low (6-12%) and uneconomical for electricity production.

50. (a) SWAYAM platform is World’s Largest Online Free E-Learning Platform Portal designed to achieve the three cardinal principles of Education Policy viz., Access, Equity and Quality by covering School/Vocational, Under-Graduate, Post Graduate, Engineering and Other Professional Courses.



UGC/NET/JRF/SET EXAMINATION

Teaching & Research Aptitude

Solved Paper-I, December-2018

1. Which among the following is a cognitive characteristic of learner?

- (a) Sensory perception
- (b) Belief
- (c) Academic self-concept
- (d) Level of visual literacy

2. As a teacher you wish to predict the capacity and potential success in your subject. Your main purpose is to predict or to identify individuals who have the greatest potential for development along special lines or who are likely to profit most by special training. Which test you would apply to accomplish that?

- (a) Aptitude test
- (b) Intelligence test
- (c) Personality test
- (d) Prognostic test

3. According to Jean Piaget, there are _____ stages of cognitive development.

- (a) 2
- (b) 4
- (c) 6
- (d) 8

4. John Dewey explained school as a/an _____ institution and education as a process.

- (a) Social, philosophical
- (b) Social, social
- (c) Economical, philosophical
- (d) Environmental, psychological

5. Who among the following proposed the theory of 'Multiple Intelligences'?

- (a) Sigmund Freud
- (b) Howard Gardner
- (c) Albert Einstein
- (d) Jean Piaget

6. Empirical research in social sciences is associated with

- (a) Fictional narratives
- (b) Positivist philosophy
- (c) Historical artifacts
- (d) Religious practices

7. Reasoning from a specific case to a general conclusion is known as

- (a) Scientific logic
- (b) Inductive logic
- (c) Deductive logic
- (d) Theoretical logic

8. The purpose of review of literature includes

- (i) To understand the subject background.
- (ii) To formulate research questions.
- (iii) To find out relevant methodology.
- (iv) To debate the ethical aspects of research.
- (v) To carry out meta analysis of bibliography.
- (vi) To identify the data sources code.

Options:

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

9. If you are to calculate Spearman's rho, then what kind of data you would enter?

- (a) Actual scores
- (b) Ranks
- (c) Dichotomous data
- (d) Nominal data

10. A variable that measures the effect of a manipulated variable is known as

- (a) Independent variable
- (b) Dependent variable
- (c) Confounding variable
- (d) Controlled variable

Read the following passage carefully and answer questions from 11 to 15.

It has to be noted that, although certain overall results had been obtained in the matter of economic growth in the developing countries regarded as a group, little progress had been made towards the establishment of the new international economic order within the framework of negotiations among nations for the purpose of applying the principles adopted in 1974 by the United Nations General Assembly. The situation appeared to be marked by a slowing down at world level in the effort to find a solution to most of the major problems, due to certain inability to control the evolution of societies and economies, and a fairly widespread feeling of uncertainty as to the future. The changes which have occurred between 1978 and 1980 have only magnified the difficulties, so that today there is much talk of a deterioration in the international situation. This is immediately apparent in regard to inequalities between human beings, whether considered as individuals or groups or nations. Overall economic disparities have not been attenuated. In many countries, per capita gross national product remains less than \$300, while in others it is situated at levels ten, twenty or even thirty times higher than this amount. In some rich countries, the average income is a hundred times higher than in the poorest countries. Particularly, drastic is the state of penury, destitution and all too often homelessness of those populations that may be regarded as history's most recent rejects: tire disinherited masses of the poorest countries. In these countries, whose economic situation is particularly crucial, the problems of hunger, disease and ignorance experienced by a large part of the population seem to all but paralyse efforts made to cope with them.

11. What was the purpose of principles adopted by the United Nations General Assembly?

- Considering developing countries as a group.
- Obtaining results in the economic growth of developing countries.
- Establishing a new international economic order.
- Permitting negotiations among nations.

12. What is the consequence due to the little progress made by nations during negotiations?

- Evolution of societies
- Control of economies
- UN intervention
- Uncertain future

13. What is apparent due to the changes occurred between 1978 and 1980?

- Plan adjustment
- Support of rich countries
- Reduction in poverty
- Inequality between human beings

14. How economic disparities are reflected?

- \$300 per capita GNP as benchmark.
- Collectivizing individuals into groups or nations.
- Higher average income for poor countries.
- Average income of some countries is a hundred times higher than in the poor countries.

15. Whom do you call as history's recent rejects?

- Homeless population
- Ignorant population
- Large part of population
- Rich countries

16. In classroom communication, analogies are considered as

- Supporting evidence
- Unwanted information
- Control devices
- Attention-breakers

17. Assertion (A): Empathy is essential for effective communication between the communicator and the communicatee.

Reason (R): Empathy links the teacher and students.

- Both (A) and (R) are true.
- Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (A) is true, but (R) is false.
- (A) is false, but (R) is true.

18. Computer-assisted language learning is called

- Aided learning
- Communicative call
- Language logic
- Electronic mediation

19. The word 'haptics' denotes

- Spatial communication
- Timely communication
- Staggered communication
- Tactile communication

20. Social media platforms have created a

- Society of reactionary opinions
- Society of consumables
- Society of negativity
- Society of networking

21. If DICE is coded as FLGJ, then the code for BITE will be

- DLXJ
- DKYH
- DKVY
- DICL

22. The next term in the series 7, 11, 19, 35, 67, _____ is

- 121
- 133
- 131
- 99

23. The next term in the letter series KB, JH, IM, HQ, GT, _____ is

- EY
- FV
- FU
- EU

24. Choose the word which is different from the rest:

- Paper
- Wool
- Plastic
- Jute

25. Pointing to a man, Abhijit said 'His granddaughter is the only daughter of my brother'. How is the man related to Abhijit?

- Father
- Grandfather
- Uncle
- Brother-in-law

Data Interpretation: The above table shows details of expenditure incurred by a tea garden during the years 2008 to 2012. Note that all expenditure reported is in crores.

Answer the following questions based on the data given in the above table.

Year	Items of expenditure (₹ in crores)				
	Salary	Fuel	Bonus	Interest of loans	Taxes
2008	57.6	19.6	0.6	4.68	16.6
2009	68.4	22.4	0.5	6.50	21.6
2010	64.8	20.2	0.76	8.32	14.8
2011	67.2	26.6	0.74	7.28	17.6
2012	84.0	28.4	0.80	9.88	19.6

26. The average yearly expenditure on 'Interest on Loans' during the period 2008–2012 was approximately

- ₹ 6.33 Crores
- ₹ 6.88 Crores
- ₹ 8.32 Crores
- ₹ 7.33 Crores

27. Bonus as a percentage (%) of salary was highest in the year

- 2008
- 2009
- 2010
- 2011

28. In which year, was the total expenditure (over the five heads of expenditure listed in the table above) the least?

- 2008
- 2009
- 2010
- 2011

29. In which years, the percentage (%) growth of expenditure on salary (as compared to the previous year), was more than 10%?

- 2009 and 2010
- 2010 and 2012
- 2011 and 2012
- 2009 and 2012

30. In which year, the expenditure of taxes and 'Interest on loans', was less than the expenditure on fuel, etc.?

- (a) 2009 (b) 2010
(c) 2011 (d) 2012

31. Two propositions are contradictory when

- (a) Truth of one proposition implies falsity of the other and vice versa.
(b) Truth of one proposition supposes the falsity of the other and vice versa.
(c) Truth of one proposition does not guarantee the falsity of the other.
(d) Truth of one proposition rejects the falsity of the other and vice versa.

32. Among the following, identify the two statements which are in such a relation that the truth of one implies the truth of the other, but not conversely.

Statements:

- (i) All plastics are synthetic.
(ii) Some plastics are synthetic.
(iii) Some plastics are not synthetic.
(iv) No plastics are synthetic.

Options:

- (a) (i) and (ii) (b) (i) and (iii)
(c) (i) and (iv) (d) (ii) and (iv)

33. Identify the argument which involves a leap from the known to the unknown.

- (a) Deductive argument
(b) Reductive argument
(c) Inductive argument
(d) Analogical argument

34. Given below are two premises (A and B). Four conclusions are drawn from them. Select the code that states validly drawn conclusion(s) (Taking the premises individually or jointly).

Premises:

- (A) No non-literates are graduates.
(B) All non-graduates are non-teachers.

Conclusions:

- (i) All teachers are non-literates.
(ii) All teachers are graduates.
(iii) All non-teachers are non-graduates.
(iv) No non-literate is a teacher.

Options:

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

35. The argument which claims that its conclusion is supported by its premises conclusively is

- (a) Analogical argument
(b) Inductive arguments
(c) Demonstrative argument
(d) Deductive argument

36. If the binary equivalent of the decimal number 53 is 110101, then the binary equivalent of the decimal number 50 is given by

- (a) 110011 (b) 110010
(c) 110001 (d) 110100

37. Which one of the following is not part of suite of products of Microsoft Office?

- (a) Microsoft Excel
(b) Microsoft PowerPoint
(c) Microsoft Publisher
(d) Microsoft Windows

38. The internet began with the development of

- (a) USENET (b) Intranet
(c) ARPANET (d) Intranet

39. RFID is an acronym for

- (a) Roaming Frequency Identification
(b) Radio Frequency Identification
(c) Runtime Frequency Identification
(d) Remote Frequency Identification

40. Bluetooth is an example of

- (a) PAN (b) LAN
(c) MAN (d) WAN

41. Recently in Brazil, a bacterium exhibited antibiotic resistance, which was not reported previously

- (a) Pseudomonas species
(b) Salmonella species
(c) Klebsiella species
(d) Streptococcus species

42. One of the following has a positive human influence on the environment.

- (a) Deforestation
(b) Over population
(c) Pollution
(d) Conservation

43. Assertion (A): The environmental impact of soil erosion can best be mitigated by removing vegetative cover only from the specific site in which construction is to take place.

Reason (R): The environmental impact of soil erosion can also be mitigated by disturbing the vegetation in adjacent areas as little as possible.

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

44. Assertion (A): Hydropower is an exhaustible energy resource.

Reason (R): The power of falling water would neither diminish nor get exhausted.

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

45. In the scheme of life, soil is an essential resource of life, as it plays the following roles.

- (i) It is a reservoir of carbon.
(ii) It is the medium for growth of food and energy for the animal world.
(iii) It provides oxygen to the biotic community.
(iv) It is a natural reservoir for the huge amount of water.

Select the correct answer from the above.

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

46. In terms of year of establishment, which open university is the youngest among the following (established most recently)?

- (a) Tamil Nadu Open University, Tamil Nadu
 (b) Odisha State Open University, Odisha
 (c) Krishna Kanta Handique State Open University, Assam
 (d) Pt. Sunderlal Sharma Open University, Chattisgarh

47. Match the following.

Set-I	Set-II
(A) Swayam Prabha	(i) FM education radio network
(B) GIAN (Global Institute of Academic Network)	(ii) Internet audio counselling service.
(C) Gyan Vani	(iii) Free DTH channel for education.

- (D) Gyan Darshan (iv) Talent pool of scientists and entrepreneurs for engagement with Indian higher education institution.
 (E) Gyandhara (v) Educational Television Channel

Code:

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

48. The institutions of eminence lag granted by the union government in public sector are

- (i) IIT, Delhi
 (ii) IIT, Bombay
 (iii) Jawaharlal Nehru University, Delhi

- (iv) University of Hyderabad
 (v) Pondicherry University
 (vi) Indian Institute of Science

Options:

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

49. Which among the following was launched on 2 October 1978 (the birthday of Mahatma Gandhi)?

- (a) National Adult Education Programme
 (b) EduSAT
 (c) First educational radio channel
 (d) 10 + 2 + 3 Scheme

50. On the recommendations of which commission, 10 + 2 + 3 structure was incorporated in the statement of National Policy on Education, 1968?

- (a) Kothari Commission
 (b) Mudaliar Commission
 (c) Ramamurti Commission
 (d) Mandal Commission

Answers with Explanations

1. (d) Visual literacy is the ability to read, write and create visual images. It is a concept that relates to art and design but it also has much wider applications. Visual literacy is about language, communication and interaction. The visual literacy of a learner determines his/her level of understanding of any topic.

2. (a) Aptitude tests are used to determine an individual's ability/potential to succeed in a certain task, with no prior knowledge or training. Aptitude tests can be used in school exams and are frequently used as part of a pre-employment assessment. Aptitude test can be helpful for the teacher to predict or identify an individual who has greatest potential to develop his skills with the help of special training.

3. (b) Jean Piaget's theory of cognitive development suggests that children move through four different stages of mental development. Piaget's stages are:

- Sensorimotor stage: birth to 2 years

- Preoperational stage: ages 2 to 7
 ➤ Concrete operational stage: ages 7 to 11
 ➤ Formal operational stage: ages 12 and up

4. (a) John Dewey once said that: 'Education is a social process. Education is growth. Education is, not a preparation for life; education is life itself.' According to Dewey, powerful educational experiences are a result of two fundamental principles: continuity and interaction. Dewey combined these two principles, stating that one's present experiences are a direct result of how their previous experiences interact with and influence their present situation. Simply put, Dewey stated that human experiences—past, present, and future—influence the capacity to learn.

5. (b) Howard Gardner first outlined his theory in his 1983 book "Frames of Mind: The Theory of Multiple Intelligences," where he suggested that all people have different kinds of

"intelligences." Gardner proposed that there are eight intelligences, and has suggested the possible addition of a ninth known as "existential intelligence." The nine intelligences are: Verbal Linguistic, Logical/Mathematical, Visual/Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal, Naturalistic and Existential.

6. (b) Positivist philosophy holds that valid knowledge is found only through verified data (positive facts) that is received from the senses and is known as empirical evidence. Thus positivism is based on empiricism.

7. (b) Inductive reasoning/logic begins with detailed observations of the world, which moves towards more abstract generalizations and ideas. When following an inductive approach, beginning with a topic, a researcher tends to develop empirical generalisations and identify preliminary relationships as he progresses through his research. Inductive logic is the process of making generalized decision

after observing, or witnessing, repeated specific instances of something.

8. (c) The purpose of a literature review is to gain an understanding of the existing research and debates relevant to a particular topic or area of study, and to present that knowledge in the form of a written report. Conducting a literature review helps you build your knowledge in your field. You'll learn about important concepts, research methods, and experimental techniques that are used in your field.

9. (b) Spearman's rho is a non-parametric statistical test of correlation that allows a researcher to determine the significance of their investigation. It is used in studies that are looking for a relationship, where the data is at least ordinal. Ordinal data, involves some order; ordinal numbers stand in relation to each other in a ranked fashion.

10. (b) A dependent variable is what you measure in the experiment and what is affected during the experiment. The dependent variable responds to the independent variable. It is called dependent because it "depends" on the independent variable. Independent variables are also known as manipulated variable.

11. (c) According to passage little progress had been made towards the establishment of the 'new international economic order' which was the purpose of the principles adopted by United Nations General Assembly in 1974.

12. (d) The situation appeared to be marked by a slowing down at world level in the effort to find a solution to most of the major problems, due to certain inability to control the evolution of societies and economies, and a fairly widespread feeling of uncertainty as to the future.

13. (d) The changes which have occurred between 1978 and 1980 have only magnified the difficulties, so that today there is much talk of a deterioration in the international situation. This is immediately apparent in regard to inequalities between human beings, whether considered as individuals or groups or nations.

14. (d) In some rich countries, the average income is a hundred times higher than in the poorest countries. This represents the overall economic disparities of world.

15. (d) Particularly, drastic is the state of poverty, destitution and all too often, harmlessness of those populations that may be regarded as history's most recent rejects: the disinherited masses of the poorest countries.

16. (a) An analogy is a similarity between concepts. Analogies can help students build conceptual bridges between what is familiar and what is new. Whenever a teacher begins an explanation with "It's just like...", "It's similar to...", or "Think of it this way...", they are using an analogy to explain a concept to their students. Analogies work as supporting evidence for providing better understanding of a concept to the students.

17. (a) Teacher empathy is the degree to which an instructor works to deeply understand students' personal and social situations, to feel care and concern in response to students' positive and negative emotions, and to respond compassionately without losing the focus on student learning. In this question both the statements are true and the Assertion is rightly justified by the reason.

18. (b) Computer-assisted language learning (CALL) is an approach to language teaching and learning in which computer technology is used as an aid to the presentation, reinforcement and assessment of material to be learned, usually including a substantial interactive element. CALL has also been known by several other terms such as technology-enhanced language learning, computer-assisted language instruction (Davies) and computer-aided language learning but the field is the same.

19. (d) Haptics is the science of applying touch (tactile) sensation or Tactile communication and control to interaction with computer applications. The word derives from the Greek word "haptesthai" meaning "to fasten." Haptics offers an additional dimension to a virtual reality or 3-D environment and is essential to the immersiveness of those environments.

20. (d) Social media refers to the means of interactions among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. Hence we can say that social media creates a society of Networking.

21. (a) Here $D + 2 = F$, $I + 3 = L$, $C + 4 = G$, $E + 5 = J$

Similarly, $B + 2 = D$, $I + 3 = L$, $T + 4 = X$, $E + 5 = J$

Then the code for BITE will be DLXJ.

22. (c) The relation in this series is that the difference between the two never will be twice the difference between previous pair of number. For example $7 + 4 = 11$ and $4 \times 2 = 8$ now add $11 + 8$ so we will get the next number that is 19. Similarly, $67 - 35 = 32$ and $32 \times 2 = 64$. Now add 67 in 64 we will get the answer that is 131.

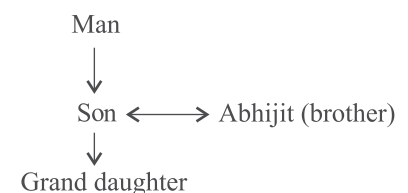
23. (b) A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z

In this series the first alphabet is decreasing with -1 as we move forward in serious, so after G comes the F.

And the second alphabet in serious is the difference between the two alphabet and $+7$ as we moved forward in the serious. The next term in serious will be FV.

24. (c) Paper, Wool and jute all are Natural as well as biodegradable substances. On the other hand, Plastic is an Artificial as well as Non-biodegradable substance. Hence Plastic is odd one out among others.

25. (a)



Hence, Man is father of Abhijit.

26. (d) The average of expenditure on 'Interest on Loans' is

$$\frac{4.68 + 6.50 + 8.32 + 7.28 + 9.88}{5}$$

Average = ₹ 7.33 crores.

27. (c) The bonus percentage on salary in 2010 was 0.76 which is greater than that in 2011. Remember 2012 is not provided in option. So, the correct answer will be 2010.

28. (a)

Total Expenditure	Year
98.68 crores	2008
119.4 crores	2009
108.79 crores	2010
119.42 crores	2011
142.68 crores	2012

The least expenditure was in 2008 that is 98.68 crores.

29. (d)

30. (c)

Year	Loan + Taxes	Fuel
2009	28.1	22.4
2010	23.12	20.2
2011	24.88	26.6
2012	29.48	28.4

Hence, in 2011 the expenditure on fuel is more than expenditure on loan and taxes.

31. (a) Two propositions are contradictory if they cannot both be true and they cannot both be false. In other words, the statements have opposite truth values.

32. (a) Statement (i) claims that 'All plastics are synthetic', then if we go by the condition required by question, there is no possibility of plastic not being synthetic. So, only statements (ii) which says 'some plastics are synthetic' is in resonance with the statement (i).

33. (c) Inductive argument Method is based on principle of induction. Induction means to establish a universal truth by showing that if it is true for a particular case and is further true for a reasonably adequate number of cases then it is true for all such cases. Thus, inductive method of teaching leads us from known to unknown, particular to general or example to general rule and from concrete to abstract.

34. (d) The premises here establish two facts that no one who is illiterate is not a graduate and those who are not-graduate are also not a teacher. According to premises, the conclusion (i) and (iii) are incorrect. On the other hand conclusion statement (ii) & (iv) are correct because they are in resonance with the premises.

35. (d) Deductive argument is the process by which a particular fact is derived from some general known truth. Thus, in the deductive method of teaching learner proceeds from general to particular, abstract to concrete and from formula to examples. This is how the conclusion is derived or supported by the premises in deductive argument.

36. (b) Binary code, code used in digital computers, based on a binary number system in which there are only two possible states, off and on, usually symbolized by 0 and 1. Whereas in a decimal system, which employs 10 digits, each digit position represents a power of 10 (100, 1,000, etc.), in a binary system each digit position represents a power of 2 (4, 8, 16, etc.). The binary code for 50 is 110010.

37. (d) Microsoft Windows is a group of OSs (Operating Systems) manufactured by Microsoft. Windows offers a graphical user interface (GUI), multitasking functionalities, virtual memory management capabilities, and support for several peripheral devices. Windows OSs constitute client as well as server versions. It is not part of MS Office.

38. (c) ARPANET, in full Advanced Research Projects Agency Network, experimental computer network that was the forerunner of the Internet. The Advanced Research Projects Agency (ARPA), an arm of the U.S. Defense Department, funded the development of ARPANET in the late 1960s. Its initial purpose was to link computers at Pentagon-funded research institutions over telephone lines.

39. (b) Radio-Frequency Identification (RFID) is the use of radio waves to read and capture information stored on a tag attached to an object. A tag can be read from up to several feet away and does not need to be within direct line-of-sight of the reader to be tracked.

40. (a) Bluetooth Personal Area Network (PAN) is a technology that enables you to create an Ethernet network with wireless links between mobile computers, mobile phones, and handheld devices.

41. (b) Researchers in Brazil have found Salmonella Species is resistant to different classes of antibiotics and have identified genes responsible for that resistance. It was the first study of Salmonella Typhimurium strains isolated in Brazil that used Whole Genome Sequencing to access the genetic diversity and molecular bases of antimicrobial resistance.

42. (d) Deforestation, Pollution and Over population as famous as the reason for all the problem faced by human civilization. On the other hand conservation is a solution to counter all the challenges famous by human being. The idea of conservation has the capability to protect the future of earth as well as of human civilization.

43. (b) Both statements are suggesting a development approach which is sustainable in nature. They are suggesting minimization of removing of forest cover for the construction project. Both statement are true but the Reason is not a rightful explanation of the Assertion.

44. (a) Hydropower is an exhaustible energy resource. The water that is used to power the turbines is not lost in the process. It can be reused over and over again to produce electricity. Also, water on the earth is continually replenished by rain and snow.

45. (b) All the statement given are correct about the usefulness of soil as a resource except the (iii) statement which claim that soil provides oxygen two the biotic community. Soil contain oxygen in concentrated form and this oxygen in not suitable for consumption by living being. Living being absorb oxygen from atmosphere and not from soil.

46. (b) The Tamil Nadu Open University was established in 2002.

Odisha State Open University was established in 2015.

Krishna Kanta Handique State Open University (Assam) was established in 2006.

Pt. Sunderlal Sharma Open University (Chattisgarh) was established in 2005.

47. (c) SWAYAM PRABHA is a group of 32 DTH channels devoted to telecasting of high-quality educational programmes.

GIAN Scheme aims at improving the quality of higher education in the country through international collaboration.

Gyan Vani is an educational FM radio station in several cities of India.

Gyan Darshan (GD) channel is a major milestone in the field of Educational Television in India.

Gyan Dhara is an internet audio counseling service offered by IGNOU.

48. (c) List of public Institutes which have been given the Institute of Eminence Status includes:

IIT Bombay, IIT Delhi, IISc Bangalore, IIT Madras, IIT Kharagpur, Delhi University, University of Hyderabad and Banaras Hindu University. The question is asking for the list on the basis of exam date, University of Hyderabad was added afterwards. So, the answer will be Option (c).

49. (a) The first nation-wide attempt at eradication of illiteracy was made through the National Adult Education Programme launched on October 2, 1978. It was a massive programme which aimed at educating 100 million non-literate adults in

the age group of 15-35 years within a time frame of five years.

50. (a) One of the main recommendations of Kothari commission was the standardization of educational system on 10+2+3 pattern, across the country. National Education Commission (1964–1966), popularly known as Kothari Commission, was an ad hoc commission set up by the Government of India to examine all aspects of the educational sector in India, to evolve a general pattern of education and to advise guidelines and policies for the development of education in India.



UGC/NET/JRF/SET EXAMINATION

Teaching & Research Aptitude

Solved Paper-I, July-2018

1. Which of the following set of statements best describes the nature and objectives of teaching?

- (A) Teaching and learning are integrally related.
- (B) There is no difference between teaching and training.
- (C) Concern of all teaching is to ensure some kind of transformation in students.
- (D) All good teaching is formal in nature.
- (E) A teacher is a senior person.
- (F) Teaching is a social act whereas learning is a personal act.

Select the correct answer from the codes given below.

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

2. Which of the following learner characteristics is highly related to effectiveness of teaching?

- (a) Prior experience of the learner.
- (b) Educational status of the parents of the learner.
- (c) Peer groups of the learner.
- (d) Family size from which the learner comes.

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

Set - I (Method of teaching)

- (A) Lecturing
- (B) Discussion in groups
- (C) Brainstorming
- (D) Programmed Instructional procedure

Set-II (Basic requirements for success/effectiveness)

- (i) Small step presentation with feedback provided.
- (ii) Production of large number of ideas.
- (iii) Content delivery in a lucid language.
- (iv) Use of teaching-aids.
- (v) Theme based interaction among participants.

(A) (B) (C) (D)

- (a) (i) (ii) (iii) (iv)
- (b) (ii) (iii) (iv) (v)
- (c) (iii) (v) (ii) (i)
- (d) (iv) (ii) (i) (iii)

4. From the list of evaluation procedures given below identify those which will be called 'formative evaluation'.

Indicate your answer by choosing from the code.

- (A) A teacher awards grades to students after having transacted the course work.
- (B) During interaction with students in the classroom, the teacher provides corrective feedback.
- (C) The teacher gives marks to students on a unit test.
- (D) The teacher clarifies to doubts of students in the class itself.
- (E) The overall performance of a student is reported to parents at every three months interval.
- (F) The learner's motivation is raised by the teacher through a question-answer session.

Select the correct answer from the codes given below.

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

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

Reason (R): All learning results from teaching

Choose the correct answer from the following code.

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

6. There are two sets given below.

Set-I specifies the types of research, while Set-II indicates their characteristics. Match the two and give your answer by selecting the appropriate code.

Set-I (Research types)

- (A) Fundamental research
- (B) Applied research
- (C) Action research
- (D) Evaluative research

Set-II (Characteristics)

- (i) Finding out the extent of perceived impact of an intervention
- (ii) Developing an effective explanation through theory building.
- (iii) Improving an existing situation through use of interventions.
- (iv) Exploring the possibility of a theory for use in various situations.
- (v) Enriching technological resources.

(A) (B) (C) (D)

- (a) (ii) (iv) (iii) (i)
- (b) (v) (iv) (iii) (ii)
- (c) (ii) (ii) (iii) (iv)
- (d) (ii) (iii) (iv) (v)

7. Which of the sets of activities best indicate the cyclic nature of action research strategy?

- (a) Reflect, Observe, Plan, Act
- (b) Observe, Act, Reflect, Plan
- (c) Act, Plan, Observe, Reflect
- (d) Plan, Act, Observe, Reflect

8. Which of the following sequence of research steps is nearer to scientific method?

- (a) Suggested solution of the problem, deducing the consequences of the solution, perceiving the problem situation, location of the difficulty and testing the solutions.
- (b) Perceiving the problem situation, locating the actual problem and its definition, hypothesizing, deducing the consequences of the suggested solution and testing the hypothesis in action.
- (c) Defining a problem, identifying the causes of the problem, defining a population, drawing a sample, collecting data and analysing results.
- (d) Identifying the causal factors, defining the problem, developing a hypothesis, selecting a sample, collecting data and arriving at generalization and conclusions.

9. The problem of 'research ethics' is concerned with which aspect of research activities?

- (a) Following the prescribed format of a thesis.
- (b) Data analysis through qualitative or quantitative technique.
- (c) Defining the population of research.
- (d) Evidence based research reporting.

10. In which of the following activities, potential for nurturing creative and critical thinking is relatively greater?

- (a) Preparing research summary.
- (b) Presenting a seminar paper.
- (c) Participation in research conference.
- (d) Participation in a workshop.

Reading Comprehension: Read the following passage carefully and answer questions from 11 to 15.

If India has to develop her internal strengths, the nation has to focus on the technological imperatives, keeping in mind the three dynamic dimensions, such as the people, the overall economy and the strategic interests. These technological imperatives also take into account a 'fourth' dimensions, time, and offshoot of modern day dynamism in business, trade and technology that leads to continually shifting targets. We believe that technological strengths are especially crucial in dealing with this fourth dimension underlying continuous change in the aspirations of the people, the economy in the global context and the strategic interests. The progress of technology lies at the heart of human history. Technological strengths are the key to creating more productive employment in an increasingly competitive market place and to continually upgrade human skills. Without a pervasive use of technologies, we cannot achieve overall development of our people in the years to come. The direct linkages of technology to the nation's strategic strengths are becoming more and more clear, especially since 1990s. India's own strength in a number of core areas still puts it in a position of reasonable strength in geopolitical context. Any nation aspiring to become a developed one needs to have strengths in various strategic technologies and also the ability to continually upgrade them through its own creative strengths. For people oriented actions as well, whether for the creation of large scale productive employment or for ensuring nutritional and health security for people, or for better living conditions, technology is the only vital input. The absence of greater technological impetus could lead to lower productivity and wastage of precious natural resources. Activities with low productivity or low value addition, in the final analysis hurt the poorest most important. India, aspiring to become a major economic power in terms of trade and increase in GDP, cannot succeed on

the strength of turnkey projects designed and built abroad or only through large-scale imports of plant machinery, equipment and know how. Even while being alive to the short-term realities, medium and long-term strategies to develop core technological strengths within our industry are vital for envisioning a developed India.

11. According to the above passage, which of the following are indicative of the fourth dimension?

- (A) Aspirations of people
- (B) Modern day dynamism
- (C) Economy in the global context
- (D) Strategic interests

Select the correct answer from the codes given below.

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

12. More productive employment demands

- (a) Pervasive use of technology
- (b) Limiting competitive market place
- (c) Geopolitical considerations
- (d) Large industries

13. Absence of technology would lead to

- (A) Less pollution
- (B) Wastage of precious natural resources
- (C) Low value addition
- (D) Hurting the poorest most

Select the correct answer from the codes given below.

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

14. The advantage of technological inputs would result in

- (a) Unbridled technological growth.
- (b) Importing plant machinery.
- (c) Sideling environmental issues.
- (d) Lifting our people to a life of dignity.

15. Envisioning a developed India requires

- (a) Aspiration to become a major economic player.
- (b) Dependence upon projects designed abroad.
- (c) Focus on short-term projects.
- (d) Development of core technological strengths.

16. Differentiation between acceptance and non-acceptance of certain stimuli in classroom communication is the basis of

- (a) Selective expectation of performance.
- (b) Selective affiliation to peer groups.
- (c) Selective attention.
- (d) Selective morality.

17. Assertion (A): The initial messages to students in the classroom by a teacher need not be critical to establish interactions later.

Reason (R): More control over the communication process means more control over what the students are learning.

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

18. Assertion (A): To communicate well in the classroom is a natural ability.

Reason (R): Effective teaching in the classroom demands knowledge of the communication process.

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

19. Assertion (A): Classroom communication is a transactional process.

Reason (R): A teacher does not operate under the assumption that students' responses are purposive.

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

20. Which of the following set of statements is correct for describing the human communication process?

- (A) Non-verbal communication can stimulate ideas.
- (B) Communication is a learnt ability.
- (C) Communication is not a universal panacea.
- (D) Communication cannot breakdown.
- (E) More communication means more effective learning by students.
- (F) Value of what is learnt through classroom communication is not an issue for students.

Select the correct answer from the codes given below.

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

21. The next term in the series -1, 5, 15, 29, -

- (a) 36
- (b) 47
- (c) 59
- (d) 63

22. The next term in the series: ABD, DGK, HMS, MTB, SBL,

- (a) ZKU
- (b) ZCA
- (c) ZKW
- (d) ZKU

23. If VARANASI is coded as WCUESGZQ, then the code of KOLKATA will be

- (a) LOQOZEH
- (b) HLZEOOQ
- (c) ZELHOQO
- (d) LQOOFZH

24. Introducing, Rakesh to her husband a women said, 'His

brother's father is the only son of my grandfather'.

The woman is related to Rakesh as.

- (a) Aunt
- (b) Mother
- (c) Sister
- (d) Daughter

25. Two numbers are in the ratio 2:5. If 16 is added to both the numbers, then their ratio becomes 1:2.

The numbers are:

- (a) 6, 40
- (b) 20, 50
- (c) 28, 70
- (d) 32, 80

26. Superiority of intellect depends upon its power of concentration on one theme in the same way as a concave mirror collects all the rays that strike upon it into one point.

- (a) Mathematical
- (b) Psychological
- (c) Analogical
- (d) Deductive

27. Given below are two premises (A and B). Four conclusions are drawn from them. Select the code that states validity drawn conclusion(s) (taking the premises individually or jointly).

Premises:

- (A) Most of the dancers are physically fit.
- (B) Most of the singers are dancers.

Conclusions:

- (A) Most of the singers are physically fit.
- (B) Most of the dancers are singers.
- (C) Most of the physically fit persons are dancers.
- (D) Most of the physically fit persons are singers.

Select the correct answer from the codes given below.

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

28. Which one among the following is a presupposition in inductive reasoning?

- (a) Law of identity.
- (b) Unchangeability in nature.
- (c) Harmony in nature.
- (d) Uniformity of nature.