TEACHING AND RESEARCH APTITUDE 2006-2019

BALVINDER TANEJA

UGC NET 13 YEARS' SOLVED PAPERS
1600 SOLVED QUESTIONS
TOPIC WISE DISTRIBUTION

How to use this eBook

This ebook has 3 Sections.

Section 1: Section-1 of this ebook contains Topic wise questions from previous year papers grouped together.

Topic wise total questions details is given below :

Topic	Total number of questions in this ebook
Teaching Aptitude	162
Research Aptitude	165
Comprehension	150
Communication	146
Mathematical Reasoning	173
Logical Reasoning	164
Data Interpretation:	139
Information and Communication Technology (ICT)	165
People, Development and Environment	166
Higher Education System	170
TOTAL QUESTIONS	1600

The answers to the questions are given in red or green color.This section will give you idea about how questions come from each Topic. You can take Print out as answers are marked ticked ☑ also.

Section 2: This section of ebook contains full length year wise questions with answer. You can practice full length paper here. You can take Print out as answers are marked ticked ☑ also.

Section 3 : This section has full length papers without answers for your practice. You can take print out and practice and check how much marks youn score in each paper.

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SYLLABUS

UGC National Eligibility Test Syllabus for General Paper on <u>Teaching and Research Aptitude</u>

The main objective is to assess the teaching and research capabilities of the candidates. The test aims at assessing the teaching and research aptitude as well.

Candidates are expected to possess and exhibit cognitive abilities, which include comprehension, analysis, evaluation, understanding the structure of arguments, deductive and inductive reasoning. The candidates are also expected to have a general awareness about teaching and learning processes in higher education system.

Further, they should be aware of interaction between people, environment, natural resources and their impact on the quality of life.

<u>The details of syllabus are as follows:</u>

Unit-I Teaching Aptitude

☐ Teaching: Concept, Objectives, Levels of teaching (Memory, Understanding and Reflective), Characteristics and basic requirements.

☐ Learner's characteristics: Characteristics of adolescent and adult learners (Academic, Social, Emotional and Cognitive), Individual differences.

☐ Factors affecting teaching related to: Teacher, Learner, Support material, Instructional facilities, Learning environment and Institution.

☐ Methods of teaching in Institutions of higher learning: Teacher centred vs. Learner centred methods; Off-line vs. On-line methods (Swayam, Swayamprabha, MOOCs etc.).

☐ Teaching Support System: Traditional, Modern and ICT based.

☐ Evaluation Systems: Elements and Types of evaluation, Evaluation in Choice Based Credit System in Higher education, Computer based testing, Innovations in evaluation systems.

Unit-II Research Aptitude

☐ Research: Meaning, Types, and Characteristics, Positivism and Post- positivistic approach to research.

☐ Methods of Research: Experimental, Descriptive, Historical, Qualitative and Quantitative methods.

☐ Steps of Research.

☐ Thesis and Article writing: Format and styles of referencing.

☐ Application of ICT in research.

☐ Research ethics.

Unit-III Comprehension

☐ A passage of text be given. Questions be asked from the passage to be answered.

Unit-IV Communication

☐ Communication: Meaning, types and characteristics of communication.

☐ Effective communication: Verbal and Non-verbal, Inter-Cultural and group communications, Classroom communication.

☐ Barriers to effective communication.

☐ Mass-Media and Society.

Unit-V Mathematical Reasoning and Aptitude

☐ Types of reasoning.

☐ Number series, Letter series, Codes and Relationships.

☐ Mathematical Aptitude (Fraction, Time & Distance, Ratio, Proportion and Percentage, Profit and Loss, Interest and Discounting, Averages etc.).

Unit-VI Logical Reasoning

□ Understanding the structure of arguments: argument forms, structure of categorical propositions, Mood and Figure, Formal and Informal fallacies, Uses of language, Connotations and denotations of terms, Classical square of opposition.

□ Evaluating and distinguishing deductive and inductive reasoning.

□ Analogies.

□ Venn diagram: Simple and multiple use for establishing validity of arguments.

□ Indian Logic: Means of knowledge.

□ Pramanas: Pratyaksha (Perception), Anumana (Inference), Upamana (Comparison), Shabda (Verbal testimony), Arthapatti (Implication) and Anupalabddhi (Non-apprehension).

□ Structure and kinds of Anumana (inference), Vyapti (invariable relation), Hetvabhasas (fallacies of inference).

Unit-VII Data Interpretation

□ Sources, acquisition and classification of Data.

□ Quantitative and Qualitative Data.

□ Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) and mapping of Data.

□ Data Interpretation.

□ Data and Governance.

Unit-VIII Information and Communication Technology (ICT)

□ ICT: General abbreviations and terminology.

□ Basics of Internet, Intranet, E-mail, Audio and Video-conferencing.

□ Digital initiatives in higher education.

□ ICT and Governance.

Unit-IX People, Development and Environment

☐ Development and environment: Millennium development and Sustainable development goals.

☐ Human and environment interaction: Anthropogenic activities and their impacts on environment.

☐ Environmental issues: Local, Regional and Global; Air pollution, Water pollution, Soil pollution, Noise pollution, Waste (solid, liquid, biomedical, hazardous, electronic), Climate change and its Socio-Economic and Political dimensions.

☐ Impacts of pollutants on human health.

☐ Natural and energy resources: Solar, Wind, Soil, Hydro, Geothermal, Biomass, Nuclear and Forests.

☐ Natural hazards and disasters: Mitigation strategies.

☐ Environmental Protection Act (1986), National Action Plan on Climate Change, International agreements/efforts -Montreal Protocol, Rio Summit, Convention on Biodiversity, Kyoto Protocol, Paris Agreement, International Solar Alliance.

Unit-X Higher Education System

☐ Institutions of higher learning and education in ancient India.

☐ Evolution of higher learning and research in Post Independence India.

☐ Oriental, Conventional and Non-conventional learning programmes in India.

☐ Professional, Technical and Skill Based education.

☐ Value education and environmental education.

☐ Policies, Governance, and Administration.

NOTE: (i) Five questions each carrying 2 marks are to be set from each Module.
(ii) Whenever graphical/pictorial question(s) are set for sighted candidates, a passage followed by equal number of questions and weightage be set for visually impaired candidates.

SECTION-1 TOPIC WISE QUESTIONS WITH ANSWERS

TOPIC 1 : Teaching Aptitude

(5 Questions out of 50 will be from this Topic)

Topic Syllabus :

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

DECEMBER 2019

Q1. Classroom Interactions are influenced largely by
1. Student's commitment ☑
2. Teacher centric environment
3. Organisational oversight
4. Unsolicited interventions

Q2. The emphasis in memory level teaching is on which of the following?
1. Organisation of thoughts and ideas
2. Seeing of relationships among facts
3. Systematic presentations to enable quick reproduction
4. Critical thinking
5. Mastery of concept sequencing of facts
6. Segregating one feature from another

Choose the answer from the following options:
1. (a), (b) and (c)
2. (a), (c) and (e) ☑
3. (b), (c) and (d)
4. (d), (e) and (f)

Q3. Which of the following teaching method(s) is/are contributive to direct learning?

1. Team teaching and lecturing
2. Simulation and role playing
3. Lecture with or without use of audio- visuals
4. Participation in workshop and assignments
5. MOOCs and heuristics
6. Interactive presentation

Choose your answer from the following options:
1. (b), (d) and (e) ☑
2. (a), (b) and (c)

3.   (c), (d) and (f)
4.   (d), (e) and (f)

Q4. The most characteristic feature of an adolescent learner which determines his/her social and moral development is the

1.   Tendency to be away from parents
2.   Concern for hero worshipping for emulating values and standards ☑
3.   Mixing up with peers in the neighbourhood
4.   Identity crisis

Q5. Match the following study skills with their effective learning techniques:

Study Skills	Learning Techniques
a) Elaborative interrogation	i. Mixing different kinds of problems together when studying
b) Practice Testing	ii. Explaining what a section of text or an example problem means to you
c) Self-Explanation	iii. Testing yourself on the material you are trying to learn
d) Interleaved practice	iv. Answering why a fact is true

Choose the correct option:

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

TOPIC 7 : Data Interpretation

(5 Questions out of 50 will be from this Topic)

TOPIC SYLLABUS:

➢ Sources, acquisition and classification of Data.
➢ Quantitative and Qualitative Data.
➢ Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) and mapping of Data.
➢ Data Interpretation.
➢ Data and Governance.

DECEMBER 2019

Consider of the following table that shows the amount of exports (in crore) from three different companies A, B, and C, over these years 2012-2018. Based on the date in the table.

Answer the questions 1-5

Year-wise amount of Exports from companies

Year	Amount of exports(In crore Rs)		
	A	B	C
2012	40	90	70
2013	70	50	100
2014	50	70	130
2015	80	70	100
2016	110	90	70
2017	60	110	90
2018	130	150	110

Q1. In how many of the given years, were the exports from company A more than its average annual exports over the given years?

1. 2
2. 3 ☑
3. 4
4. 5

Q2. In which year, the absolute difference between the exports from companies A and B was the minimum?

1. 2013
2. 2014
3. 2015 ☑
4. 2016

SECTION 2 FULL PAPERS WITH ANSWERS

TEACHING & RESEARCH APTITUDE
(Solved Paper December 2019)

Q1. Classroom Interactions are influenced largely by

1.   Student's commitment ☑

2.   Teacher centric environment

3.   Organisational oversight

4.   Unsolicited interventions

Q2. A 50 year old man has a son whose age is 2/5 of his age. After how many, the ratio of the age of the man to his son will be 5/3?

1.   10 Years

2.   15 Years

3.   20 Years

4.   25 Years ☑

Q3. "In this hospital, some nurses don't wear white dress, some doctors have private practice and medicines prescribed are of high cost. Therefore, treatment in this hospital is of poor quality". What fallacy does this argument make?

1.   Fallacy of composition

2.   Slippery slope ☑

3.   Fallacy of accident

4.   Fallacy of division

SECTION 3
FULL PAPERS UNSOLVED FOR PRACTICE

TEACHING & RESEARCH APTITUDE
(Unsolved Paper December 2019)

Q1. Classroom Interactions are influenced largely by
1. Student's commitment
2. Teacher centric environment
3. Organisational oversight
4. Unsolicited interventions

Q2. A 50 year old man has a son whose age is 2/5 of his age. After how many, the ratio of the age of the man to his son will be 5/3?
1. 10 Years
2. 15 Years
3. 20 Years
4. 25 Years

Q3. "In this hospital, some nurses don't wear white dress, some doctors have private practice and medicines prescribed are of high cost. Therefore, treatment in this hospital is of poor quality". What fallacy does this argument make?
1. Fallacy of composition
2. Slippery slope
3. Fallacy of accident
4. Fallacy of division

Q4 which of the following is true with reference to anupalabdhi as a means of knowledge?
1. Do not cognize the pot on the table, therefore it is absent there
2. Directly perceive the absence of pot on the table
3. Infer the absence of pot on the table since 1 do not find it to be there
4. Know the absence of the pot on the table because 1 know its similarly with other

Q5. Identify the term 'X' in the following series:
1. 62
2. 69
3. 60
4. 71

Q6. Which one of the following is the characteristic feature of an argument?
1. It is either valid or invalid
2. It is neither valid nor invalid
3. It is either true or false
4. It is neither true nor false

Q7. In which of the following steps of research, the scope for creativity and imagination is utmost?
1. Identifying the research problem and defining it
2. Figuring out the related studies and the techniques used by other researchers

3. Identifying variables and hypothesizing
4. Data analysis and presentation of results

Q8. A college teacher does research with a view to depict the reality situations relating to home conditions of students and hostels provided for. Which of the following research format will be helpful to do so?
1. Experimental Research
2. Descriptive Research
3. Participant observation based research
4. Ethnographic Research

Q9. Which of the following is an example of maximum performance test?
1. Projective personality test
2. Interest inventory
3. Aptitude test
4. Attitude scales

Q10. The length of the side of a square (5.0cmx5.0cm) is increased by 1%. By what percentage (%), the area of the square increases?
1. 1%
2. 2%
3. 5%
4. 4%

Q11. Consider the following statements and choose the right option
   1. Middle term should be distributed in at least one premise
   2. Middle term should be present in the conclusion
   3. Both premises can be particular in a valid argument
   4. Both premises can be negative in a valid argument
1. (c) and (d)
2. Only (c)
3. Only (a)
4. (b) and (c)

Q12. When a large number of students with different performances levels are there in the class. For uniform imparting of educative interactions, a teacher should opt for a communication which is:
1. Top-down and linear
2. Technology – enabled
3. Individual – centric
4. Self – projected

Q13. In case the population of research is heterogeneous in nature which of the following sampling techniques will ensure optimum representativeness of sample units?
1. Simple random sampling
2. Stratified random sampling
3. Cluster sampling
4. Systematic sampling

Q14 Give Below are two statements one is labelled as Assertion (A) and the other is labelled as Reason (R)

Assertion (A): Classrooms communication is pre-decided by social and institutional demands

Reasons (R): Positive educative actions should guide learners to acquire knowledge of social significance.

In the light of the above two statements, choose the correct option:
   1.   Both (A) and (R) are true and is the correct explanation of (A)
   2.   Both (A) and (R) true and is not the correct explanation of (A)
   3.   (A) is true, but is (R) false
   4.   (A) is false, but is (R) true

Q15. A person buys 3 items of Rs. 1500 each and 2 items of Rs. 1800 each from a shopping mall. On the total bill a discount of 10% is given. What is the average cost of the items?
   1.   1000
   2.   1458
   3.   1658
   4.   1550

Q16. The emphasis in memory level teaching is on which of the following?
   1.   Organisation of thoughts and ideas
   2.   Seeing of relationships among facts
   3.   Systematic presentations to enable quick reproduction
   4.   Critical thinking
   5.   Mastery of concept sequencing of facts
   6.   Segregating one feature from another

Choose the answer from the following options:
   1.   (a), (b) and (c)
   2.   (a), (c) and (e)
   3.   (b), (c) and (d)
   4.   (d), (e) and (f)

Q17. Classroom Communication is
   1.   Like a computer- program
   2.   Dictatorial
   3.   Purposeful
   4.   Pragmatic

Choose the correct option from those given below
   1.   (a) and (c)

2.   (b) and (c)
3.   (b) and (d)
4.   (c) and (d)

Q18. Which of the following teaching method(s) is/are contributive to direct learning?
1.   Team teaching and lecturing
2.   Simulation and role playing
3.   Lecture with or without use of audio- visuals
4.   Participation in workshop and assignments
5.   MOOCs and heuristics
6.   Interactive presentation

Choose your answer from the following options:
1.   (b), (d) and (e)
2.   (a), (b) and (c)
3.   (c), (d) and (f)
4.   (d), (e) and (f)

Q19. Which of the following statistical technique will be appropriate for data analysis when the observations are available in the form of frequencies?
1.   Parametric 't' test
2.   Non-parametric 'u' test
3.   Non-parametric 'chi-square' test
4.   Parametric correlated 't' test

Q20. The most characteristic feature of an adolescent learner which determines his/her social and moral development is the
1.   Tendency to be away from parents
2.   Concern for hero worshipping for emulating values and standards
3.   Mixing up with peers in the neighbourhood
4.   Identity crisis

Q21. "If it rains, then the drought will end. The drought has ended. Therefore, it rained". Which kind of fallacy does this commit?
1.   Deductive fallacy
2.   Inductive fallacy
3.   Abductive fallacy
4.   Informal fallacy

Q22. The smallest integer greater than 1 which is simultaneously a square and a cube of certain
1.   8
2.   9
3.   36
4.   64

Q23. Below are given two sets in which set I specifies the four behaviour modification techniques while set II indicates their exemplification. Match the two sets

Set I (Behaviour modification techniques)	Set II (Example)
a) Positive reinforcement	i.Withdrawal of a pleasant stimulus or application of an aversive stimulus to stop the behaviour
b) Negative reinforcement	ii.Painful or aversive stimulus is presented to stop the occurrence of behaviour
c) Punishment	iii.The behaviour increases in frequency after the removal of the stimulus
d) Extinction	iv.The behaviour increases in frequency after the presentation of a stimulus

Choose your answer from the following options:
1.   (a)-(i),(b)-(ii),(c)-(iii),(d)-(iv)
2.   (a)-(ii), (b)-(i), (c)-(iii),(d)-(iv)
3.   (a)-(iv),(b)-(iii),(c)-(ii),(d)-(i)
4.   (a)-(iii),(b)-(i),(c)-(ii),(d)-(iv)

Q24. Swapping of encoder- decoder roles in communication happens due to
1.   Cognitive disruptions'
2.   Semantic noise
3.   Feedback analysis
4.   Weak channelization

Q25. A research scholar while finally reporting the research results in the form of a thesis acknowledge the support of his/her supervisor in the preface. This will be treated as a
1.   Sheer formality
2.   Needed formality
3.   Superfluous act
4.   Part of ethically

Consider of the following table that shows the amount of exports (in crore) from three different companies A, B, and C over these years 2012-2018. Based on the date in the table.

Answer the questions 26-30

Year-wise amount of Exports from companies

Year	Amount of exports(In crore Rs)		
	A	B	C
2012	40	90	70
2013	70	50	100
2014	50	70	130
2015	80	70	100
2016	110	90	70
2017	60	110	90
2018	130	150	110

Q26. In how many of the given years, were the exports from company A more than its average annual exports over the given years?
1. 2
2. 3
3. 4
4. 5

Q27. In which year, the absolute difference between the exports from companies A and B was the minimum?
1. 2013
2. 2014
3. 2015
4. 2016

Q28. What was the difference between the average exports of three companies in 2017 and the average exports of three companies in 2012?
1. 15.33 crores
2. 18.67 crores
3. 25 crores
4. 20 crores

Q29. For which of the following pairs of years, the total exports from the three companies put together are equal?
1. 2014 and 2017
2. 2015 and 2017
3. 2016 and 2017
4. 2014 and 2015

Q30. Average annual amount of exports during the given period for company B is approximately what percent (%) of the average annual amount of exports for company C?
1. 64%
2. 21%
3. 03%
4. 33%

Q31. Which among the following is the flagship scheme of the Ministry of Skill Development and Entrepreneurship implemented by National Skills Development Corporation?
1. Robotic India
2. Artificial Intelligence @ schools
3. Make in India
4. Pradhan Mantri Kaushal Vikas Yojna

Q32. Which one of the following represents the correct order of sequence for reading skills in the context of research?
1. Read, question, recall, review, survey
2. Questions, survey, read, recall, review
3. Recall, review, survey, question, read
4. Survey, question, read, recall, review

Q33. Match the following study skills with their effective learning techniques:

Study Skills	Learning Techniques
a) Elaborative interrogation	i. Mixing different kinds of problems together when studying
b) Practice Testing	ii. Explaining what a section of text or an example problem means to you
c) Self-Explanation	iii. Testing yourself on the material you are trying to learn
d) Interleaved practice	iv. Answering why a fact is true

Choose the correct option:
1. (a)-(iv), (b)-(iii), (c)-(ii),(d)-(i)
2. (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)
3. (a)-(ii), (b)-(iv), (c)-(i),(d)-(iii)
4. (a)-(iii),(b)-(i), (c)-(ii),(d)-(iv)

Q34. Which among the following natural hazards has relatively slow onset?
1. Volcanic eruptions
2. Droughts
3. Wild free
4. Land and slides

Q35. Under Kyoto protocol, the parties, in the second commitment period, have to reduce their greenhouse gas emissions with reference to 1990 levels by atleast.
1. 10%
2. 12%
3. 15%
4. 18%

Q36 Match List-I with List-II in the context of computer networking:

List-I	List-II
a) VOIP	i.Makes use of light pulses to transmit data
b) Fibre-optic cable	ii.Use of internet to make phone calls
c) URL	iii.Most appropriate to connect computers in a small building
d) UTP cable	iv.Text used by web browsers to locate a web address on the Internet.

Choose the correct option:
1. (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
2. (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
3. (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
4. (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

Q37. Major Sources of oxygen demanding waste in fresh water systems are
1. Agricultural run-off
2. Food Processing
3. Ore Mining
4. Sewage effluent

5.   Landfill sites

Choose the correct options from these given below:
     1.   (a), (d) and (e)
     2.   (b), (d) and (e)
     3.   (a), (b) and (d)
     4.   (a), (b), (c) and (d)

Q38. Which of the following is renewable natural resources?
     1.   Biological University
     2.   Tin'
     3.   Natural Gas
     4.   Salt

Q39. Select the option that includes file formats suitable for distributing sound files across the internet.
     1.   Wmv, mp4, wma, mp3
     2.   Avi, midi, wav, mp3
     3.   Avi, mov, wmv, mp3
     4.   Midi, wav, wma, mp3

Q40. Biomass fuels have the potential to form a sustainable carbon neutral energy source because they
     1.   Produce carbon dioxide in combustion as much as they consume when they grow
     2.   Produce less amount of carbon dioxide on combustion compared to the amount they use during their growth
     3.   Have carbon dioxide content same as fossil fuels
     4.   Do not produce hazardous emissions on combustion

Q41. Which of the following is/are major issues arising out of the growing reliance on information technology?
     1.   Profitability
     2.   Security threats
     3.   Privacy concerns

Choose the correct option:
     1.   (a) and (b) only
     2.   (a) and (c) only
     3.   (b) and (c) only
     4.   (a), (b) and (c)

Q42. In the age of four Vedas, students were admitted to the Vedic schools after performance of which ceremony, among the following:
     1.   Upanayana ceremony

      2.   Utsarjana ceremony
      3.   Satapatha ceremony
      4.   Dhanurvidya ceremony

Q43. Which of the following statements is/are correct?
1.   For the sequence of integers represented in binary as 00111, 01001, 01011, P…. the next integer P would be represented as 01101
2.   A byte is a binary number consisting of exactly 8 bits
Choose the correct option:
      1.   (a) only
      2.   (b) only
      3.   Both (a) and (b)
      4.   Neither (a) and (b)