

**UGC NET PAPER-1**  
**GENERAL APTITUDE**

**SOLVED PAPER JUNE 2023**

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**Answers with Explanations**

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1. **Option (d) is correct.**  
Increase percentage of net national income in-  
 $2016-17 = (136 - 122) \times 100/122 = 11.47\%$   
 $2017-18 = (151 - 136) \times 100/136 = 11.02\%$   
 $2018-19 = (167 - 151) \times 100/151 = 10.59\%$   
 $2019-20 = (177 - 167) \times 100/167 = 5.99\%$   
Maximum increase in % is in year 2016-17.
2. **Option (d) is correct.**  
Average annual rate of increase of per capita net national income  
Increase rate -  
 $2016-17 : (105 - 95) \times 100/95 = 10.53$   
 $2017-18 : (115 - 105) \times 100/105 = 9.52$   
 $2018-19 : (126 - 115) \times 100/115 = 9.57$   
 $2019-20 : (132 - 126) \times 100/126 = 4.76$   
Average rate =  $(10.53 + 9.52 + 9.57 + 4.76)/4 = 8.595$   
Per capita at the end of 2020-21 =  $132 \times 108.595/100 = 143.34$ .
3. **Option (b) is correct.**  
Average per capita net national income  
 $= (95 + 105 + 115 + 126 + 132)/5$   
 $= 573/5 = 114.6$
4. **Option (b) is correct.**  
Per capita net national income = National income / Population  
Population = National income / Per capita income  
 $2015-16 : 122/95 = 1.28$   
 $2019-20 : 177/132 = 1.34$   
Growth =  $(1.34 - 1.28) \times 100/1.28 = 4.4\%$  approx.
5. **Option (a) is correct.**  
Percentage increase in Per capita net national income during given 5 years  
 $(132 - 95) \times 100/95 = 38.94\%$
6. **Option (d) is correct.**  
World wide web is an information system on the internet. The Internet is not a tool of WWW but the situation is vice versa.  
Hence, statement I is incorrect.  
HTTP or Hypertext transfer protocol is the protocol used to transfer text and communicate over the internet. Hence, statement II is correct.
7. **Option (c) is correct.**  
Negative communication refers to the communication which is unclear or myth creating. That can create pessimism, resentment or distrust among the communicating parties.
8. **Option (a) is correct.**  
New education policy 2020 replaced the education policy of 1986. The policy aims to transform India's education system by 2030.  
A committee under former Cabinet Secretary T.S.R. Subramanyam was formed to provide suggestions for Education policy. Suggestions were invited from gram panchayats, block and every small unit of the country to form the policy.  
Over 2 lakhs suggestions were received.  
New Education Policy of 2020 or NEP 2020 recommends the establishment of an academic Bank of credit which will facilitate the transfer of credits between the institutions that will create and convert all the Institutions into meta institutions.  
There are many objectives of nep 2020 one of them is to increase the number of multi-disciplinary Universities in the country.
9. **Option (b) is correct.**  
A computer keyboard has a key Matrix underneath the keys when a key is pressed, it presses a switch that completes a circuit. This allows the current to flow where the location of the key pressed is calculated. The locator of the key press is compared to a character map to find the binary value of the key that has been pressed.
10. **Option (c) is correct.**  
Hanuman pramana is classified into three types on the basis of vyapti:
  1. Sheshwat: Effect is inferred from cause.
  2. Purvavat: Cause is inferred from effect.
  3. Samanyodrastra: Co-existence or generally what it looks like.Pakshdharmata is the term used when Hetu is present on Paksha.
11. **Option (c) is correct.**  
Characteristics of teacher centered method of teaching are:

- A. Students are passive learners  
 B. Teacher act as facilitator and direct the learning  
 C. Learning is based on planning and instructions of the teacher.

12. **Option (c) is correct.**  
 Symbolic systems and communicator language are considered social targets.  
 Social target or social targeting is a way to attract the social aspects or people to make social contacts.
13. **Option (a) is correct.**  
 P-Value of level of significance is considered less than 1% or 0.05.  
 With this reference values of 0.99 and 0.995 can be considered by researchers.
14. **Option (a) is correct.**  
 Ethical issue in research can involve all the given options except debriefing which is not a part of data collection that involves participation of human subjects.
15. **Option (d) is correct.**  
 Cultural background of a learner may affect the process of his learning in the classroom. Hence, statement 1 is incorrect that it has no impact.  
 Being male or female or other gender is not an affecting factor for learning. Hence, statement 2 is correct.
16. **Option (c) is correct.**  
 Kahoot is a tool used for creating and sharing online learning games and quizzes.
17. **Option (d) is correct.**  
 Evolutionary computing is based on new innovations and new techniques.  
 Nature inspired computing is when natural resources are used for making new techniques like solar system E-vehicles etc.  
 Bio-inspired computing is the study in which computer techniques are based on biology.  
 Ubiquitous computing is pervasive computing which is the future technology. In this technology computers are capable of doing everyday tasks to perform less interaction from the user's end.
18. **Option (c) is correct.**  
 Let the Population of children = X  
 Then, Population of adult = 11000 - X  
 Population of children increasing by 11% and Population of adults is increasing by 20%  
 $111\% \text{ of children} + 120\% \text{ of adults} = 12660$   
 $(X \times 111/100) + (11000 - X) \times 120/100 = 12660$   
 By solving the above equation  
 $X = 6000$   
 Present Population of children = 6000  
 Present Population of adults = 5000

Rechecking-

$$6000 + 11\% = 6000 + 660 = 6660$$

$$5000 + 20\% = 6000$$

$$\text{Total increased Population} = 12,660$$

19. **Option (a) is correct.**  
 University of Punjab in Lahore which was established in 1882 and University of Allahabad was established in 1887. Both were established in the British rule period. Hence, statement I is correct.  
 The main purpose of their establishment was the increasing demand for higher education in the modern European education system and to promote the English education system in place of the Indian education system. Hence, statement II is also correct.
20. **Option (d) is correct.**  
 Given case is an example of multi step flow of communication as it includes many steps of flow of information.
21. **Option (a) is correct.**  
 Causation is the process of identifying cause and effect relationships between two or more variables.
22. **Option (b) is correct.**
- | Scale       | Quality   |
|-------------|---|
| 1. Nominal  | A. Classification                                       |
| 2. Ordinal  | B. Classification, order                                |
| 3. Interval | C. Classification, order and equal units                |
| 4. Ratio    | D. Classification, order, equal units and absolute zero |
- Ratio scale has absolute zero, zero is not arbitrary.
  - Nominal scale only allows classification, not other features.
- Hence, both statements are incorrect.
23. **Option (d) is correct.**  
 Carbon Monoxide (CO) is a pollutant which is one of the harmful substances. It forms carboxy hemoglobin combining hemoglobin by entering the human body. This decreases the oxygen carrying capacity of the blood.
24. **Option (b) is correct.**  
 From the given options, engineering colleges were present in 1902 at the following locations:  
**Roorkee-** Thomson college of civil engineering (estb. 1847)  
**Madras-** College of engineering, Guindy (estb. 1794.)  
**Shibpur, Calcutta-**Bengal Engineering College (est. 1856)

**Poona-** College of engineering pune (est 1854)  
Harcourt Butler Technological institute in **Kanpur**  
was not present in 1902 it was established in 1920.

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

To convert binary number (base 2) into octal (base 8), following steps are followed:

1. Multiply each number of binary with square series of 2 from last number
2. Divide the sum with 8 continuously with respect to quotient
3. Write the remainders in inverse order to get the answer

Example-1: 1011101 base 2

$$1 \times 2^0 + 0 \times 2^1 + 1 \times 2^2 + 1 \times 2^3 + 1 \times 2^4 + 0 \times 2^5 + 1 \times 2^6$$

$$= 1 + 0 + 4 + 8 + 16 + 0 + 64$$

$$= 93$$

$$93/8 = R-5, Q-11$$

$$11/8 = R-3, Q-1$$

$$1/8 = R-1, Q-0$$

Base 8/octal number of binary 1011101 = 135

Hence, statement I is correct.

Example-2: 111001 base 2

$$1 \times 2^0 + 0 \times 2^1 + 0 \times 2^2 + 1 \times 2^3 + 1 \times 2^4 + 1 \times 2^5$$

$$= 1 + 0 + 0 + 8 + 16 + 32$$

$$= 57$$

$$57/8 = R-1, Q-7$$

$$7/8 = R-8, Q-7$$

Octal number for 111001 base 10 = 71

Hence, statement II is also correct.

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

$$3 = 2^1 + 1^2$$

$$8 = 2^2 + 2^2$$

$$17 = 2^3 + 3^2$$

$$32 = 2^4 + 4^2$$

$$57 = 2^5 + 5^2$$

$$\text{Hence, } 2^6 + 6^2 = 100$$

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

**Formative evaluation** is to evaluate the performance or test the performance of the students at various time between and after the completion of course evaluation is of various types they are:

Formative evaluation: Formative valuation refers to the evaluation which is aimed in formation of concepts in the mind of learners. This evaluation is done after completion of a unit or chapter to identify the problems in learning and to solve them. They can be in the form of a unit test. This is done throughout the course to identify the gaps and improve the learners.

It helps to identify overall grade and performance of learning of students / learners.

- **Diagnostic evaluation** is done before formative assessment; this is to analyze the learning difficulties between the classes.
- **Summative evaluation** or summative assessment is a standard test for evaluating the learners. Summative assessment is done at the end of the instructional period of course completion; this is to identify the students' knowledge skills and proficiency about the course.
- **Norm based evaluation:** Norm refers to the group that has norm based evaluation is the evaluation of comparison with the group.

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

**Teacher centered education:** In this type of education or classroom, teacher has the primary role and the instructions and content is imposed. This system is used in the early stage of schooling or learning.

**Learner centered education:** This system is learner oriented and a psychological system of education.

**Learning centered education:** Here, concept clearance and understanding is focused by developing reflective and understanding levels.

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

For measuring AQI or Air Quality Index, following are included:

1. Particulate matter (PM) 10, PM 2. 5
2. Ozone (O<sub>3</sub>)
3. Sulfur dioxide (SO<sub>2</sub>)
4. Nitrogen dioxide (NO<sub>2</sub>)
5. Carbon monoxide (CO)
6. Lead (Pb)
7. Ammonia (NH<sub>3</sub>)

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

Types of fallacies:-

- **Ad misericordiam** is a fallacy when a conclusion is drawn with the impact of emotion or an unfortunate conclusion.
- **Fallacy of division** is an informal fallacy according to the fallacy, if a statement is accepted by everyone it should be true. For example- if everyone in the society things that God exists, called must exist.
- Example of **Fallacy of Composition** can be "Trees Are made up of cells, cells are not visible to eyes therefore trees are not visible to eyes." According to this fallacy, conclusion is drawn as whole only with a part.
- **Ad Populum:** It is the fallacy or effect in which something is accepted just because all other people agree on it. This is also called the Bandwagon effect. For example: Everybody in the class has decided to do engineering hands. Engineering is a good field.

- **Ad Verecundian:** Appeal to authority or accepting something because it comes from any authority or powerful person.
  - **Straw Man fallacy:** This is a miss presentation by someone to make it easier to attack if a mother says that you have to finish the veggies if you want dessert and the sun replies you love me only when I eat food.
  - **The Hasty Generalization fallacy:** This policy occurs when someone drives an expensive conclusion based on educated evidence. For example, everything you do is different from mine. That's how, I know you are always doing wrong.
  - **Policy of slippery slope:** This is also known as absurd and extrapolation.
  - **Bandwagon argument:** When an argument is considered true as it is popular or considered true by many people.
  - **Red Herring Argument:** When a misleading statement or argument is presented to distract the opposition.
  - **Begging the question:** When the arguer assumed the point to be proven in the argument.
31. **Option (c) is correct.**  
Coagulation is a chemical treatment for the water resource treatment process other given options are physical treatment for water treatment process.
32. **Option (c) is correct.**  
Let the price is, 100  
By calculating the successive consecutive discounts-  
2% discount  
Price =  $100 - 2\% = 98$   
4% discount  
Price =  $98 - 4\% = 94.08$   
6% discount  
Price =  $94.08 - 6\% = 88.44$   
8% discount  
Price =  $88.44 - 8\% = 81.36$   
10% discount  
Price =  $81.36 - 10\% = 73.22$   
12% discount  
Price =  $73.22 - 12\% = 64.43$   
14% discount  
Price =  $64.43 - 14\% = 55.41$   
16% discount  
Price =  $55.41 - 16\% = 46.54$   
Hence, price will become less than 50% after the discount of 16%, and the discount will be more than 50%. 16% is the 8th discount.
33. **Option (a) is correct.**  
There must be intelligent life on other planets, no one has proven then there isn't.  
Given a statement has fallacy of appeal to ignorance it says that your conclusion must be true because there is no evidence of it.
34. **Option (c) is correct.**  
Generally, fallacy occurs when the middle term is a reason but not a correct reason.  
Some commonly known fallacies are:  
1. **Savyabhichara:** This is the fallacy of irregular middle term.  
2. **Viruddha:** This is the fallacy when two contradictory statements are there for example sounded eternal because it is produced.  
3. **Sat Pratipaka:** When another middle term is included in the premises to prove the first middle term.  
4. **Assiddha:** When the middle term is unproved. For example, Gulab Jamun is sweet because it has Jamun which is a sweet fruit.  
5. **Badhira:** When the middle term is getting completed by another strong source of knowledge.
35. **Option (a) is correct.**  
Analogue media is the media of mass level; it can have text, photographs and other media options. This is traditional media unlike digital media. It is large audience covering media, having active campaigners. It can be personally addressable.
36. **Option (d) is correct.**  
Convention on biodiversity held in 1992 and is in effect from 1993 was held in Rio de Janeiro, New York with the objective of conservatism of biodiversity of the world.  
Secretariat of convention on biodiversity is situated in Montreal, Canada
37. **Option (d) is correct.**  
Greenhouse gasses are:  
A. Nitrogen dioxide  
B. CFC  
C. Carbon dioxide  
D. Water vapor.  
E. Methane
38. **Option (c) is correct.**  
"We become builders by building, and we become just by doing what is just" the 'skills acquired by performing relevant activity' is the understanding or the context of the given statement.
39. **Option (a) is correct.**  
Statement I is correct but biasness does not affect all the measurements in the same way. Hence, statement II is incorrect.
40. **Option (b) is correct.**  
G = 5  
E = 2  
N = 6  
E = 2  
R = 7  
A = 1

L = 3  
I = 4  
Z = 8  
A = 1  
T = 9  
I = 4  
O = 0  
N = 6

Hence, OREGANOS = 07251608

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

Salary is decreased by 10%

Bonus is increased by 24%

Salary in 2020 = 8000

Bonus in 2020 = 2500

Total monthly income = 10,500

For 2021,

Salary = 8000 - 10%  
= 8000 - 800 = 7200

Bonus = 2500 + 24%  
= 2500 + 600 = 3100

For 2022,

Salary = 7200 - 10%  
= 7200 - 720 = 6480

Bonus = 3100 + 24%  
= 3100 + 744 = 3844

Total monthly income = 10,324

Difference in total monthly income of march 2020 and march 2022 = 10500 - 10324 = 176 (decrease)

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

Statement I is true as centralization may affect the plurality of opinion in the communication process. But statement II is incorrect. The aim of global corporate owners is not only profit maximization but wealth maximization by increasing their goodwill and feedback of customers.

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

HDD or hard disk drive is a type of secondary storage in Computers.

- It does not have internal moving parts.
- It is non volatile
- It uses magnetic properties to store data

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

Attitude of a researcher can affect the results and outcome of research. Age, sex and race do not affect majorly.

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

Das Siksha Padani is a part of Buddhist education system. They are:

1. Avoid Violence
2. Avoid Stealing
3. Avoid Bad Conduct

4. Avoid untruth speech

5. Avoid Intoxicating Material

6. Avoid taking food at odd times

7. Avoid Backbiting

8. Stay away from dance and music

9. Avoid luxury goods

10. Renounce costly gift in charity

To relish dance and music and to accept gifts are not included in that.

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

Assuming the number of ground units are same in the years 2017 and 2022 (i.e., 7089).

Number of over-exploited units in 2017 = 17% or 7089 × 17 / 100 = 1205 approx.

Number of over-exploited units in 2022 = 14% or 7089 × 14 / 100 = 992 approx.

Difference = 1205 - 992 = 213

Alternative method

Difference in percentage = 17 - 14 = 3%

Difference between over-exploited units in 2017 and 2022 = 7089 × 3% = 213 approx.

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

According to the first paragraph of the given passage India will become a water scarce country if the availability of water per person per annum falls below 1000 cubic metres (1 million liter). The passage also says that India could be a water scarce country in the next 40 years with 1486 cubic meters of water available per person per annum.

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

According to the given passage, the number of exploited water units remains high in states like Punjab, Rajasthan, Haryana, Delhi, Tamil Nadu and Karnataka.

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

Over-Exploited Units of water assessed by CGWB in 2022 = 14%

Total units = 7089

Over exploited units in 2022 = 7089 × 14% = 992.46 or 992

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

According to the last paragraph of the given passage 87% of groundwater is extracted from irrigation and experts say that access water withdrawal is the main reason for depletion. Other reasons are encroachment of water bodies, discharge of untreated wastewater into rivers and streams.

Other options can also be a reason for water depletion but the passage does not explain anything about them.