

STAFF SELECTION COMMISSION

MULTI – TASKING STAFF RECRUITMENT – MODEL PAPER

No. of Questions: 150

Maximum Marks: 150

Time: 2 Hours

GENERAL INTELLIGENCE

Directions (Q. 1 – 4): In each of the following questions, select the related letter/ word/ figure/ number from the given alternatives.

1. 6 : 35 :: 9 : ?

1) 18

2) 27

3) 53

4) 72

2. Child : Father :: Book : ?

1) Writer

2) Publisher

3) Editor

4) Library

3. TAP : PAT :: DAM : ?

1) BUND

2) MAD

3) STOP

4) AMD

4. CEGI : XVTR :: DFHJ : ?

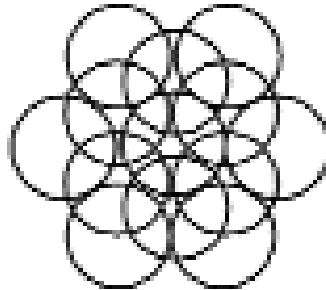
1) XTRT

2) XQOM

3) ZVSQ

4) WUSQ

5. How many circles are there in figure given below?



1) 13

2) 14

3) 11

4) 12

Directions (Q. 6 – 9): Find the odd word/ letter/ number from the given alternatives.

6. 1) RPSZ

2) AIUE

3) QRTM

4) NQMR

7. 1) 216

2) 343

3) 27

4) 125

8. 1) 46, 24

2) 62, 32

3) 56, 30

4) 74, 38

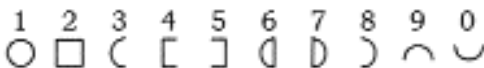
9. 1) 3216

2) 2338

3) 3205

4) 2015

10. Given are some symbols below the numbers.



Find the number which can be displayed by these symbols?



1) 4 5 0 9 6

2) 4 5 9 0 6

3) 4 7 0 9 5

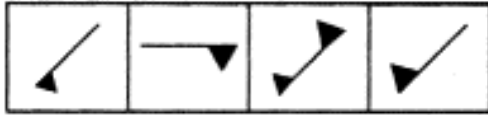
4) 5 6 9 0 7

21. Identify the figure that completes the pattern of the question figure?

Question figure:

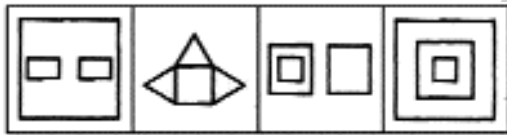


Answer figures:



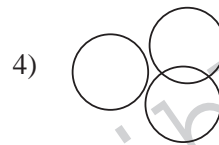
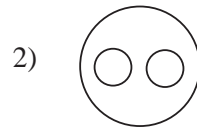
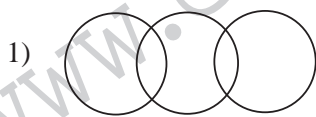
1) 2) 3) 4)

22. Which of the following diagrams indicate the best relation between North America, United States of America and New York?



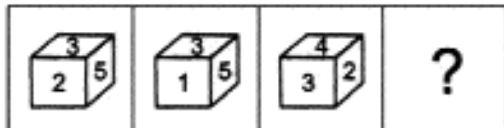
1) 2) 3) 4)

23. Which of the following diagrams indicate the best relation between Solar, Lunar and Eclipse?

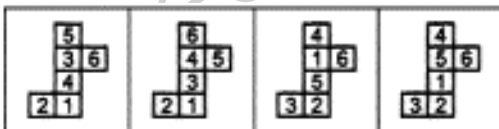


24. 3 positions of a similar cube is given. The number from 1 to 6 is marked on the faces of a cube. Choose the figure which will be shown when the cube is opened.

Question figure:



Answer figures:



1) 2) 3) 4)

25. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by class of letters as in matrix given below. The columns and rows of Matrix are numbered from 0 to 6. A letter from this matrix can be represented first by its row and next by its column. e.g.: 'A' can be represented by 42, 62 etc., and 'P' can be represented by 15, 43 etc. Similarly, you have to identify the set for the word 'CALM'.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | H | R | E | I | P | S |
| 2 | S | G | N | D | Z | T |
| 3 | B | U | F | T | K | L |
| 4 | V | A | P | C | Y | A |
| 5 | M | W | C | O | X | N |
| 6 | B | A | E | J | L | O |

- 1) 53, 54, 51, 31 2) 44, 54, 65, 24 3) 44, 62, 65, 51 4) 53, 42, 65, 36

QUANTITATIVE APTITUDE

26. When square of a number is subtracted from cube of another number, it gives squares of the second. If the square of their sum is 1600 and their product is 300. Find the numbers.
 1) 30, 10 2) 40, 20 3) 50, 10 4) 70, 20
27. Each interior angle of a regular polygon is times of two right angles. How many sides are there in the regular polygon?
 1) 10 2) 20 3) 30 4) 40
28. Ravi and Ajay start simultaneously from the same place A for B, 60 km apart. Ravi's speed is 4 km/hr less than of Ajay. Ajay after reaching at B, returns and meet Ravi at a place 12 km away from B. Ravi's speed is
 1) 12 km/hr 2) 10 km/hr 3) 8 km/hr 4) 6 km/hr
29. 300 gm of sugar solution has 40% sugar in it. How much sugar should be added to make it 50% in the solution?
 1) 40 gm 2) 50 gm 3) 60 gm 4) 80 gm
30. In a right-angled triangle ABC, $\angle B$ is the right angled and $AC = 2\sqrt{5}$ cm. If $AB - BC = 2$ cm, then the value of $(\cos 2A - \cos 2C)$ is
 1) $\frac{3}{5}$ 2) $\frac{6}{5}$ 3) $\frac{3}{10}$ 4) $\frac{2}{5}$
31. A loan was repaid in two annual installments of Rs.1,210 each. If the rate of interest be 10% per annum compounded annually, the sum borrowed was
 1) Rs.2,000 2) Rs.2,500 3) Rs.2,100 4) Rs.3,000
32. If $x + \frac{1}{x}$, find the value of $x^6 + \frac{1}{x^6}$
 1) 8 2) 4 3) 2 4) 10
33. There are two paths each 10 m wide and cutting each other perpendicularly at the centre of a garden 150 m long and 120 m wide. Find the cost of graveling the path at Rs.2/ m².
 1) Rs.5,200 2) Rs.2,600 3) Rs.1,300 4) Rs.5,000

53. Kohli is eclipsed by his girlfriend, who is cleverer and amusing than he is
- 1) Kohli is eclipsed by his girlfriend
 - 2) who is cleverer and
 - 3) amusing than he is
 - 4) No error
54. He was looking impatient at the unwanted visitor who showed no signs of leaving the room.
- 1) He was looking impatient
 - 2) at the unwanted visitor
 - 3) who showed no signs of leaving the room
 - 4) No error
55. Just before the race I asked him whom he thought was going to win.
- 1) Just before the race
 - 2) I asked him
 - 3) whom he thought was going to win.
 - 4) No error

Directions (Q. 56 – 60): In these questions, sentences given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four.

56. The man came in a van to the television set.
- 1) mend
 - 2) reform
 - 3) correct
 - 4) alter
57. Ambition is one of thosewhich are never satisfied.
- 1) ideas
 - 2) fancies
 - 3) passions
 - 4) feeds
58. The agenda for the meeting has the notice.
- 1) reflected
 - 2) effected
 - 3) affected
 - 4) expected
59. Countless Indians today use neem twigs, called datun, as toothbrushes.
- 1) durable
 - 2) extended
 - 3) saturated
 - 4) disposable
60. Today students should be reconciled the way things are changing.
- 1) with
 - 2) to
 - 3) for
 - 4) at

Directions (Q. 61 – 65): In the following passages some of the words have been left out. Read the passages carefully and choose the correct answer to each question out of the four alternative and fill in the blanks.

Now-a-days, under the ...(61)... system of education, however good it may be, when a young man comes out of the university, there seems to be this ... (62)... in him that the higher the standard of living raises, the less should a man work. Thus, mathematically, the higher the standard of living, according to this misconceived notion, the less the ...(63)... Ultimately, what should be the highest standard of living then? ...(64)... work! This leads to an unhealthy ...(65)... among the workers.

61. 1) developed 2) extinct 3) modern 4) proposed
62. 1) anxiety 2) misconception 3) realisation 4) worry
63. 1) salary 2) comfort 3) work 4) energy
64. 1) Minimum 2) Maximum 3) Less 4) No
65. 1) competition 2) ambition 3) delay 4) jealously

Directions (Q. 66 – 73): In these questions, four alternative are given for the Idiom/ Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/ Phrase and mark it in the Answer Sheet.

66. You cannot have your cake and eat it too.
- 1) Enjoy forever
 - 2) Have it both ways
 - 3) Run away from responsibility
 - 4) Absolve yourself of guilt
67. If you give him all your money, you are likely to burn your fingers.
- 1) be unhappy
 - 2) be happy
 - 3) suffer
 - 4) be ill
68. Women should be paid the same. What is sauce for the goose is sauce for the gander.
- 1) What is thought suitable pay for a man should also be for a woman
 - 2) Goose and the gender eat the same sauce
 - 3) Both goose and gander should be equally treated
 - 4) The principle of equal treatment should be implemented
69. The party stalwarts have advised the President to take it lying down for a while.
- 1) to be cautious
 - 2) to be on the defensive
 - 3) to take rest
 - 4) to show no reaction
70. They were offered six months' rent in lieu of notice to vacate the building.
- 1) in spite of
 - 2) in place of
 - 3) despite of
 - 4) in addition to
71. Weal and woe
- 1) Ups and downs
 - 2) Joys and sorrows
 - 3) Whole-heartedly
 - 4) Under suspicion
72. The reputed company is in the red due to the recession.
- 1) Making money
 - 2) Losing money
 - 3) In danger
 - 4) Spending money
73. At one's beck and call
- 1) Enjoying oneself without caring for others
 - 2) To be always at one's service
 - 3) To be under one's subjugation
 - 4) To be in an advantageous position

Directions (Q. 74 – 80): In these questions, a sentence / a part of the sentence is underlined. Below are given alternatives to the underlined part at (1), (2), (3) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (4). Mark your answer in the Answer Sheet.

74. Technology must use to feed the forces of change.
- 1) must be used to feed
 - 2) No improvement
 - 3) must use having fed
 - 4) must be using to feed

75. They are not beware of all the facts.
1) are not aware for
2) are not aware of
3) are not aware about
4) No improvement
76. The man who has committed such a serious crime must get the mostly severe punishment.
1) be getting the mostly severely
2) get the most severe
3) have got the most severely
4) No improvement
77. Is respect really preferable than money?
1) Preferable to money
2) Preferred or money
3) Preferable than money
4) No improvement
78. The watchman was on alert all night.
1) was on the alert
2) was off the alert
3) was alert
4) No improvement
79. I cannot say to you right now. We will discuss it tomorrow.
1) demand
2) expect
3) explain
4) No improvement
80. Let's buy a new sari with annual bonus, can we?
1) shall we?
2) could we?
3) isn't it?
4) No improvement

Directions (Q. 81 – 83): In these questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

81. NEGLECTED

- 1) Refused 2) Failed 3) Promised 4) Obstructed

82. MAUNDER

- 1) Warm 2) Capture 3) Concentrate 4) Wander

83. AUGUR

- 1) Heal 2) Hurt 3) Signify 4) Reform

Directions (Q. 84 – 86): In these questions, choose the word opposite in meaning to the given word.

84. ELATION

- 1) Despondency 2) Misery 3) Disappointment 4) Despair

85. ABHOR

- 1) Admire 2) Respect 3) Applaud 4) Appreciate

86. UNCOUTH

- 1) Crude 2) Awkward 3) Courteous 4) Refined

Directions (Q. 87 – 88): In these questions, four words are given in each question, out of which only one word is spelt correctly. Find the word spelt correct and mark your answer in the answer sheet.

87. 1) Iritate 2) Turmoill 3) Ignorant 4) Terible
88. 1) Assimilation 2) Asimillation 3) Assimillation 4) Assimilotion

Directions (Q. 89 – 93): In these question you have a brief passage with five questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives.

What, one wonders, is the lowest common denominator of Indian culture today? The attractive Hemamalini? The songs of Vividh Bharti? Or the mouth-watering masala Dosa? Delectable as these may be, each yields pride of place to that false symbol of a new era-the synthetic fiber. In less than twenty years, the nylon sari and the terylene shirt have swept the countryside, penetrated to the farthest corners of the land and persuaded every common man, woman and child that the key to success in the present day world lie in artificial fibers : glass nylon, crepe nylon, terry mixes, polyesters and what have you. More than the bicycles, the wrist watches or the transistor radios, synthetic clothes have come to represent the first step away from the village square. The village lass treasures, the flashy nylon sari in her trousseau most delay the village youth gets a great kick out of his cheap terrycot shirt and trousers, the nearest he can approximate to the expensive synthetic sported by his wealthy city bread contemporaries and the Neo-rich craze for 'phoren' is nowhere more apparent than in the price that people will pay for smuggled. Stolen, begged borrowed second hand or thrown away synthetics. Alas, even the uniformity of nylon.

89. The latest symbol of modernity for the rural people is
- | | |
|-------------------|------------------------|
| 1) The bicycle | 2) The wristwatch |
| 3) The transistor | 4) The synthetic cloth |
90. The term 'Neo-rich' means
- | | |
|--------------------------|-----------------------|
| 1) The aristocracy | 2) The industrialists |
| 3) The newly rich people | 4) The common people |
91. The tone of the passage is
- | | | | |
|-----------|-----------|-----------|------------|
| 1) Tragic | 2) Ironic | 3) Somber | 4) Satiric |
|-----------|-----------|-----------|------------|
92. The lowest common denominator of the Indian culture today is
- | | |
|----------------|---------------------------|
| 1) Hema Malini | 2) Songs of Vividh Bharti |
| 3) Masala Dosa | 4) Synthetic fibre |
93. The synthetic fiber has
- 1) always been popular in India
 - 2) become popular during the last twenty years
 - 3) never been popular in India
 - 4) been as popular as other kinds of fibre

Directions (Q. 94 – 100): In the following questions, out of the four alternatives, choose the one which can be substituted for the given sentence.

94. A disease or accident which ends in death..
- | | | | |
|----------|----------|---------------|------------|
| 1) Fatal | 2) Drawn | 3) Fastidious | 4) Illegal |
|----------|----------|---------------|------------|
95. Without payment or free of cost
- | | | | |
|-----------|-------------|----------|-------------|
| 1) Gratis | 2) Hedonist | 3) Stoic | 4) Precious |
|-----------|-------------|----------|-------------|
96. The study of weather is
- | | | | |
|------------|----------------|-------------|--------------|
| 1) biology | 2) meteorology | 3) agronomy | 4) astronomy |
|------------|----------------|-------------|--------------|
97. The act of violating an oath of solemn promise
- | | | | |
|----------------|------------|------------|-------------|
| 1) philanderer | 2) sojourn | 3) perjury | 4) paronyms |
|----------------|------------|------------|-------------|

98. A punishment for wrong doing
- 1) Wrath 2) Purgation 3) Nemesis 4) Catharsis
99. Course for chariot races
- 1) Sanatorium 2) Hangar 3) Hippodrome 4) Arena
100. Meaningless language with an exaggerated style intended to impress
- 1) Verbalization 2) Rhetoric 3) Oratory 4) Public speaking

GENERAL AWARENESS

101. Match of the following.

Towns

- a. Jabalpur
b. Paris
c. London
d. Lahore

a b c d

- 1) 2 3 4 1
3) 1 4 3 2

Rivers

1. Ravi
2. Narmada
3. Seine
4. Thames

a b c d

- 2) 3 2 1 4
4) 4 1 2 3

102. The person responsible for introducing the conception of Dyarchy in the 1919 Act was
- 1) Montague 2) Tez Bahadur Sapru
3) Lionel Curtis 4) Chelmsford
103. Who coined the term 'Gene'?
- 1) Mendel 2) Johannsen
3) Watson 4) Beadle
104. An artificial ecosystem is represented by
- 1) pisciculture tank 2) agricultural land
3) zoo 4) aquarium
105. Which of the following imparts a blue colour to glass?
- 1) Cobalt oxide 2) Copper oxide
3) Iron oxide 4) Nickel oxide
106. The work done by the string of a simple pendulum during one complete oscillation is equal to
- 1) Total energy of the pendulum 2) Kinetic energy of the pendulum
3) Potential energy of the pendulum 4) Zero
107. Who among the following were members of the Swaraj Party?
- a) Motilal Nehru b) Sardar Patel c) Gopal Krishna Gokhale
- 1) a and b 2) a only 3) b and c 4) a, b and c
108. Two seas or water-bodies connected by a narrow stretch of water is known as a
- 1) Bay 2) Strait 3) Peninsula 4) Isthmus

109. Chromosomes consist of
- 1) DNA and lipids
 - 2) RNA and amino acids
 - 3) DNA and proteins
 - 4) RNA and sugar
110. The Chalukyas established their empire in
- 1) The Far South
 - 2) Malwa
 - 3) The Deccan
 - 4) Gujarat
111. Dr. A.P.J. Abdul Kalam, the former Indian President, received the prestigious Bharat Ratna award in the year
- 1) 1992
 - 2) 1995
 - 3) 1997
 - 4) 1998
112. Air bladder in fish acts as
- 1) Accessory respiratory organ
 - 2) Hydrostatic organ
 - 3) Both accessory respiratory organ and hydrostatic organ
 - 4) Primary respiratory organ
113. The term "Greater India" denotes
- 1) Political unity
 - 2) Cultural unity
 - 3) Religious unity
 - 4) Social unity
114. The crop mainly grown in hills is
- 1) sweet corn
 - 2) sweet jowar
 - 3) sweet potato
 - 4) sweet pea
115. In which one of the following the phenomenon of total internal reflection of light is used?
- 1) Formation of mirage
 - 2) Working of binoculars
 - 3) Formation of rainbow
 - 4) Twinkling of stars
116. What can the President do if a State fails to comply with the Directions of the Central Government?
- 1) He can dissolve State Legislature and order fresh elections
 - 2) He can declare the break-down of constitutional machinery in the State and assume responsibility for the governance of the State
 - 3) He can send paramilitary forces to the State to secure compliance
 - 4) Any of the above
117. The first battle of tarain was fought in
- 1) 1192 A.D.
 - 2) 1189 A.D.
 - 3) 1191 A.D.
 - 4) 1193 A.D.
118. Volcanoes are scattered
- 1) all over the world
 - 2) only along the coasts
 - 3) on the islands
 - 4) mainly along young fold mountains
119. Which of the following is not the essential qualification for appointment as a Judge of the Supreme Court of India?
- 1) Should be a citizen of India
 - 2) Should be atleast 35 years of age
 - 3) Should have practised for at least 10 years as an advocate in one or more High Courts
 - 4) Should be an eminent jurist

120. Which one of the following is called North-easter?
- 1) Cold and fast-blowing winds in northern hemisphere that move from sub-polar to polar regions
 - 2) Cold and fast-blowing winds in South Pole region
 - 3) Cold and fast-blowing winds from the polar region in northern hemisphere
 - 4) Winds blowing towards Kazakhstan in Central Asia
121. What is referred to as 'Roof of the World'?
- 1) Mount Everest
 - 2) Pamir Knot
 - 3) Siberian Plains
 - 4) Hindukush Mountains
122. Mushroom cultivation is not useful in
- 1) Biogas production
 - 2) Biological control of crop diseases
 - 3) Recycling of agricultural wastes
 - 4) Preventing cancer
123. Ozone layer in the upper parts of the atmosphere serves as a protective shield against harmful
- 1) solar ultraviolet radiation
 - 2) solar infrared radiation
 - 3) CO₂ in the air
 - 4) SO₂ in the air
124. Excess amount of absorbed water by plants is liberated out by:
- 1) Evaporation
 - 2) Osmosis
 - 3) Diffusion
 - 4) Transpiration
125. A Floppy Disc can store data.
- 1) 1.44 bytes
 - 2) 1.44 MB
 - 3) 1.44 KB
 - 4) 1.44 GB
126. Where the High Courts in India first set up?
- 1) Delhi and Calcutta
 - 2) Bombay, Madras, Calcutta
 - 3) Bombay, Delhi, Calcutta
 - 4) Madras and Bombay
127. Freeing the economy from all unnecessary controls and regulations is referred to as
- 1) Freedom
 - 2) Privatisation
 - 3) Liberalisation
 - 4) Globalisation
128. Earth's atmosphere is an envelope of gases extending to a height of
- 1) 100 km
 - 2) 150 km
 - 3) 200 km
 - 4) 300 km
129. Which one of the following news-papers had been edited by Gandhiji?
- 1) Navjeevan
 - 2) Gujarat Times
 - 3) Maratha
 - 4) Jan Satta
130. Metric system of measurement started in the country in
- 1) 1954
 - 2) 1955
 - 3) 1956
 - 4) 1957
131. The polymer obtained by the condensation of hexamethylenediamine and adipic acid is
- 1) Nylon 66
 - 2) Terylene
 - 3) Tollens
 - 4) Bakelite
132. When a running car stops suddenly, the passengers tends to lean forward because of
- 1) centrifugal force
 - 2) inertia of rest
 - 3) inertia of motion
 - 4) gravitational force

133. Which of the following metals contribute to bio-magnification problem in the ecosystem?
1) Mercury 2) Chromium 3) Copper 4) Lead
134. Which of the under mentioned facts about Taj Mahal is not correct?
1) It is a magnificent mausoleum
2) It was built by Shah Jahan
3) It is situated outside Agra Fort
4) The names of artisans who built it are engraved on it
135. Among the following political leaders of South India, who has not acted in any film?
1) C.N. Annadurai 2) Jayalalitha
3) N.T. Rama Rao 4) M.G. Ramachandran
136. Virus in a computer is a
1) Chemical that attacks silicon
2) Micro-organism that disturbs integrated circuits
3) Programme that damages the computer software
4) None of the above
137. Electro-static precipitator is used to control
1) Chemical Pollutants 2) Radio-active Pollutants
3) Water Pollutants 4) Air Pollutants
138. The Newton's First Law is also called as
1) Law of moments 2) Law of inertia
3) Law of energy 4) Law of momentum
139. The total number of ear bones are-
1) 2 2) 4 3) 6 4) 8
140. Why is the South Pole colder than the North Pole?
1) High altitude 2) More rainfall
3) Strong winds 4) Away from the sun
141. The innovator of the Revenue settlement during the rule of Akbar was
1) Raja Man Singh 2) Raja Bhagwan Das
3) Raja Todarmal 4) Raja Birbal
142. Arrange the following in chronological order
a. Tughlaqs b. Lodis c. Sayyids d. Ibari Turks
e. Khiljis
1) a, b, c, d, e 2) e, d, c, b, a 3) b, d, e, c, a 4) d, e, a, c, b
143. Which of the following is an example of Plutonic Igneous Rock?
1) Basalt 2) Granite 3) Slate 4) Dolomite
144. Which from the following rivers does NOT originate in Indian territory?
1) Godavari 2) Jhelum 3) Ravi 4) Ghaghara

145. Corporation tax is a tax imposed on
- 1) the net incomes of the companies
 - 2) the corporate properties
 - 3) the utilities provided by the corporation
 - 4) tax imposed by the corporation on individual properties
146. In its reaction with silver nitrate, C_2H_2 shows
- 1) Oxidising property
 - 2) Reducing property
 - 3) Basic property
 - 4) Acidic property
147. What is the process of defining tables called?
- 1) Data definition
 - 2) Data Normalisation
 - 3) Index definition
 - 4) Data administration
148. Where are the traces of Portuguese culture found in India?
- 1) Goa
 - 2) Calicut
 - 3) Cannanore
 - 4) Cochin
149. Source of energy in ecosystem is
- 1) Sun
 - 2) Green plants
 - 3) Sugar produced in photo-synthesis
 - 4) ATP
150. Which one of the following personalities is known as 'Grand Old Man of India'?
- 1) Bal Gangadhar Tilak
 - 2) Dadabhai Naoroji
 - 3) Motilal Nehru
 - 4) Lala Lajpat Rai

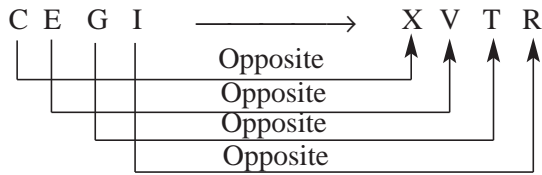
KEY

1-3; 2-1; 3-2; 4-4; 5-1; 6-2; 7-1; 8-3; 9-4; 10-2; 11-2; 12-1; 13-3; 14-4; 15-1; 16-4; 17-2; 18-1; 19-4; 20-1; 21-4; 22-4; 23-2; 24-3; 25-3; 26-1; 27-1; 28-3; 29-3; 30-1; 31-3; 32-3; 33-1; 34-2; 35-2; 36-2; 37-2; 38-2; 39-1; 40-1; 41-1; 42-2; 43-2; 44-4; 45-1; 46-3; 47-2; 48-2; 49-1; 50-4; 51-2; 52-2; 53-3; 54-1; 55-3; 56-1; 57-3; 58-2; 59-4; 60-1; 61-3; 62-2; 63-3; 64-4; 65-2; 66-2; 67-3; 68-4; 69-4; 70-2; 71-2; 72-3; 73-2; 74-1; 75-2; 76-2; 77-1; 78-1; 79-3; 80-1; 81-2; 82-4; 83-3; 84-2; 85-1; 86-3; 87-3; 88-1; 89-4; 90-3; 91-3; 92-4; 93-2; 94-1; 95-1; 96-2; 97-3; 98-3; 99-3; 100-2; 101-1; 102-1; 103-2; 104-4; 105-1; 106-4; 107-2; 108-2; 109-3; 110-3; 111-3; 112-2; 113-2; 114-2; 115-3; 116-2; 117-3; 118-3; 119-2; 120-3; 121-2; 122-2; 123-1; 124-4; 125-2; 126-2; 127-3; 128-3; 129-1; 130-3; 131-1; 132-3; 133-1; 134-4; 135-1; 136-3; 137-4; 138-2; 139-3; 140-1; 141-3; 142-4; 143-2; 144-4; 145-1; 146-4; 147-3; 148-1; 149-1; 150-2.

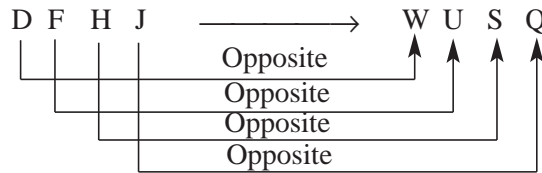
SOLUTIONS

1. $(6 \times 6) - 1 = 35$
 $(9 \times 6) - 1 = 53$
2. Father is responsible for the existence of a child similarly, writer is responsible for the existence of a book.
3. TAP $\xrightarrow{\text{Opposite}}$ PAT
DAM $\xrightarrow{\text{Opposite}}$ MAD

4. As,



Similarly,



5. (1)

6. Option (2) comprises only vowels whereas only consonants are present in rest of the options.

7. 216 is a cube of even number whereas rest are cubes of odd number.

Example : $27 = (3)^3$, $125 = (5)^3$, $216 = (6)^3$, $343 = (7)^3$

8. After observing each options we have,

1) $(24 \times 2) - 2 = 46$

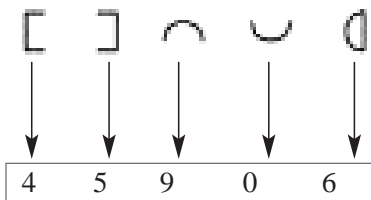
2) $(32 \times 2) - 2 = 62$

3) $(30 \times 2) - 4 = 56$

4) $(38 \times 2) - 2 = 74$

So, option (3) is different.

9. Sum of 1st three numbers results in the fourth whereas option (4) is not satisfying the same.



11. The letter 'R' of Doctor is missing in word DECOMPOSITION.

12. Lucknow → Uttar Pradesh → India → Asia → World
 1 2 3 5 4

$$\begin{array}{r} 225 \quad 336 \quad 447 \quad 558 \quad 669 \\ | \quad \uparrow | \quad \uparrow | \quad \uparrow | \quad \uparrow \\ + 111 \quad + 111 \quad + 111 \quad + 111 \end{array}$$

14. Hari > Chaman > Satish

Vijay > Mukesh > Chaman > Satish.

Hence, we can say that Satish is smallest among all.

15. Out of 12 questions, 6 questions have one option

so, Total no. of questions = $6 + (6 \times 2) = 18$

As, Each questions has 4 sections

so, Total number of question (including different sections)

$$= 18 \times 4 = 72$$

16. From option (4) we have,

$$5 > 8 + 4 = 10 < 4 \times 8$$

$$\Rightarrow 5 \times 8 \div 4 < 10 - 4 + 8$$

$$= 5 \times 2 < 18 - 4 = 10 < 14$$

17.
$$\begin{array}{ccccccc} & \times 10 + 3 & & \times 10 + 3 & & \times 10 + 3 & \\ & \downarrow & & \downarrow & & \downarrow & \\ 13, & 10, & \mathbf{103}, & 100, & 1003, & 1000, & 10003 \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ -3 & & -3 & & -3 & & \end{array}$$

18.
$$P \xrightarrow{+2} R \xrightarrow{+2} T \xrightarrow{+2} V \xrightarrow{+2} X$$

$$3 \xrightarrow{+2} 5 \xrightarrow{+3} 8 \xrightarrow{+4} 12 \xrightarrow{+5} 17$$

$$C \xrightarrow{+3} F \xrightarrow{+3} I \xrightarrow{+3} L \xrightarrow{+3} O$$

19. $(3)^2 + (5)^2 + (1)^2 = 35$

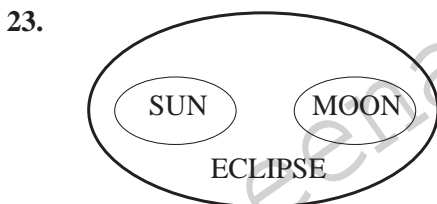
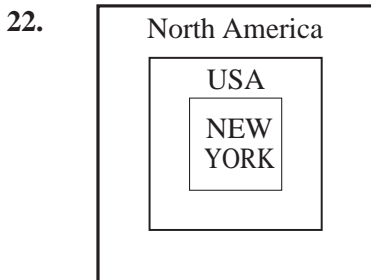
$$(4)^2 + (7)^2 + (2)^2 = 69$$

$$(6)^2 + (3)^2 + (7)^2 = 94$$

20. $\sqrt{16} + \sqrt{25} = 9$

$$\sqrt{49} + \sqrt{36} = 13$$

$$\sqrt{64} + \sqrt{81} = 17$$



25. $C \Rightarrow 44, 53$

$$A \Rightarrow 42, 62, 62$$

$$L \Rightarrow 36, 65$$

$$M \Rightarrow 51$$

$$\therefore CALM \Rightarrow 44, 62, 65, 51$$

26. Let the numbers are a and b.

$$\therefore b^3 - a^2 = b^2 \Rightarrow b^3 = a^2 + b^2$$

$$a \cdot b = 300 \text{ and } (a + b)^2 = 1600$$

$$\Rightarrow a^2 + b^2 + 2ab = 1600$$

$$\Rightarrow b^3 + 2 \times 300 = 1600$$

$$\Rightarrow b^3 = 1600 - 600 = 1000 \Rightarrow b = 10$$

$$\therefore ab = 300 \Rightarrow a \times 10 = 300 \Rightarrow a = 30$$

\therefore numbers a, b = 30, 10

27. Let the side of regular polygon = x

$$\Rightarrow \text{each interior angle} = \frac{(2n - 4) \times 90^\circ}{n}$$

ATQ,

$$\frac{(2n - 4) \times 90^\circ}{n} = 2 \times 90 \times \frac{4}{5} \Rightarrow n = 10$$

28. Distance travelled by Ravi = (60 - 12) km = 48 km

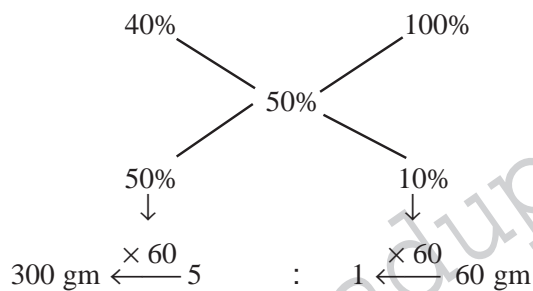
and distance travelled by Ajay = (60 + 12) km = 72 km

Difference between the distance travelled by them = (72 - 48) km = 24 km

$$\text{Time required by Ravi} = \frac{24}{4} \text{ hr} = 6 \text{ hr}$$

$$\text{Speed of Ravi} = \frac{48}{6} \text{ km/hr} = 8 \text{ km/hr}$$

29. The existing solution has 40% sugar And sugar is to be mixed, so the other solution has 100% sugar. So by alligation method:

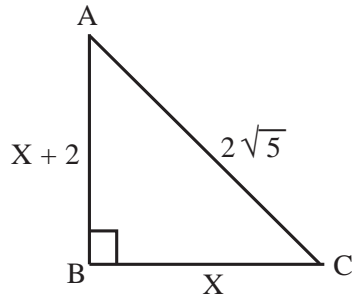


\therefore The two mixture should be added in the ratio 5 : 1

$$5x = 300 \text{ gms}$$

$$\text{Therefore, required sugar} = \frac{300}{5} = 60 \text{ gms}$$

30. In right angled ΔABC



$$\angle B = 90, BC = x, AB = x + 2, AC = 2\sqrt{5}$$

$$\therefore AB^2 + BC^2 = AC^2$$

$$\therefore (x + 2)^2 + x^2 = (2\sqrt{5})^2$$

$$\therefore x^2 + 4 + 4x + x^2 = 20$$

$$\Rightarrow 2x^2 + 4x = 16$$

$$\Rightarrow x^2 + 2x = 8 \Rightarrow x^2 + 2x - 8 = 0$$

$$\Rightarrow x^2 + 4x - 2x - 8 = 0 \Rightarrow (x + 4)(x - 2) = 0$$

$$\Rightarrow x + 4 \neq 0 \text{ but } x - 2 = 0 \Rightarrow x = 2$$

$$\cos^2 A = \left(\frac{x+2}{2\sqrt{5}}\right)^2 = \left(\frac{2+2}{2\sqrt{5}}\right)^2 = \frac{16}{20} = \frac{4}{5}$$

$$\cos^2 C = \left(\frac{x}{2\sqrt{5}}\right)^2 = \left(\frac{2}{2\sqrt{5}}\right)^2 = \frac{1}{5}$$

$$\therefore \cos^2 A - \cos^2 C = \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

31. Installment (I) = Rs.1210, R = 10%

We know (for two installment)

$$I = \frac{\text{Principle}}{\left(\frac{100}{100+R}\right) + \left(\frac{100}{100+R}\right)^2}$$

$$\Rightarrow 1210 = \frac{\text{Principle}}{\frac{10}{11} + \frac{100}{121}}$$

$$\Rightarrow \text{Principle} = 1210 \times \left(\frac{110 + 100}{121}\right)$$

$$= \frac{1210 \times 210}{121}$$

$$\therefore \text{Principle} = \text{Rs.}2,100$$

32. $x + \frac{1}{x} = 2 \Rightarrow \left(x + \frac{1}{x}\right)^2 = 2^2$

$$\therefore x^2 + \frac{1}{x^2} + 2 = 4 \Rightarrow x^2 + \frac{1}{x^2} = 2$$

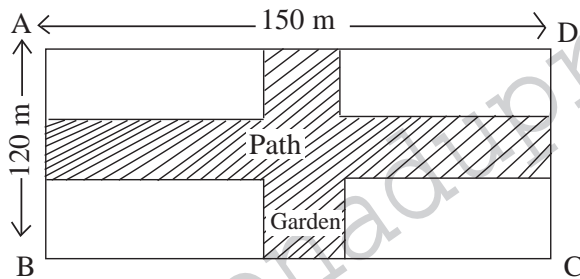
$$\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^3 = 2^3$$

$$\Rightarrow (x^2)^3 + \left(\frac{1}{x^2}\right)^3 + 3 \cdot x^2 \cdot \frac{1}{x^2} \left(x^2 + \frac{1}{x^2}\right) = 8$$

$$\Rightarrow x^6 + \frac{1}{x^6} + 3 \times 1 \times 2 = 8$$

$$\Rightarrow x^6 + \frac{1}{x^6} = 8 - 6 = 2$$

33. Area of two paths = $10 \times (150 + 120 - 10)$
 $= 10 \times 260 = 2600 \text{ m}^2$



Cost of graveling the path = 2600×2
 $= \text{Rs.}5,200$

34. Sum of angles of regular pentagon = $(2n - 4) \times 90^\circ$
 $= (2 \times 5 - 4) \times 90^\circ = 540^\circ$

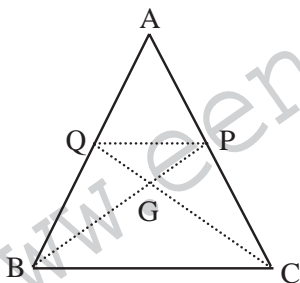
$$\Rightarrow \text{Each angle of regular pentagon} = \frac{540^\circ}{5} = 108^\circ$$

\Rightarrow Sum of angle of regular hexagon = $(2n - 4) \times 90^\circ$
 $= (2 \times 6 - 4) \times 90^\circ = 720^\circ$

$$\Rightarrow \text{Each angle of regular hexagon} = \frac{720^\circ}{6} = 120^\circ$$

\therefore Ratio between each angle = $108 : 120$
 $= 9 : 10$

35.



In the figure BP and CQ are medians meeting at point G.

$$\Rightarrow \Delta BGC = \frac{1}{3} \times \Delta ABC \quad \therefore QP = \frac{BC}{2}$$

$$\Rightarrow \Delta PGQ : \Delta BGC = 1 : 4$$

$$\Rightarrow \Delta PGQ : \frac{1}{3} \Delta BGC = 1 : 4$$

$$\Rightarrow \Delta PGQ : \Delta ABC = 1 : 12$$

36. Let Rate = R%, then time = R years

$$P = \text{Rs.}5,00,000, \text{ S.I} = \text{Rs.}80,000$$

$$80,000 = \frac{500000 \times R \times R}{100}$$

$$\Rightarrow R^2 = 16 \Rightarrow R = 4\%$$

37. HCF of 25.97 & 16.43 = 0.53

$$\text{Required number of tiles} = \frac{25.97 \times 16.43}{0.53 \times 0.53} = 1519$$

$$38. \frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 4$$

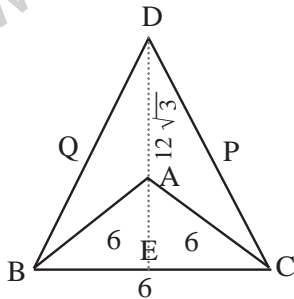
$$\frac{\cos \theta (1 + \sin \theta + 1 - \sin \theta)}{1 - \sin^2 \theta} = 4$$

$$\frac{\cos \theta \times 2}{\cos^2 \theta} = 4 \Rightarrow \frac{2}{\cos \theta} = \frac{4}{1}$$

$$\Rightarrow 4 \cos \theta = 2 \Rightarrow \cos \theta = \frac{1}{2} = \cos 60^\circ$$

$$\Rightarrow \cos \theta = \cos 60^\circ \Rightarrow \theta = 60^\circ$$

39.



In the figure, equilateral triangle ABC is the base of the pyramid.

Where $AB = BC = CA = 6$ cm

$$\therefore \text{Volume of the pyramid} = \frac{1}{3} \times \text{base area} \times \text{height}$$

$$= \frac{1}{3} \times \frac{\sqrt{3}}{4} \times 6 \times 6 \times 12\sqrt{3} = 108 \text{ cm}^3$$

$$40. a + \frac{1}{a} = 1 \Rightarrow \left(a + \frac{1}{a}\right)^3 = 1^3$$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3 \times a \times \frac{1}{a} \times \left(a + \frac{1}{a}\right) = 1$$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3 = 1 \Rightarrow a^3 + \frac{1}{a^3} = -2$$

$$\Rightarrow a^3 + \frac{1}{a^3} = -1 - 1 \Rightarrow a^3 = -1$$

$$41. \quad \begin{cases} 5m + 5w = \frac{660}{3} = 220 \\ \times 2 \quad 10m + 20w = \frac{3500}{5} = 700 \dots\dots(ii) \\ 10m + 10w = 20 \times 2 = 440 \dots\dots(i) \end{cases}$$

[Subtracting (i) from (ii)]

$$10w = 700 - 440 = 260$$

$$\therefore 1w = \frac{260}{10} = 26$$

$$\text{Now, } 5m + 5w = 220$$

$$5m + 5 \times 26 = 220$$

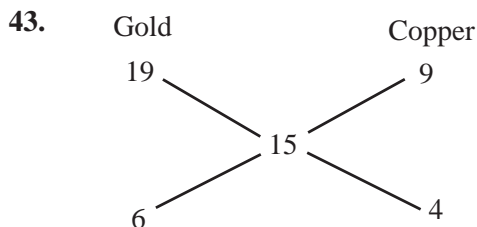
$$\therefore 1m = \frac{220 - 130}{5} = \frac{90}{5} = 18$$

$$\text{Now, the required number of days} = \frac{1060}{(6 \times 18 + 4 \times 26)} = \frac{1060}{212} = 5$$

42. Let the distances be $2x$, $3x$ and $5x$ km covered by Priyanka. Then,

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\begin{aligned} \text{Required average speed} &= \frac{2x + 3x + 5x}{\frac{2x}{10} + \frac{3x}{15} + \frac{5x}{20}} = \frac{10x}{\frac{39x}{60}} \times 60 \\ &= \frac{200}{13} = 15 \frac{5}{13} \text{ km/hr} \end{aligned}$$



$$\therefore \text{Gold : Copper} = 6 : 4 = 3 : 2$$

44. Average of 48 numbers = 0

$$\Rightarrow \text{Sum of 48 numbers} = 0 \times 48 = 0$$

It is quite possible that 47 of these numbers may be positive & if their sum is R then 48th number is $(-R)$.

45. Decreased angles be $2x^\circ$, $3x^\circ$, $5x^\circ$

\therefore Real angles would be

$$(2x + 15)^\circ, (3x + 15)^\circ, (5x + 15)^\circ$$

$$\Rightarrow 2x + 15 + 3x + 15 + 5x + 15 = 180$$

$$\Rightarrow 10x + 45 = 180 \Rightarrow 10x = 135$$

$$\Rightarrow x = \frac{135}{10}$$

$$\therefore \text{Greatest angle} = (5x + 15)^\circ$$

$$= \left(5 \times \frac{135}{10} + 15 \right)^\circ$$

$$= \left(\frac{135}{2} + 15 \right)^\circ = \left(\frac{165}{2} \right)^\circ$$

\therefore The radian measure

$$= \left(\frac{165}{2} \right)^\circ \times \frac{\pi}{180^\circ} = \frac{11}{24} \pi$$

46. Total number of people in all six cities = $\frac{10000 \times 100}{20} = 50000$

Total population of city A = $50000 \times \frac{20}{100} = 10000$

Number of females in city A = $50\% = 5000$

47. Total_B = $\frac{50000 \times 10}{100} = 5000$

Males are 30%, so Females = $100 - 30 = 70\%$

Difference = $70 - 30 = 40\%$

Required answer = $\frac{5000 \times 40}{100} = 2000$

48. Female_E = $50000 \times \frac{10}{100} \times \left(\frac{100 - 60}{100} \right)$
 $= 5000 \times \frac{2}{5} = 2000$

Female_F = $50000 \times \frac{20}{100} \left(\frac{100 - 50}{100} \right)$
 $= 10000 \times \frac{1}{2} = 5000$

Required% = $\frac{5000}{2000} \times 100 = 250\%$

49. Total males = $\frac{50000}{100 \times 100} (20 \times 50 + 10 \times 30 + 25 \times 20 + 15 \times 40 + 10 \times 60 + 20 \times 50)$
 $= 5 \{ 1000 + 300 + 500 + 600 + 600 + 1000 \}$
 $= 5 \times 4000 = 20,000$

50. Total population in all six cities = 50,000

Total females in all six cities = $50,000 - 20,000 = 30,000$

Required% = $\frac{30000}{50000} \times 100 = 3 \times 20 = 60\%$

51. Use 'is' after 'Priya', as the sentence is not interrogative.
52. Change 'awaiting' into 'waiting'.
53. Add 'more' before 'amusing'. Both 'more amusing' and 'cleverer' must be in the same degree because both the adjectives are joined by a conjunction.
54. Replace 'impatient' by an adverb 'impatiently' which qualifies the verb 'looking'. Here 'look' is not used as a verb of sensation hence will not take adjective after it.
55. Replace 'whom' by a relative pronoun 'who', as there is a need of a subject in the subordinate clause.
58. As 'effect' means 'cause something to happen or bring about'.
59. Disposable things are 'use and throw' objects.
60. Reconcile with (to adjust) Reconcile oneself to (to accept a situation reluctantly)
74. Since, the sentence is in passive form and 'Technology' in this sentence acts as an object to be fed here.
75. 'Beware' is a verb which means 'to be careful'. 'Aware' is an adjective which means 'knowing and understanding'.
77. Prefer (verb) and preferable (adj) take preposition 'to'.
78. The correct phrase is 'on the alert'. It means watchful and attentive for someone or something.
80. Sentences starting with 'let's' take question tag 'shall we'
84. (1), (3) & (4) are correct as all mean hopelessness.
102. Dyarchy was introduced as a constitutional reform by Edwin Samuel Montagu (secretary of state for India, 1917– 22) and Lord Chelmsford (Viceroy of India, 1916 – 21). It marked the first introduction of the democratic principle into the executive branch of the British administration of India. Though much criticized, it signified a breakthrough in British Indian government and was the forerunner of India's full provincial autonomy (1935) and independence (1947).
103. Gene is a segment of DNA in all living organisms.
104. An artificial ecosystem is one that is created by people. You can create an artificial ecosystem in an aquarium or terrarium. Nathaniel Bagshaw Ward is credited as the inventor of the terrarium, which he accidentally created in 1829.
106. Work done by the string of the simple pendulum during one complete oscillation is zero. Tension in the string exactly cancels the component parallel to the string. This leaves a net restoring force back toward the equilibrium position as it is equal to zero.
108. A strait is a narrow, typically navigable channel of water that connects two larger, navigable bodies of water. It commonly refers to a channel of water that lies between two land masses, but it may also refer to a navigable channel through a body of water that is otherwise not navigable, for example because it is too shallow, or because it contains an un-navigable reef or archipelago.
116. If the President is satisfied on the basis of the report of the Governor of the concerned state or from other sources that the governance in a state cannot be carried out according to the provisions in the Constitution, he/she can declare a state of emergency in the state. Such a emergency must be approved by the Parliament within a period of 2 months. Under Article 356 of the Indian Constitution, it can be imposed from six months to a maximum period of three years with repeated parliamentary approval after every six months.
118. Composite volcanoes are most commonly found in island arcs. Most of them are found scattered on the islands adjoining the Pacific Ring of Fire where about 75% of Earth's volcanoes are found. It is a region of high volcanic and seismic activity that surrounds the majority of the Pacific Ocean Basin.

119. The Constitution of India mentions certain conditions for a person to be eligible for being a judge of the Supreme court of India. In order to be appointed as a Judge of the Supreme Court, a person must be a citizen of India and must have been for at least five years, a Judge of a High Court or of two or more such Courts in succession, or an advocate of a high Court or of two or more such Courts in succession for at least 10 years or he must be a distinguished jurist in the opinion of the President.
122. Mushroom cultivation has been found to coincide with decrease of incidents of breast cancer. Spent residues after cultivation could be a better source of biologically pre-treated substrates for biogas production and agricultural waste recycling can be achieved through controlled cultivation of mushrooms.
123. Ozone layer serves as a protective shield against harmful solar ultraviolet radiation.
124. Water vapour transpires constantly through pores (stomata) in the surface of plant's leaves.
126. The Calcutta High Court is the oldest High Court in the country which was established on 2nd July, 1862. Madras High Court in Chennai, Bombay High Court in Mumbai, Calcutta High Court in Kolkata are the first three High Courts in India.
127. Economic liberalization is a very broad term that usually refers to fewer government regulations and restrictions in the economy in exchange for greater participation of private entities. The doctrine is associated with classical liberalism. The arguments for economic liberalization include greater efficiency and effectiveness that would translate to a "bigger pie" for everybody. Thus, liberalization in short refers to "the removal of controls", the encourage economic development.
128. The atmosphere of the Earth is an envelope of gases extending to a height of 200 kms.
132. When a running car stops suddenly, the passengers tend to lean forward due to inertia of motion. Inertia is that property of a body due to which it resists a change in its state of rest or of uniform motion.
133. Mercury causes bio-magnification problem in the ecosystem.
138. According to Newton's first law, an object that is at rest will stay at rest unless an external force acts upon it and an object that is in motion will not change its velocity unless an external force acts upon it. So this law is known as the law of inertia.
139. There are three bones in each human ear. The small ear bones are arranged in series and are known as ossicles. Ear bones are the malleus or hammer, the incus or anvil and the stapes, or stirrup. Together they form a short chain that crosses the middle ear and transmits vibrations caused by sound waves from the eardrum membrane to the liquid of the inner ear. As we have a pair of ear, total number of bones are 6.
141. Raja Todar Mal was a warrior, an able administrator and an exemplary finance minister. He was one of the 'Navratnas' of Akbar's court. He introduced an excellent land revenue system. In 1582, the title Diwan-I-Ashraf was bestowed upon him by the Emperor.
143. When magma solidifies under the earth's surface, it forms plutonic rock bodies or plutons. The most common rock types in plutons are granite, granodiorite, tonalite, monzonite, and quartz diorite.
145. Corporate Tax is a levy placed on the profit of a firm, with different rates used for different levels of profits. Corporate taxes are taxes against profits earned by businesses during a given taxable period. Most countries tax all corporations doing business in the country on income from that country.
146. When treated with ammoniacal silver nitrate solution alkynes form white precipitate of silver acetylides.
147. The process is known as index definition. The order in which columns are listed in the index definition is important. A database index is a data structure that improves the speed of data retrieval operations on a database table at the cost of slower writes and increased storage space. Indices can be created using one or more columns of a database table, providing the basis for both rapid random lookups and efficient access of ordered records.

148. Goa is a former Portuguese colony, the Portuguese overseas territory of Portuguese India existed for about 450 years until it was annexed by India in 1961. In 1510, the Portuguese defeated the ruling Bijapur kings with the help of a local ally, Timayya, leading to the establishment of a permanent settlement in Velha Goa (or Old Goa). In 1843 the capital was moved to Panjim from Velha Goa. By the mid of the 18th century the area under occupation had expanded to most of Goa's present day state limits. Simultaneously the Portuguese lost other possessions in India until their borders stabilized and formed the Estado-da-India Portuguesa, of which Goa was the largest territory.
149. An ecosystem is a community of living and non-living things that work together. It includes soil, atmosphere, heat and light from the sun and also includes water and living organisms.
150. Dadabhai Naoroji, of Bombay Parsee origin, is the "Grand Old Man of India" and the "Father of Indian Nationalism" who worked with perseverance and unshakeable faith towards the goal of Swaraj was the first Indian to claim self- government for his people. Dadabhai Naoroji was also the first Indian to show that India was being drained of its wealth under the British rule and thus was fast succumbing to poverty. He played a key role in founding the Indian National Congress in 1885 and was associated with the organisation till his death.

(ఈ నమూనా ప్రశ్నపత్రాన్ని 'RACE Institute' కు చెందిన నిపుణులు రూపొందించారు.)