



Class – VIII

ENTRANCE TEST CUM SCHOLARSHIP (SAMPLE PAPER-2)

[Time: 3 Hours]

[Max Marks: 450]

A. General:

1. *This booklet is a Question Paper containing 150 questions.*
2. *Blank Papers, Clipboards, Log Tables, slide rules, calculators, cellular phones and electronic gadgets in any form are not allowed to be carried inside the examination hall.*
3. *The answer sheet, a machine-readable optical mark recognition sheet (OMR Sheet), is provided separately.*
4. *DO NOT TAMPER WITH THE OMR OR THE BOOKLET.*
5. *Please fill your roll number correctly in the OMR sheet (answer sheet).*
6. *Both Question Paper and OMR Answer Sheet will be submitted after completion of this examination.*

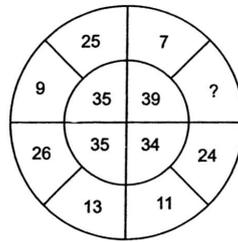
B. Question Paper Format and marking scheme:

1. *The Question Paper consists of five parts (Part I: MAT, Part II: Physics, Part III: Chemistry, Part IV: Biology, Part V: Mathematics).*
2. *Each Question carries +3 marks for correct answer and -1 mark for incorrect answer.*

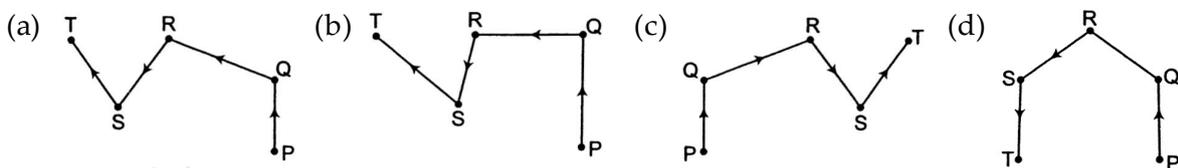
MAT

Direction (1 to 4) : In the following question, there is a relationship between the number/letter/figures on the left of the sign (: :). The same relationship exists to the right of the sign (: :) of which one is missing. Find the missing term from the alternatives.

1. EGIMP : FILQU :: FHJL : ?
 (a) GJMP (b) GMJP (c) JGPM (d) HKNQ
2. Dda : aDD :: Rrb : ?
 (a) BBR (b) bRR (c) RRD (d) DDR
3. RTVX : EGIK :: MOQS : ?
 (a) TUVW (b) NJKL (c) IKMO (d) ABCD
4. Look at the following figure. Find the pattern for writing a number in the place of question mark.



- (a) 28 (b) 36 (c) 81 (d) 49
5. Find the missing term.
 1, 3, 9, 15, 25, ?, 49
 (a) 14 (b) 20 (c) 25 (d) 17
- (Directions 6 to 8) :** In the following, select the best option to replace the questions mark.
6. 68 : 130 :: ? : 350
 (a) 210 (b) 216 (c) 222 (d) 240
 7. 42 : 56 :: 110 : ?
 (a) 18 (b) 132 (c) 136 (d) 140
 8. Raju starts from a place P towards North and reaches place Q. From there he turns towards North-West and reaches place R. He, then turns towards South-West and walks to a place S. From there he turns towards North-West and finally reaches place T. Which of the following figures shows the movement for Raju?



- (Directions 9 to 11) :** In the followings, four alternatives are given, out of these, three are alike in a certain way and one is different. Choose the one which is different from the rest three?
9. (a) 144 (b) 169 (c) 256 (d) 288
 10. (a) Camel (b) Horse (c) Bullock (d) Cat



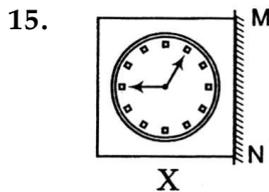
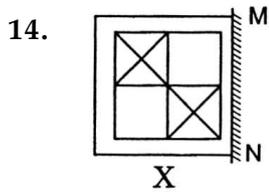
12. How many number from 11 to 50 are there which are exactly divisible by 7 but not by 3?

- (a) Two (b) Four (c) Five (d) Six

13. A number is greater than 3 but less than 8. Also, it is greater than 6 but less than 10. The number is

- (a) 5 (b) 6 (c) 7 (d) 8

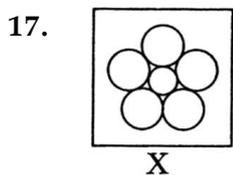
(Directions 14 to 15) : In the following questions, find out which of the answer figures is the mirror image of the given figure when mirror is hold at the MN.



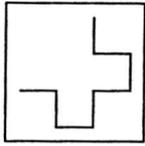
16. Five girls are sitting in a row. S is sitting next to P but not T. K is sitting next to R, who is sitting on the extreme left and T is not sitting next to K. Who are sitting adjacent to S?

- (a) K and P (b) R and P (c) Only P (d) P and T

(Directions 17 to 18) : In each of the following questions, choose the alternatives in which the problem figure is embedded?



18.



X

- (a) (b) (c) (d)

19. Arun said, 'This girl is the wife of the grandson of my mother.' Who is girl to the Arun?

- (a) Father (b) Granfather (c) Husband (d) Daughter-in-law

20. It is 3 O'clock in a watch. If the minute hand points towards the North-East, then the hour hand will point towards the

- (a) South (b) South-West (c) North-West (d) South-East

(Directions 21 to 23) : Read the following information carefully and answer the question given below.

A family consists of six members P, Q, R, S, T and U. There are two married couples. Q is a doctor and father of T. U is grandfather of R and is a contractor. S is grandmother of T and is a housewife. There is one doctor one contractor, one nurse, one housewife and two students in the family.

21. Who is the husband of P?

- (a) R (b) U (c) Q (d) S

22. Who is the sister of T?

- (a) R (b) U (c) T (d) Data insufficient

23. What is the profession of P?

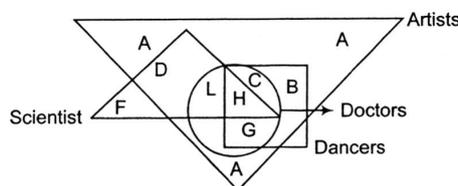
- (a) Doctor (b) Nurse (c) Doctor or Nurse (d) Housewife

24. In a dinner party both fish and meat were served. Some took fish only and some only meat. There are some vegetarians who did not accept either. The rest accepted both fish and meat.

Which of the following logic diagrams correctly reflects this situations?

- (a) (b) (c) (d)

(Directions 25 to 29) : Study the figure carefully and answer the questions given below.



25. Which letter represents the artists who are doctors and dancers only?

- (a) A (b) D (c) G (d) H

26. Which letter represent the artists who are neither scientists nor doctors?

- (a) A and B (c) A and L (c) B and G (d) L and H

27. Which letters represent the artists who are dancers as well as doctors?

- (a) A and D (b) C and G (c) C and D (d) G and H

28. Which letter represents the artists who are neither doctor nor scientists nor dancers?
(a) A (b) D (c) F (d) G

29. Which letter represents the scientists only?

(a) B (b) D (c) F (d) L

(Directions 30 to 35) : According to a certain code language, words in column-I are written in capital letters and in column-II codes are given. The codes in column-II are jumbled up. Decode the language and choose the correct code for the word given in each of the questions that follow.

Column-I	Column-II
1. CHAIN	A. acmvq
2. FRAIL	B. pngal
3. TEAM	C. wjqd
4. DESTINY	D. xwtjztc
5. TOIL	E. ajgl
6. VARY	F. qbzn
7. Naughty	G. igcfvzj

30. DAILY

(a) aqzia (b) alzqi (c) lzqat (d) aqtzc

31. TEAR

(a) nqjw (b) qwmc (c) jwqc (d) fjcw

32. REACH

(a) nnxqm (b) nxwwt (c) wxnmv (d) mqwvn

33. AIRY

(a) naqz (b) qamz (c) amqv (d) tamq

34. SUSTAIN

(a) xqfjamc (b) fafjeqc (c) xxqfjac (d) xqfjaac

35. ENVOY

(a) cwbgz (b) bgzww (c) tcwbz (d) wbbgz

36. If 'FISH' is written as 'EHRG' in a certain code, how will 'JUNGLE' be written in that code?

(a) ITMFKD (b) ITNFKD (c) KVOMF (d) TIMFKD

37. In a certain code, 'DEAF' is written as 3587 and 'FILE' is written as 7465. How is 'IDEAL' written in that code?

(a) 43568 (b) 43586 (c) 63548 (d) 48536

38. If O = 16, FOR = 42, then what is FRONT equal to?

(a) 61 (b) 65 (c) 73 (d) 78

39. If 'light' is called 'stick', 'stick' is called 'nib', 'nib' is called needle, 'needle' is called 'rope' and 'rope' is called 'thread'. What will be fit in a pen to write with it?

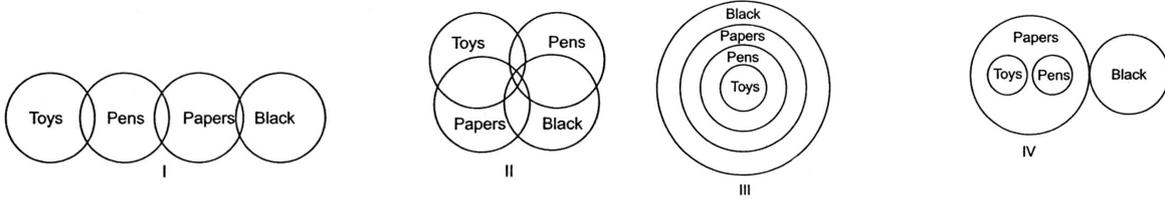
(a) Stick (b) Lead (c) Needle (d) Nib

40. If 'DELHI' can be coded as 'CCIDD', how would you code 'BOMBAY'?

(a) AJMTVT (b) AMJXVS (c) MJXVSU (d) WXYZAX

Directions (41 to 43) : Read this statement given below. Find out the diagram from the given alternatives representing the statement correctly.

41. Some toys are pens. Some pens are papers.
Some papers are black.



- (a) I and II (b) I and III (c) II and III (d) III and IV
42. **Statement** These apples are too expensive to be bad.

Conclusions

- I. When apples are in short supply, the prices grows.
II. The higher the selling price, the superior is the quality of the commodity.
- (a) Only Conclusion I follow (b) Only Conclusion II follows
(c) Both Conclusion I and II follow (d) Neither Conclusion I nor II follow

43. **Statements** All classes are glasses.
All brasses are glasses.

Conclusions

- I. Some classes are brasses.
II. Some brasses are glasses.
III. Some brasses are classes.
IV. Same classes are glasses.
- Which of the following are immediate inferences?
(a) Only I follows (b) Only II follows (c) I and II follow (d) II and IV follow

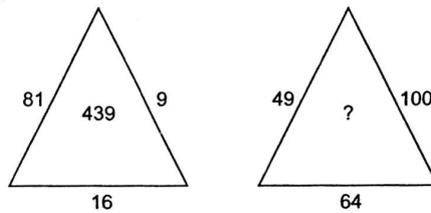
(Directions 44 to 46) : Find the missing number in the following series.

44. 6, 7, 9, 13, 21,?
(a) 25 (b) 29 (c) 37 (d) 32
45. 5, 7, ?, 9, 7, 11, 8, 13
(a) 8 (b) 6 (c) 19 (d) 7
46. 4, 8, 12, 24, 36, 72, ?
(a) 108 (b) 98 (c) 92 (d) 69

(Directions 47 to 49) : Find out the wrong number in the following series.

47. 2, 3, 12, 37, 86, 166, 288
(a) 2 (b) 3 (c) 166 (d) 86
48. 4, 9, 19, 43, 90, 185, 375
(a) 9 (b) 19 (c) 90 (d) 185
49. 572, 284, 140, 72, 32, 14, 5
(a) 140 (b) 32 (c) 72 (d) 572

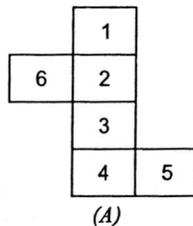
50. Find out the correct value in place of question mark in the problem figures.



- (a) 8710 (b) 1078 (c) 8107 (d) 789

(Directions 51 to 53) : A cube is painted red on two adjacent surfaces and black on the surfaces opposite to red surfaces and green on the remaining faces. Now, the cube is cut into sixty four smaller cubes of equal size.

51. How many smaller cubes have only one surface painted?
 (a) 8 (b) 16 (c) 24 (d) 32
52. How many smaller cubes will have no surface painted?
 (a) 0 (b) 4 (c) 8 (d) 16
53. How many smaller cubes have less than three surfaces painted?
 (a) 8 (b) 24 (c) 28 (d) 48
54. Select the figure which is identical to the figure (A).



- (a) (b) (c) (d)

(Directions 55 to 60) : Given below are two matrix containing two classes of letters. The rows and columns of matrix are numbered from 0 to 4 and that of matrix from 5 to 9. A letter from these matrix can be represented first by its row number and next by its column number.

Matrix I					
	0	1	2	3	4
0	C	U	C	L	G
1	A	R	R	A	G
2	L	C	U	P	L
3	P	L	O	O	C
4	O	A	P	U	R

Matrix II					
	5	6	7	8	9
5	B	I	M	N	E
6	S	B	I	M	N
7	E	S	B	E	M
8	N	I	S	B	E
9	M	N	I	S	B

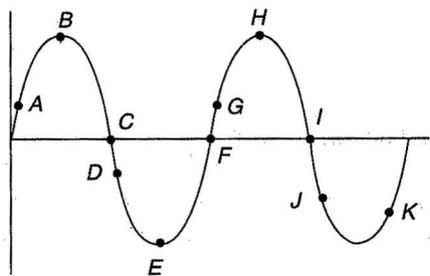
55. SOUR
 (a) 76, 40, 22, 44 (b) 98, 32, 11, 32 (c) 95, 32, 50, 55 (d) 58, 59, 10, 12
56. NEAR
 (a) 58, 98, 14, 10 (b) 68, 34, 41, 57 (c) 85, 89, 41, 14 (d) 58, 59, 10, 12
57. BONE
 (a) 67, 23, 54, 30 (b) 34, 32, 22, 31 (c) 88, 33, 14, 21 (d) 77, 32, 85, 89

58. MOON
 (a) 68, 32, 40, 86 (b) 68, 34, 56, 32 (c) 57, 32, 33, 58 (d) 43, 31, 24, 99
59. GOLES
 (a) 14, 40, 24, 78, 98 (b) 14, 04, 23, 87, 24 (c) 04, 32, 24, 78, 8 (d) 40, 04, 03, 75, 98
60. BANE
 (a) 88, 41, 58, 89 (b) 87, 14, 58, 59 (c) 68, 14, 85, 32 (d) 11, 14, 56, 66

PHYSICS

61. Which one of the following statements is true?
 (a) The weight of a substance in air is always less than its weight in water
 (b) The mass of a substance is equal to the mass of an equal volume of water
 (c) The weight of a substance in water is always greater than its weight in some other liquid
 (d) The weight of substance in water is always less than its weight in air
62. Pressure applied to an enclosed fluid is transmitted equally to every portion of the fluid and walls of the containing vessel. This law was first formulated by :
 (a) Bernoulli (b) Archimedes (c) Boyle (d) Pascal
63. We can't hear explosion on the moon because-
 (a) Sound is a non mechanical wave. (b) Sound is a mechanical wave
 (c) Both (a) and (b) (d) None of the above
64. A man is standing on a boat in still water. If he walks towards the shore the boat will
 (a) move away from the shore (b) remain stationary
 (c) move towards the shore (d) sink
65. Pressure at a point inside a liquid does not depend on the
 (a) density of the liquid (b) height of the liquid column above the point
 (c) acceleration due to gravity (d) base area of the container
66. A bullet of mass A and velocity B is fired into a block of wood of mass C. If loss of any mass and friction be neglected, the velocity of the system must be
 (a) $\frac{AB}{A+C}$ (b) $\frac{A+C}{B+C}$ (c) $\frac{AC}{B+C}$ (d) $\frac{A+B}{AC}$
67. A stationary ball weighing 0.25 kg acquires a speed of 10 m/s when hit by a hockey stick. The impulse imparted to the ball is
 (a) 2.5 N s (b) 2.0 N s (c) 1.5 N s (d) 0.5 N s
68. Kinetic friction is directly proportional to the
 (a) External force (b) Normal force
 (c) Gravitation force (d) Acceleration due to gravity
69. Which of the following is not the characteristic of sound?
 (a) Wavelength of sound (b) Brightness
 (c) Amplitude of sound (d) Both (a) and (b)
70. Any solid will not sink in water if its relative density is
 (a) less than 1 (b) equal to 1 (c) greater than 1 (d) infinite

71. The persistence of hearing for human beings is not more than
 (a) 1 s (b) $\frac{1}{5}$ s (c) $\frac{1}{10}$ s (d) $\frac{1}{2}$ s
72. Waves produced by supersonic jet planes are
 (a) shock waves (b) seismic waves (c) infrasonics (d) none of these
73. The audible range of frequency is
 (a) 20 Hz to 20,000 Hz (b) 40 Hz to 40,000 Hz
 (c) 60 Hz to 60,000 Hz (d) 10 Hz to 20,000 Hz
74. Waves produced due to the earthquake are known as
 (a) seismic waves (b) shock waves (c) infrasonic waves (d) none of these
75. Which of the following type of waves is different from others?
 (a) Light waves (b) X-rays (c) Radio waves (d) Sound waves
76. Figure shows that the shape of a part of a long string in which transverse waves are produced. Which pair of particles are in phase?

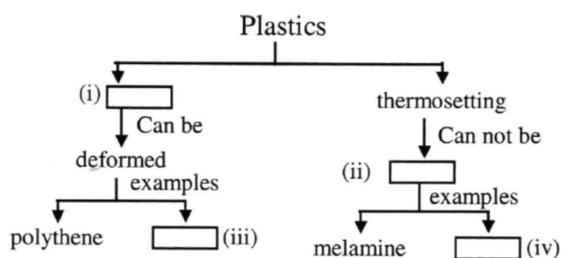


- (a) A and G (b) D and G (c) B and E (d) C and K
77. The relation between frequency (n) and wavelength (λ) is given by (v is velocity, n is frequency and T is time-period)
 (a) $v = n\lambda$ (b) $n = \frac{\lambda}{v}$ (c) $v = \frac{n}{\lambda^2}$ (d) $n = \frac{T}{\lambda}$
78. A wave completes 24 cycles in 0.8 s. The frequency of the wave is
 (a) 30 Hz (b) 8 Hz (c) 24 Hz (d) 12 Hz
79. The unit of refractive index is
 (a) metre (b) degree (c) dioptre (d) it has no units
80. A simple magnifying glass consists of a
 (a) concave lens (b) convex lens of large focal length
 (c) convex lens of small focal length (d) plane mirror only

CHEMISTRY

81. The metal which can replace calcium from its salt is :
 (a) Al (b) Zn (c) Fe (d) K
82. The oxide of non-metal which is neutral in nature is :
 (a) SO_3 (b) NO_2 (c) NO (d) P_2O_3

83. Acid which can react even with non-metal is :
 (a) dil. HCl (b) conc. HCl (c) dil. H_2SO_4 (d) conc. HNO_3
84. LPG stands for :
 (a) Liquefied petroleum gas (b) Light petroleum gas
 (c) Low petroleum gas (d) Lime petroleum gas
85. The composition of producer gas is :
 (a) $\text{CO} + \text{O}_2$ (b) $\text{CO} + \text{H}_2\text{O}$ (c) $\text{CO} + \text{CH}_4$ (d) None of these
86. The metallic cylinder in soda acid extinguisher contains _____.
 (a) NaOH (b) NaHCO_3 (c) $\text{Al}(\text{OH})_3$ (d) KOH
87. Which zone of flame has the maximum temperature?
 (a) Luminous (b) Non-luminous (c) Dark zone (d) None of these
88. Which of the following alloys contain Lead?
 (a) Brass (b) Solder (c) Duralumin (d) Steel
89. Aluminium is extracted from :
 (a) hematite (b) bauxite (c) calamine (d) magnetite
90. Which of the following is a good conductor of electricity?
 (a) Charcoal (b) Coke (c) Graphite (d) Diamond
91. When a small piece of dry sodium is put in water, it reacts vigorously to produce _____.
 (a) nitrogen gas (b) hydrogen gas (c) carbon dioxide gas (d) sulphur dioxide
92. Which of the following pairs cannot undergo displacement reaction?
 (a) Iron sulphate solution and magnesium (b) Zinc sulphate solution and iron
 (c) Zinc sulphate solution and calcium (d) Silver nitrate solution and copper
93. Which one of the following four metals would be displaced from the solution of its salt by the other three metals?
 (a) zinc (b) silver (c) copper (d) magnesium
94. The flame of a kerosene oil lamp (or lantern) has :
 (a) single zone (b) two zones (c) three zones (d) four zones
95. Those elements which has characteristic properties of both metals and non metals are known as metalloids.
 Which of the following is not a metalloid?
 (a) Germanium (b) Silicon (c) Antimony (d) Lead
96. Fill in the boxes with appropriate option :



- | | | | |
|-------------------|--------------|----------|----------|
| (i) | (ii) | (iii) | (iv) |
| (a) Non-reactive | Formed | Bakelite | PVC |
| (b) Thermoplastic | Remoulded | PVC | Bakelite |
| (c) Cross-linked | Manufactured | Polycot | PVC |
| (d) Thermoplastic | Formed | Silk | Polywool |
97. _____ is stronger than steel wire.
- | | | | |
|------------------|-----------------|--------------------|-----------------|
| (a) Cotton fibre | (b) Silk thread | (c) Plastic thread | (d) Nylon fibre |
|------------------|-----------------|--------------------|-----------------|
98. Which of the following is not obtained from coal?
- | | |
|--------------|----------------------------|
| (a) coke | (b) coal tar |
| (c) coal gas | (d) compressed natural gas |
99. Which of the following gases is produced in air during lightning that absorbs ultraviolet radiation present in sunlight?
- | | | | |
|--------------------|--------------|-----------|------------|
| (a) Carbon dioxide | (b) Hydrogen | (c) Ozone | (d) Oxygen |
|--------------------|--------------|-----------|------------|
100. Pick the synthetic fibre out of the following?
- | | | | |
|------------|-----------|----------|----------|
| (a) Cotton | (b) Nylon | (c) Jute | (d) Wool |
|------------|-----------|----------|----------|

BIOLOGY

101. The small rod shaped structure bound by a double membrane which helps in oxidation of food to release energy is:
- | | | | |
|-------------------|-------------------|-------------|-------------|
| (a) Mitochondrion | (b) Golgi complex | (c) Nucleus | (d) Vacuole |
|-------------------|-------------------|-------------|-------------|
102. Arrange the cell organelles useful for intracellular digestion, intracellular respiration, intracellular movements and cell secretion in a sequence.
- | | | | |
|-------------------|-------------------|-------------------|-------------------|
| P. Golgi complex | Q. Lysosomes | R. Mitochondria | S. Microtubules |
| (a) Q – R – S – P | (b) R – Q – P – S | (c) S – P – Q – R | (d) P – S – R – Q |
103. Which of the following characteristics is true for a virus?
- I. It has a nucleus.
 - II. It reproduces only in living cells.
 - III. It contains either DNA or RNA.
- | | | | |
|------------|--------------------|---------------------|-------------------|
| (a) I only | (b) I and III only | (c) II and III only | (d) I, II and III |
|------------|--------------------|---------------------|-------------------|
104. Which pair is correct?
- | Pathogens | Diseases caused |
|--------------|-----------------|
| (a) Virus | Dengue fever |
| (b) Bacteria | Malaria |
| (c) Fungi | Hepatitis |
| (d) Protozoa | Syphilis |
105. Transferring and combining desirable characteristic features into plants and multiplying them is called :

- (a) Eugenics (b) Histology
(c) Genetic engineering (d) Crop improvement
106. Which of the following statements (s) is/are correct regarding organic farming?
(a) Technique involving minimum or no use of chemical fertilizers.
(b) Huge amount of chemical fertilizers are used.
(c) Organic manure will not be used.
(d) Both (a) and (c)
107. Bark of which plant yields famous drug for malaria?
(a) *Cinchona* (b) *Quercus* (c) *Betula* (d) *Eucalyptus*
108. Kala azar disease is caused by:
(a) protozoa (b) bacteria (c) virus (d) worm
109. Which of the following is not a weedicide?
(a) 2,4-D (b) M C P A (c) Butachlor (d) Superphosphate
110. Which of the following is not a biotic factor responsible for spoilage of grains?
(a) Rodents (b) Insects (c) Micro-organisms (d) Temperature
111. Viruses can reproduce in :
(a) Water (b) Air (c) Soil (d) Plants and animals
112. Which of the following microorganism has the ability to fix nitrogen?
(a) HIV (b) Plasmodium (c) Penicillium (d) Rhizobium
113. What will happen to a person who eats spoilt food?
(a) Malaria (b) Flu (c) Food poisoning (d) Measles
114. Excessive use of chemical fertilizers make the soil
(a) acidic (b) basic (c) neutral (d) no change
115. Manure formed by earthworms is called as :-
(a) Organic manure (b) Vermi Compost (c) Manure (d) None of these
116. For storing food grains we can use :-
(a) Dried papaya leaves (b) Dried peepal leaves
(c) Dried neem leaves (d) Green banana leaves
117. Black soil is most suitable for agriculture because it :-
(a) is black in colour.
(b) has more moisture and organic contents.
(c) has less iron oxide.
(d) is found on the river banks.
118. Which of the following is not grown by transplantation?

- (a) Chillies (b) Tomatoes (c) Peas (d) Paddy
- 119 Which of the following is not a rabi crop?
 (a) Soyabean (b) Peas (c) Wheat (d) Linseed
- 120 One of the following crop is not cultivated by sowing its seeds directly into soil. This one is:
 (a) wheat (b) gram (chana) (c) paddy (d) maize (makka)

MATHEMATICS

121. The value of $1.\overline{34} + 4.\overline{12}$ is:

- (a) $\frac{133}{99}$ (b) $\frac{371}{90}$ (c) $\frac{5169}{990}$ (d) $\frac{5411}{990}$

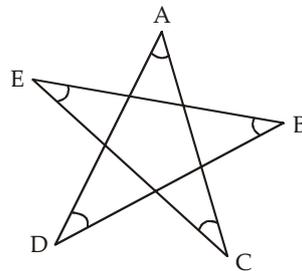
122. A man is 5 years older than his wife and the wife is now thrice as old as their daughter, who is 10 years old. How old was the man when his daughter was born?

- (a) 20 years (b) 23 years (c) 25 years (d) 30 years

123. A fraction is such that if the numerator is multiplied by 3 and the denominator is reduced by 3, we get $\frac{18}{11}$, but if the numerator is increased by 8 and the denominator is doubled, we get $\frac{2}{5}$. Then the fraction is:

- (a) $\frac{16}{25}$ (b) $\frac{12}{25}$ (c) $\frac{18}{25}$ (d) $\frac{22}{25}$

124. The sum of the angles $\angle A + \angle B + \angle C + \angle D + \angle E$ in the given figure is:



- (a) 540° (b) 180° (c) 360° (d) 270°

125. $\sqrt{0.01 + \sqrt{0.0064}} = ?$

- (a) 0.3 (b) 0.03 (c) $\sqrt{0.18}$ (d) none of these

126. A General wishes to draw up his 36562 soldiers in the form of a solid square. After arranging them, he found that some of them are left over. How many are left?

- (a) 36 (b) 65 (c) 81 (d) 97

127. $\sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}} = ?$

- (a) $(2)^{\frac{1}{10}}$ (b) $(2)^{\frac{1}{32}}$ (c) $(2)^{\frac{1}{16}}$ (d) $2^{\frac{31}{32}}$

128. If $a^3 = b^3 + c^3 + d^3$, the least value of 'a' (where a, b, c, d are natural nos.) is :

- (a) 6 (b) 9 (c) 3 (d) none of these

129. The CI on Rs. 16,000 at 15% p.a. for $2\frac{1}{3}$ years is :

- (a) Rs. 6,418 (b) Rs. 5,000 (c) Rs. 22,218 (d) Rs. 6,218

130. Sugar is bought at Rs. 16.20 per kg and sold at Rs. 17.28 per kg. The gain percent is:

- (a) $6\frac{2}{3}\%$ (b) $3\frac{1}{3}\%$ (c) 10% (d) $10\frac{2}{3}\%$

131. If $A = x - \frac{1}{x}$, then the value of $\left(A + \frac{1}{A}\right)$ is

- (a) $\frac{x^4 - x^2 + 1}{x(x^2 - 1)}$ (b) $\frac{x^4 + x^2 + 1}{x(x^2 - 1)}$ (c) $\frac{x^4 + 1}{x^3 - x^2}$ (d) 1

132. Which one of the following is a rational number ?

- (a) $(\sqrt{2})^2$ (b) $2\sqrt{2}$ (c) $2 + 2\sqrt{2}$ (d) $\frac{\sqrt{2}}{2}$

133. Between any two distinct rational numbers –

- (a) There lie infinitely many rational numbers.
(b) There lies only one rational number.
(c) There lie only finitely many numbers.
(d) There lie only rational numbers.

134. $\frac{15}{\sqrt{10} + \sqrt{20} + \sqrt{40} - \sqrt{125}}$ is equal to _____

- (a) $\sqrt{5}(5 + \sqrt{2})$ (b) $\sqrt{5}(2 + \sqrt{2})$ (c) $\sqrt{5}(\sqrt{2} + 1)$ (d) $\sqrt{5}(3 + \sqrt{2})$

135. The missing member 'x' in the ordered pair (x, - 8) if the second member of the pair is 4 more than the first member is :

- (a) -4 (b) -8 (c) -12 (d) 4

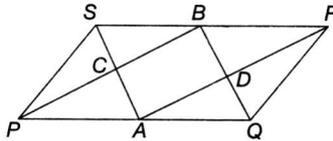
136. The cost of a note book is twice the cost of a pen. If the cost of a note book is 'x' and that of a pen is 'y', then a linear equation in two variables is represented as :

- (a) $x + 2y = 0$ (b) $x - 2y = 0$ (c) $-x + 2y = 1$ (d) $2x - y = 0$

137. If $1.\overline{ab} = \frac{47}{33}$ then $a + b = ?$

- (a) 5 (b) 4 (c) 3 (d) 2

138. In the given figure, PQRS is a parallelogram. A and B are the mid-points of \overline{PQ} and \overline{SR} respectively. if $PS = BR$, then the quadrilateral ADBC is a _____ .

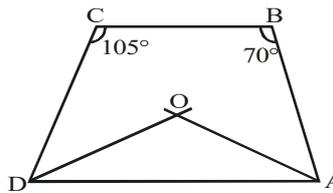


- (a) rhombus (b) kite (c) square (d) rectangle

139. A fly is in a cubical room of length 'a' unit. And sit at the bottom corner of it. It needs to be at top diagonally opposite corner of the room then find out smallest distance need to be covered?

- (a) $\sqrt{5}a$ (b) $\sqrt{3}a$ (c) $a + \sqrt{3}a$ (d) $2a$

140. In the given figure, AO and DO are the bisector of the $\angle A$ and $\angle D$ of the quadrilateral ABCD. Then the $\angle AOD$ is



- (a) 67.5° (b) 77.5° (c) 87.5° (d) 99.75°

141. In a square ABCD, its diagonals bisect at O. Then the triangle AOB is

- (a) An equilateral triangle (b) An isosceles but not right angled triangle
(c) A right angled but not an isosceles triangle (d) An isosceles right angled triangle

142. Which of the following is greatest?

- (a) $1 + \sqrt{48}$ (b) $\sqrt{6} + \sqrt{8}$ (c) $\sqrt{2} + \sqrt{24}$ (d) $2 + \sqrt{12}$

143. Find out the remainder when x is divided by 101? Where $x = 123412341234 \dots$ 100 digits.

- (a) 32 (b) 67 (c) 45 (d) None of these

144. $2^x = 3^y = 6^{-z}$ then find out the value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = ?$

- (a) 0 (b) -1 (c) 1 (d) Can't be determined

145. The profit earned by selling an article for Rs 482 is equal to loss incurred when the same article is sold for Rs 318. What should be the sale price of the article for making 30 per cent profit?

- (a) Rs 560 (b) Rs 520 (c) Rs 540 (d) 580

146. $n! = n(n - 1)(n - 2) \dots 3 \times 2 \times 1$

Find $\frac{5!}{3!}$

(a) 7

(b) 20

(c) $\frac{5}{3}$

(d) None of these

147. A Shopkeeper expects a gain of 22.5% on his cost price. If in a week, his sale was of Rs. 392, what was his profit ?

(a) Rs. 18

(b) Rs. 70

(c) Rs. 72

(d) Rs. 88.25

148. The areas of three adjacent faces of a cuboid are x , y and z . If the volume of the cuboid is V , then V^2 is equal to:

(a) xyz

(b) $xy + yz + zx$

(c) $(xyz)^2$

(d) $xy + yz$

149. A monkey wants to climb a tree. In first 3 min to move 3 metres in upward direction and in next 2 min. 2 metres downwards. If the height of a tree is 20 metres? Find out the time taken by monkey to be at the top of the tree?

(a) 88 minutes

(b) 100 minutes

(c) 67 minutes

(d) 92 minutes

150. A room is 6 m long, 5 m broad and 4 m height. If all its wall are to be covered with paper 50 cm wide, the length of the paper is:

(a) 120 m

(b) 88 m

(c) 440 m

(d) 176 m