STUDY VAULT
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School Integrated Program

Class – VIII

ENTRANCE TEST CUM SCHOLARSHIP (SAMPLE PAPER-1)

[Time: 3 Hours] [Max Marks: 450]

A. General:

1. *This booklet is your Question Paper containing 150 questions.*
2. *Blank Papers, Clipboards, Log Tables, slide rules, calculators, cellular phones, pagers 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 / MULTIPLE 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:

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

Directions (Q. 1–9): In each of the following questions, select the related word/letters/number from the given alternatives.

1. 23 : 13 : : 54 : ?
   (a) 40 (b) 41 (c) 44 (d) 39
2. Seismometer : Earthquakes : : Thermometer : ?
   (a) Mercury (b) Temperature (c) Fever (d) Doctor
3. Play : Actor : : Concert : ?
   (a) Percussion (b) Symphony (c) Musician (d) Piano
4. DLIP : FNKR : : JROV : ?
   (a) MURY (b) LTQX (c) NVSZ (d) KSPW
5. YAWC : UESG : : QIOK : ?
   (a) MMKO (b) ROME (c) MINC (d) MIKE
6. 17 : 24 : : 153 : ?
   (a) 213 (b) 216 (c) 118 (d) 198
7. $\frac{M}{AC} : \frac{N}{AD} :: \frac{O}{AE} : ?$
   (a) $\frac{P}{AF}$ (b) $\frac{Q}{AB}$ (c) $\frac{P}{AC}$ (d) $\frac{R}{AD}$
8. ABE : 8 :: KLO : ?
   (a) 37 (b) 39 (c) 38 (d) 36
9. ADBC : EHFG :: ILJK : ?
   (a) MOPN (b) MPNO (c) ORPQ (d) MPON

Directions (Q. 10–14) : In each of the following questions, select the one which is different from the other three alternatives.

10. (a) Duck (b) Avoid (c) Dodge (d) Flee
11. (a) 36 (b) 96 (c) 16 (d) 80
12. (a) 41, 4 (b) 83, 6 (c) 74, 7 (d) 96, 9
13. (a) LNOR (b) TRPS (c) CEFI (d) GIJM
14. (a) Heat (b) Light (c) Bulb (d) Electricity
15. Which one of the given responses would be a meaningful order of the following colours?
    1. Indigo 2. Red 3. Violet 4. Blue
    5. Green 6. Yellow 7. Orange
    (a) 3, 1, 4, 5, 2, 6, 7 (b) 3, 1, 4, 5, 6, 2, 7 (c) 1, 5, 6, 7, 3, 4, 2 (d) 3, 1, 4, 5, 6, 7, 2
16. Arrange the following words as per order in the English dictionary:
    1. Caricature 2. Cardinal 3. Carnivore 4. Cartoon 5. Category
    (a) 2, 1, 3, 4, 5 (b) 4, 5, 1, 3, 2 (c) 1, 2, 3, 4, 5 (d) 2, 1, 3, 5, 4
17. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
    R_S_ PM_KSB_MRK_
    (a) KRKSP (b) KBRPS (c) RKSPM (d) BPSMP

18. In the following series, how many HIG occur in such a way that 'I' is in the middle and 'H' and 'G' are adjacent to it on both sides?
GGHIHIIGGJKLMGIHIG
(a) 3 (b) 2 (c) 5 (d) 1

Directions (Q. 19–22) : In each of the following questions, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

19. 2, 2, 4, 6, ?, 10, 8, 14, 10
(a) 6 (b) 5 (c) 8 (d) 7

20. ELFA, GLHA, ILJA, ?, MLNA
(a) ILMA (b) KLLA (c) QLPA (d) KLMA

21. 3, 8, 18, 35, ?, 98
(a) 61 (b) 71 (c) 41 (d) 51

22. 975, 864, 753, 642,...?...
(a) 431 (b) 314 (c) 531 (d) 532

23. L, M, N and O are brothers. L is darker than O, N is the fairest of all. M is fairer than O. Who is the darkest of all ?
(a) N (b) O (c) L (d) M

24. Anjali says, "He is the only son of the father of my sister's brother." How is that person related to Anjali?
(a) Uncle (b) Cousin (c) Brother (d) Father

25. From the given alternative words, select the word which **can** be formed using the letters of the word "FUNDAMENTAL".
(a) TAME (b) FUNDS (c) TENT (d) NOSE

26. From the given alternative words, select the word which **cannot** be formed using the letters of the word "THERMODYNAMICS".
(a) MATHEMATICS (b) MOTHER (c) MODERN (d) DYNAMO

27. Joan's age is 42 years and Kelvin's age is 26 years. How many years ago was Kelvin's age half of Joan's age?
(a) 6 years (b) 4 years (c) 10 years (d) 8 years

28. In a certain code, 'RATIONAL' is written as 'RTANIOLA'. How would 'TRIBAL' be written in the same code ?
(a) TIRLBA (b) TIRABL (c) TRIALB (d) TIRALB

29. If 'INDUS' is coded as '03865' and 'TENNIS' is coded as '243305', then what will be the code for 'STUDENT' ?
(a) 5628342 (b) 5648324 (c) 5268432 (d) 5642832

30. Given below are capital letters in the first line and symbols in the second line. Symbols and letters are codes for each other. Choose the correct code for the word "HEIGHT".

A	C	E	G	H	I	O	N	P	R	T	S	B	D	M
+	–	÷	×	=	(	)	[	]	≠	‖	#	|	>	<

(a) = × (÷ = ‖ (b) = × (× = ‖ (c) = ÷ (× ‖ = (d) = ÷ (× = ‖

31. In a school, the bell is rung once after each half an hour. The school starts at 8 : 00 am and closes at 1 : 30 pm. The bell is rung 3 times continuously, at the time of beginning, at the time of lunch break, at 10 : 00 am, at 10 : 30 am and at the end. How many times is the bell rung every day?
(a) 21 (b) 22 (c) 19 (d) 20

32. Select the correct combination of mathematical signs to replace * signs and to balance the following equation: $\left(\sqrt{121} * 9\right) * 5 * 4 * 16$

(a) – + × = (b) + ÷ × = (c) = + × ÷ (d) – × + =

33. If '–' stands for 'division', '+' stands for 'multiplication', '÷' stands for 'subtraction', '×' stands for 'addition', then which one of the following equations is correct?

(a) 36 × 4 – 12 + 5 ÷ 3 = 420 (b) 52 ÷ 4 + 5 × 8 – 2 = 36

(c) 36 – 12 × 6 ÷ 3 + 4 = 60 (d) 43 × 7 ÷ 5 + 4 – 8 = 25

34. Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.

5 ⊙ 3= –7; 3 ⊙ 7= –11; 7 ⊙ 11= ?

(a) –59 (b) 77 (c) –15 (d) 18

Directions (Q. 35–37) : In each of the following questions, select the missing number from the given responses.

35.
8	4	7
6	9	9
48	36	?
16	12	21

(a) 24 (b) 16 (c) 42 (d) 63

36.
3	8	7
9	6	3
2	?	12

(a) 4 (b) 3 (c) 7 (d) 6

37.
2	4	3	2
9	7	6	5
?	33	27	21

(a) 77 (b) 35 (c) 69 (d) 80

38. Pointing to a lady, a man said, "The son of her brother is the brother of my wife." How is the lady related to the man?

(a) Mother's sister (b) Grandmother (c) Mother-in-law (d) Sister of father-in law

39. A man is facing South. He turns 135° in the anticlockwise direction and then 180° in the clockwise direction. Which direction is he facing now?

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

40. Raju cycled 10 km South from his house, turned right and went 5 km and again turned right and cycled 10 km and then turned left and cycled 10 km. How many kilometres will he have to cycle back to reach his house ?

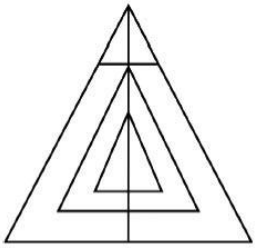
(a) 10 km (b) 5 km (c) 20 km (d) 15 km

41. K is a place which is located 2 km away in the north-west direction from the capital P. R is another place that is located 2 km away in the south-west direction from K. M is another place that is located 2 km away in the north-west direction from R. T is yet another place that is located 2 km away in the south-west direction from M. In which direction is T located in relation to P?

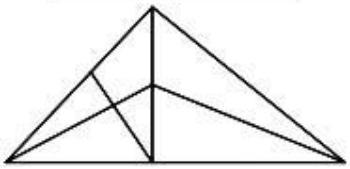
(a) South-west (b) North-west (c) West (d) North

42. "If a person is rich, he has a lot of influence." What inference can you draw from the above statement?
(a) Kamala is rich, so she has a lot of influence.
(b) Poor people cannot have influence.
(c) Ram has a lot of influence, so he is rich.
(d) Govind is not rich, so he does not have a lot of influence.

43. How many triangles are there in the given figure?
(a) 11 (b) 12 or more
(c) 9 (d) 10

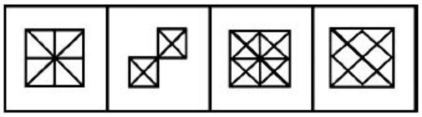


44. How many triangles are there in the given figure?
(a) 11 (b) 13 or more
(c) 9 (d) None of these



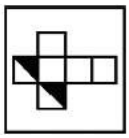
45. Among the four answer figures, which one can be formed from the cut out pieces given below in the question figure?

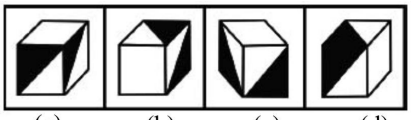
Question Figure **Answer Figures**



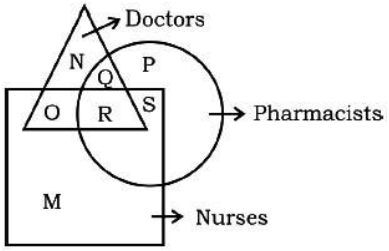
46. Choose the cube which will be formed on folding the given question figure.

Question Figure **Answer Figures**





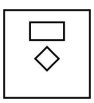
47. In the given figure, which letter represents those Nurses who are Doctors as well as Pharmacists?

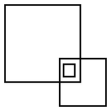


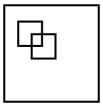
(a) R (b) S (c) P (d) Q

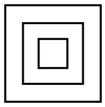
Directions (Q. 48 & 49): In the following questions, identify the diagram that best represents the relationship among the classes given below:

48. Duck, Penguin, Bird


(a)


(b)


(c)

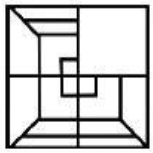

(d)

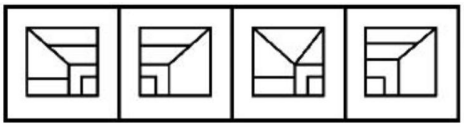
49. Profit, Dividend, Bonus

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

Directions (Q. 50 & 51) : In each of the following questions, which answer figure will complete the pattern in the question figure?

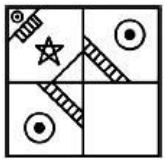
50. **Question Figure** **Answer Figures**

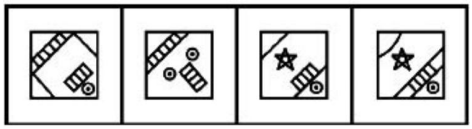




(a) (b) (c) (d)

51. **Question Figure** **Answer Figures**

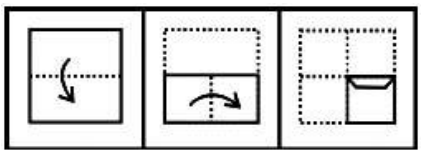


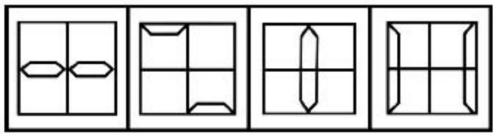


(a) (b) (c) (d)

52. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question Figures **Answer Figures**

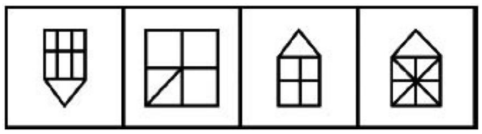




(a) (b) (c) (d)

53. From the given answer figures, select the one in which the question figure is hidden/embedded.

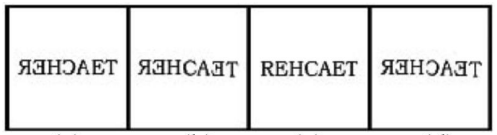
Question Figure **Answer Figures**



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

54. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given question figure ?

Question Figure **Answers Figures**



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

55. Arrange the following words according to the dictionary:

1. Inventory 2. Involuntary 3. Invisible 4. Invariable 5. Investigate

(a) 4, 2, 5, 3, 1 (b) 4, 5, 1, 3, 2 (c) 2, 5, 4, 1, 3 (d) 4, 1, 5, 3 2

56. M is the son of P. Q is the grand-daughter of O, who is the husband of P. How is M related to O?

(a) Son (b) Daughter (c) Mother (d) Father

57. In a row of boys, Srinath is 7th from the left and Venkat is 12th from the right. If they interchange their positions, Srinath becomes 22nd from the left. How many boys are there in the row?
(a) 19 (b) 31 (c) 33 (d) 34

58. A bus leaves Delhi with half the number of women as men. In Meerut, ten men get down and five women get in. Now there are equal number of men and women. How many passengers boarded the bus initially at Delhi?
(a) 36 (b) 45 (c) 15 (d) 30

59. If the day before yesterday was Sunday, what day will it be three days after the day after tomorrow?
(a) Sunday (b) Monday (c) Wednesday (d) Saturday

60. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
a_b_a_ _n_bb_abbn
(a) abnabb (b) bnbban (c) bnbbna (d) babban

PHYSICS

61. 1 Newton is equal to:
(a) 10^7 dyne (b) 10^4 dyne (c) 10^5 dyne (d) 10^{10} dyne

62. Which of the following has the largest inertia?
(a) A pin (b) A pen
(c) Your physics book (d) Your loaded school bags

63. A force of magnitude 40N acts on a body, then body acquires an acceleration of $2m/s^2$ along the direction of force. The mass of body is:
(a) 40 kg (b) 20 kg (c) 10 kg (d) 8 kg

64. The momentum of a body of given mass is proportional to its:
(a) Volume (b) Shape (c) Speed (d) Color

65. Friction force is:
(a) Contact force (b) Normal force (c) Muscular force (d) Gravitational force

66. Frictional force always act:
(a) Normally upward to contact surface (b) Normally downward to contact surface
(c) Tangential to the contact surface (d) None of these

67. Frictional force can not be measured in:
(a) kg wt. (b) newton (c) dyne (d) kg ms^{-1}

68. Kinetic friction always acts when:
(a) Body is in motion with respect to contact surface
(b) Body is in rest with respect to contact surface
(c) Body either in rest or motion with respect to contact surface
(d) None of these

69. Frictional force is directly proportional to the:
(a) External force (b) Normal force
(c) Gravitational force (d) Acceleration due to gravity

70. A force of 16 N is distributed uniformly on one surface of a cube of edge 8 cm. The pressure on this surface is:

(a) 3500 Pa (b) 2500 Pa (c) 4500 Pa (d) 5500 Pa

71. Sound waves in air are _____ waves.

(a) Longitudinal (b) Transverse (c) Radio (d) Electro-magnetic

72. The frequency of sound waves can be expressed in:

(a) Hertz (Hz) (b) Cycles / second (c) s^{-1} (d) All of these

73. The frequency of a wave is 40 Hz and its wavelength is 8m. The velocity of the wave is:

(a) 220 ms^{-1} (b) 320 ms^{-1} (c) 300 ms^{-1} (d) 120 ms^{-1}

74. If the mass of a pendulum is doubled, the time period:

(a) Becomes double (b) Becomes half (c) Becomes 4 times (d) Remains the same

75. The persistence of hearing for human beings is not more than:

(a) 1 sec (b) 1/5 sec (c) 1/10 sec (d) 1/2 sec

76. If wind blows in a direction opposite to the sound propagation, then the velocity of the sound:

(a) Increase (b) Decreases (c) Remains constant (d) Cannot be determined

77. A man standing between two hills makes sound loudly and receives two echoes after 1 sec and 1.2 sec. The distance between two hills is: (v = 330 m/s)

(a) 263 m (b) 363 m (c) 430 m (d) 230 m

78. An object moving at a speed greater than that of sound is said to be moving at:

(a) Ultrasonic speed (b) Sonic speed (c) Infrasonic speed (d) Supersonic speed

79. Light is focused on a wall by a plane mirror. A boy rotates the mirror by an angle 30º clockwise about an axis passing through the plane of the mirror. By what angle will the reflected beam be rotated?

(a) Remains fixed (b) Rotates by 15º clockwise

(c) Rotates by 60º anticlockwise (d) Rotates by 60º clockwise

80. A ray of light after reflection from a plane mirror, suffers a deviation of 60º. Find the angle between incident and reflected ray.

(a) 130º (b) 120º (c) 145º (d) 160º

81. The plane mirror forms the:

(a) Virtual and laterally inverted image (b) Virtual and laterally erect image

(c) Real and laterally inverted image (d) Real and laterally erect image

82. Cornea is a transparent spherical structure which:

(a) Reflects light (b) Scatters light (c) Refracts light (d) Disperse the light

83. The change in focal length of an eye lens is caused by the action of the:

(a) Pupil (b) Retina (c) Cilliary muscles (d) Iris

84. When a ray of light is incident normally, the angle of incidence is:

(a) 90º (b) 0º (c) 45º (d) None

85. A convex lens is also called a:

(a) Diverging lens (b) Converging lens

(c) Cylindrical lens (d) Both converging and diverging lens

86. The SI unit of refractive index is:
(a) metre (b) centimetre (c) km (d) unitless

CHEMISTRY

87. Which is an almost pure form of carbon?
(a) Coke (b) Coal tar (c) Coal gas (d) None of these
88. Naphthalene balls are obtained from:
(a) Carbon (b) Coke (c) Coal tar (d) Coal gas
89. Coal tar is used in manufacture of:
(a) Synthetic dyes (b) Drugs (c) Explosives (d) All of these
90. Petroleum is formed from:
(a) Domestic animals (b) Organisms in sea (c) Wild animals (d) Insects
91. The layer containing petroleum oil and gas is:
(a) Above that of water (b) Below water
(c) Between water and sand (d) Below sand
92. CNG is stored under:
(a) Power generation (b) Electric Generators (c) Solvent (d) None of these
93. In India, vast reserves of natural gas are found in:
(a) Tripura (b) Rajasthan (c) Maharashtra (d) All of these
94. Bitumen is used in:
(a) Electric generators (b) Road surfacing (c) Coal Gas (d) Natural Gas
95. The fibres manufactured by petrochemicals are:
(a) Nylon (b) Polyester (c) Acrylic (d) All of these
96. Which of them is used as solvent for dry cleaning?
(a) Diesel (b) Kerosene (c) Petrol (d) Paraffin wax
97. Which of them is used in extraction of metals?
(a) Coke (b) Coal gas (c) Coal tar (d) Petroleum
98. Diesel is used in:
(a) Cooling oil (b) Paints (c) Road surfacing (d) Electric generators
99. Dead organisms are transformed into petroleum and natural gas in:
(a) Absence of air (b) Presence of air
(c) Presence of sun light (d) None of these
100. The process by which artificial fibres are made from simple molecules is called:
(a) Monomer (b) Polymer (c) Polymerization (d) Thermosetting
101. The fibres which resemble wool are known as:
(a) Terylene (b) Acrylon (c) Polyester (d) Nylon
102. The plastics in which monomers are arranged in a straight chain are known as:
(a) Thermoplastics (b) Thermosetting plastics
(c) PET (d) Polythene

103. Terylene is a popular form of :
(a) Nylon (b) Plastic (c) Monomer (d) Polyester

104. Which of the following is not a combustible substance?
(a) Magnesium (b) Charcoal (c) Petrol (d) Glass

105. The substance which undergoes combustion is called:
(a) Fuel (b) Energy (c) Light (d) Matter

106. Which of the following is the chemical process in which a substance reacts with oxygen to give off heat?
(a) Electrolysis (b) Combustion (c) Ignition (d) Friction

107. Whose reactivity is highest among the following metals?
(a) Copper (b) Potassium (c) Iron (d) Zinc

108. Materials having the properties of both metals and non metals are called _____.
(a) Metalloids (b) Noble metals (c) Alloys (d) Mixtures

109. The metal stored in kerosene due to its high reactivity with air and water is:
(a) Magnesium (b) Zinc (c) Sodium (d) Calcium

110. Non metals are generally _____.
(a) Hard and ductile (b) Soft and brittle (c) Hard and brittle (d) Soft and ductile

BIOLOGY

111. The crops which are grown in rainy season are called:
(a) Rabi crop (b) Seasonal crop (c) Monsoon crop (d) Kharif crop

112. Robert Hooke first observed:
(a) Nucleus (b) Cells (c) Organs (d) Virus

113. During a cell division:
(a) Nucleus divides first and then cytoplasm. (b) Cytoplasm divides first and then nucleus.
(c) No such relationship. (d) Nucleus and cytoplasm divide together.

114. A common preservative used in jam and pickles is:
(a) Sodium benzoate (b) Nitric acid (c) Sodium Chloride (d) Copper Sulphate

115. Weeding is also done by spraying special chemicals called:
(a) Herbicides (b) Fungicides (c) Bactericides (d) Pesticides

116. Which organism plays role in making of bread?
(a) *Plasmodium* (b) *Amoeba* (c) Yeast (d) *Paramecium*

117. Which of the following combinations are present in plant cell but not in animal cell?
(a) Cell Wall & Plastid (b) Plastid and Nucleus
(c) Cell wall and Cell membrane (d) Cell Membrane and Cytoplasm

118. Chromosomes carry _____ which transfer characters from parents to offsprings.
(a) Ribosome (b) Genes (c) Plastid (d) Mitochondria

119. Rust of wheat is a plant disease caused by:
(a) Virus (b) Bacteria (c) Fungi (d) Protozoa

120. A membrane which bounds the chief vacuole of plant cell is called as:
(a) Tonoplast (b) Leucoplast (c) Mycoplast (d) Nucleoplast

MATHEMATICS

121. A number when divided by 5 leaves 3 as remainder. If the square of the same number is divided by 5, the remainder obtained is:

(a) 9 (b) 4 (c) 1 (d) 3

122. The units digit in the expression $(11^1 + 12^2 + 13^2 + 14^4 + 15^5 + 16^6)$ is:

(a) 1 (b) 9 (c) 7 (d) 0

123. If m and n are integers and $\sqrt{mn} = 10$. Which of the following cannot be a value of m + n?

(a) 25 (b) 52 (c) 101 (d) 50

124. What number should replace "M" in this multiplication problem?

$$\begin{array}{r} 3\,M\,4 \\ \times \quad 4 \\ \hline 1\,2\,1\,6 \end{array}$$

(a) 0 (b) 5 (c) 7 (d) 8

125. If a six digit number 93p25q is divisible by 88, then the values of p and q are respectively:

(a) 2 and 8 (b) 8 and 2 (c) 8 and 6 (d) 6 and 8

126. Which is the 25^{th} digit to the right of the decimal point in the decimal of $\frac{6}{11}$?

(a) 5 (b) 3 (c) 4 (d) 6

127. The number of factors of a number $N = 2^3 \times 3^2 \times 5^3$ is:

(a) 18 (b) 45 (c) 48 (d) 9

128. If $\frac{37}{13} = 2 + \cfrac{1}{x + \cfrac{1}{y + \cfrac{1}{z}}}$, where x, y, z are natural numbers, then x, y, z are:

(a) 1, 2, 5 (b) 1, 5, 2 (c) 5, 2, 11 (d) 11, 2, 5

129. Which of the following numbers is the least $(0.5)^2, \sqrt{0.49}, \sqrt[3]{0.008}, 0.23$?

(a) $(0.5)^2$ (b) $\sqrt{0.49}$ (c) $\sqrt[3]{0.008}$ (d) 0.23

130. The HCF of two numbers each consisting of 4 digits is 103 and their LCM is 19261. The numbers are:

(a) 1133, 1751 (b) 1053, 1657 (c) 1061, 1111 (d) 1591, 1377

131. The least perfect square number which is divisible by each of 21, 36 and 66 is:

(a) 213444 (b) 214344 (c) 214434 (d) 231444

132. If $a = c^Z$, $b = a^x$, $c = b^y$ then the value of xyz:

(a) 1 (b) 2 (c) 1/2 (d) 0

133. $\frac{5^{n+2} - 6.(5)^{n+1}}{13(5)^n - 2(5)^{n+1}}$ equal to:

(a) $\frac{5}{3}$ (b) $\frac{-5}{3}$ (c) $\frac{3}{5}$ (d) $\frac{-3}{5}$

134. If $\sqrt{0.04 \times 0.4 \times a} = 0.004 \times 0.4 \times \sqrt{b}$, then $\frac{a}{b}$ is:

(a) 16×10^{-3} (b) 16×10^{-4} (c) 16×10^{-5} (d) 16×10^{-2}

135. The smallest positive integer n for which 864 × n becomes a perfect cube is:

(a) 1 (b) 2 (c) 3 (d) 4

136. If $\frac{\left(\frac{1}{216}\right)^{\frac{-2}{3}}}{\left(\frac{1}{27}\right)^{\frac{-4}{3}}} = x$. The value of x is:

(a) $\frac{3}{4}$ (b) $\frac{4}{9}$ (c) $\frac{2}{3}$ (d) $\frac{1}{8}$

137. $\left(\frac{1}{64}\right)^{0} + (64)^{\frac{-1}{2}} + (32)^{\frac{4}{5}} - (32)^{\frac{-4}{5}}$ is equal to:

(a) $16\frac{1}{8}$ (b) $17\frac{1}{8}$ (c) $17\frac{1}{16}$ (d) $-17\frac{1}{16}$

138. Solve: $\frac{t+2}{3} + \frac{1}{t+1} = \frac{t+3}{2} - \frac{t-1}{6}$

(a) t = 1 (b) t = –2 (c) t = 2 (d) t = 0

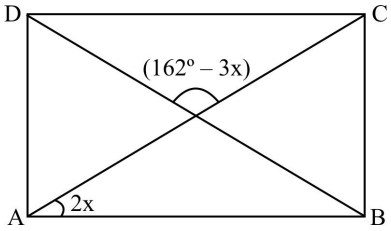
139. A number consists of two digits. The digit in the ten's place exceeds the digit in the unit's place by 4. The sum of the digits is $\frac{1}{7}$ of the number. The number is:

(a) 26 (b) 62 (c) 48 (d) 84

140. How many sides does a regular polygon have, whose interior angle is eight times its exterior angle?

(a) 16 (b) 24 (c) 18 (d) 20

141. ABCD is a rectangle. Find x.

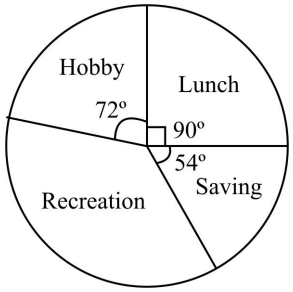


(a) 54° (b) 36°
(c) 24° (d) 18°

142. The class marks of a particular class is 17.5 and the class size is 5. The class interval is:

(a) 14 – 19 (b) 15 – 20 (c) 14.5 – 19.5 (d) 17.5 – 22.5

143. The pie chart given below shows the expenses incurred and saving by a family in a month. What is the percentage of expenses incurred for recreation?



(a) $\frac{800}{17}\%$ (b) 20%
(c) 35% (d) 40%

144. Three coins are tossed simultaneously. Find the probability of getting atleast one head and one tail.

(a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) $\frac{3}{4}$ (d) None of these

145. A bag contains 4 blue, 5 red and 7 green balls. If 4 balls are drawn one by one with replacement, what is the probability 4^{th} ball is blue?

(a) $\frac{1}{16}$ (b) $\frac{1}{4}$ (c) $\frac{1}{256}$ (d) $\frac{1}{64}$

146. When two coins are tossed together, what is the probability of getting at least one tail?

(a) $\frac{3}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) None

147. What is the least number which when divided by 15, 18 and 21 leaves remainders 2, 5 and 8?

(a) 617 (b) 618 (c) 616 (d) 625

148. If we multiply a fraction by itself and divide the product by its reciprocal, the fraction thus obtained is $18\frac{26}{27}$. Then original fraction is:

(a) $2\frac{2}{3}$ (b) $3\frac{3}{3}$ (c) $4\frac{2}{3}$ (d) None

149. If a number 573xy is divisible by 90, then what is the value of x + y?

(a) 3 (b) 4 (c) 2 (d) 1

150. The product of two whole numbers is 13. Then what is the sum of the squares of their reciprocals?

(a) $\frac{171}{169}$ (b) $\frac{170}{169}$ (c) $\frac{169}{170}$ (d) $\frac{175}{169}$