STUDY VAULT
committed to excellence

Class – VIII

ENTRANCE TEST CUM SCHOLARSHIP (SAMPLE PAPER-3)

[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, 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 THE OMR OR THE BOOKLET.

5.Please fill your roll number correctly in the OMR sheet (answer sheet).

6.Both Question Paper and OMR Ans wer 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

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) 43 (c) 44 (d) 39

2. Seismometer : Earthquakes : : Thermometer : ?

(a) Mercury (b) Temperature (c) Wind (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) 11 (b) 2 (c) 3 (d) 1

11. (a) 36 (b) 96 (c) 17 (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 occurs 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, 9, 28, ?, 126

(a) 65 (b) 62 (c) 64 (d) 67

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

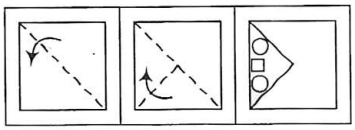
30. Given below are capital letters in the first line and symbols in the second line. Symbols and letters are codes for each other. Choose the correct code for the word "HEIGHT".

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

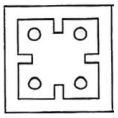
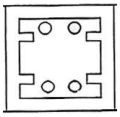
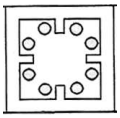
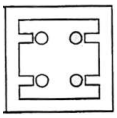
(a) = × (÷ = ‖ (b) = × (× = ‖ (c) = ÷ (× ‖ = (d) = ÷ (× = ‖

Directions (31-33) : *In the following questions, select the answer figure from the given alternatives which is closest to the unfolded paper.*

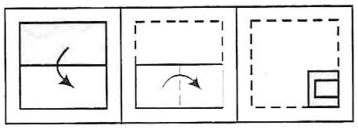
31. Problem Figures



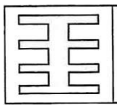
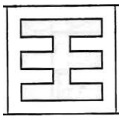
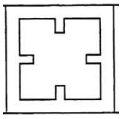
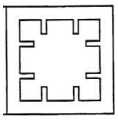
(x) (y) (z)

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

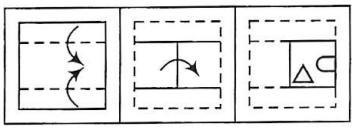
32. Problem Figures



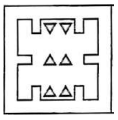
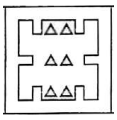
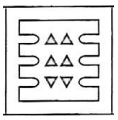
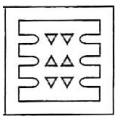
(x) (y) (z)

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

33. Problem Figures

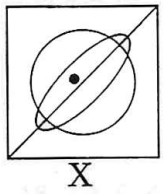


(x) (y) (z)

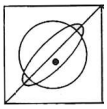
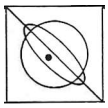
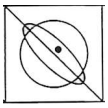
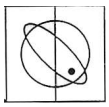
(a)  (b)  (c)  (d) 

Directions (34-35) : *In the following questions, choose the correct water image from amongst the four alternatives a, b, c and d given along with it.*

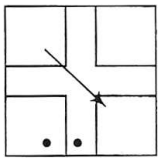
34. Problem Figure



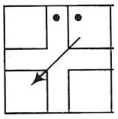
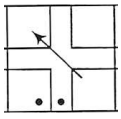
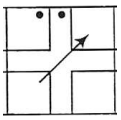
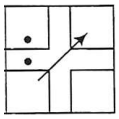
X

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

35. Problem Figure

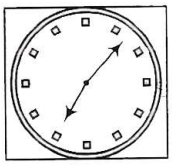


X

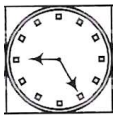
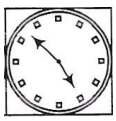
(a)  (b)  (c)  (d) 

Directions (36-37) : *In the following questions, choose the correct mirror image from amongst the four alternatives a, b, c and d given along with it.*

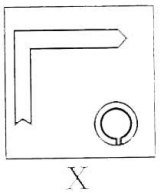
36. Problem Figure



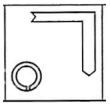
X

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

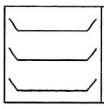
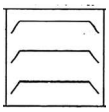
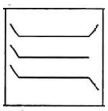
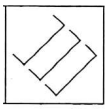
37. Problem Figure

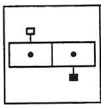
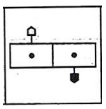
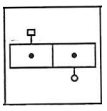
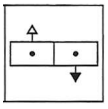


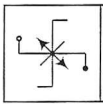
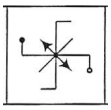
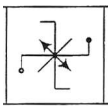
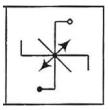
X

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

Directions (38-40) : *In the following questions,find out the odd one out figure from the given alternatives .*

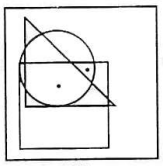
38. (a)  (b)  (c)  (d) 

39. (a)  (b)  (c)  (d) 

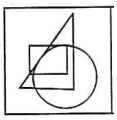
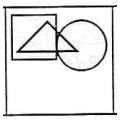
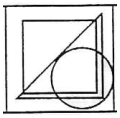
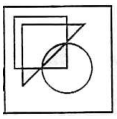
40. (a)  (b)  (c)  (d) 

Directions (41-43) : *Find the correct alternative in the answer figures, the relation between the problem figure (X) and answer (a, b, c, d) must be same.*

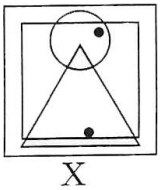
41. Problem Figure



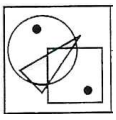
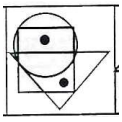
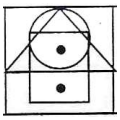
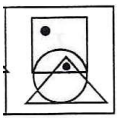
X

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

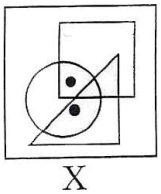
42. Problem Figure



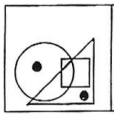
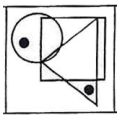
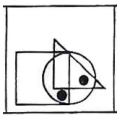
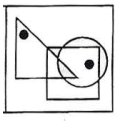
X

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

43. Problem Figure

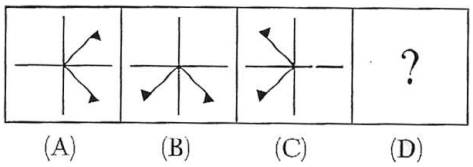


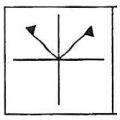
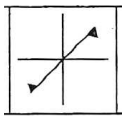
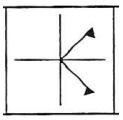
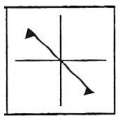
X

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

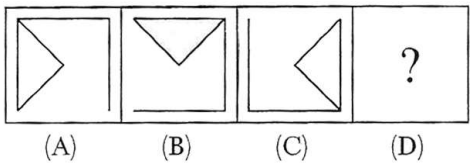
Directions (44-46) : *In the following question, select the answer figure from given alternatives which is continuous with the problem figure.*

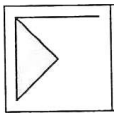
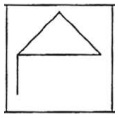
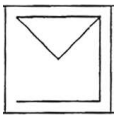
44. Problem Figures



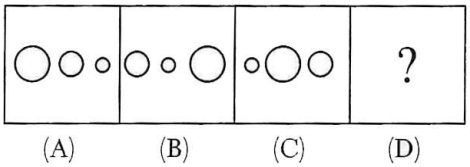
(a) 
(b) 
(c) 
(d) 

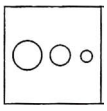
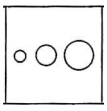
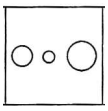
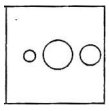
45. Problem Figures



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

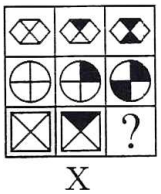
46. Problem Figures



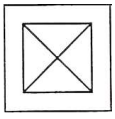
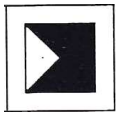
(a) 
(b) 
(c) 
(d) 

Directions (47-49) : *In the following questions, choose the correct alternative from amongst the four a, b, c and d which complete the figure matrix?*

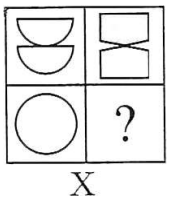
47. Problem Figure



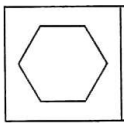
X

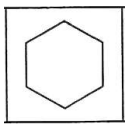
(a) 
(b) 
(c) 
(d) 

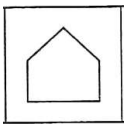
48. Problem Figure

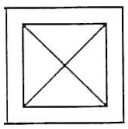


X

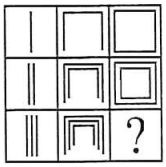
(a) 

(b) 

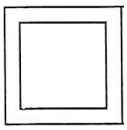
(c) 

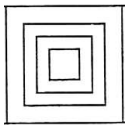
(d) 

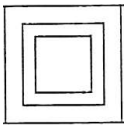
49. Problem Figure

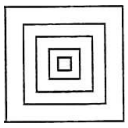


X

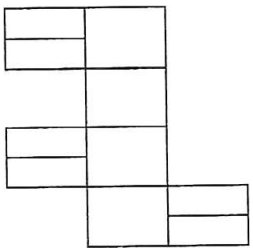
(a) 

(b) 

(c) 

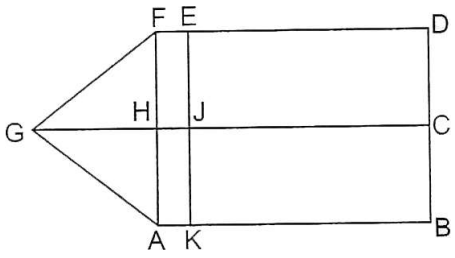
(d) 

50. Count the number of rectangles in the figure given below.



(a) 21 (b) 18 (c) 19 (d) 20

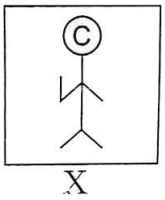
51. Find the number of rectangles contain in the figure given below.



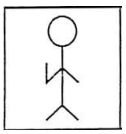
(a) 9 (b) 8 (c) 14 (d) 11

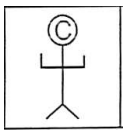
Directions (52-54) : *In the following questions, which figures are similar to the respective problem figures?*

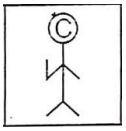
52. Problem Figure

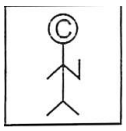


X

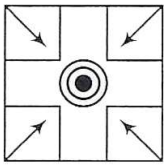
(a) 

(b) 

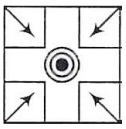
(c) 

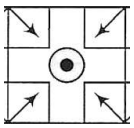
(d) 

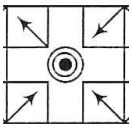
53. Problem Figure

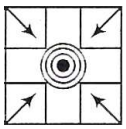


X

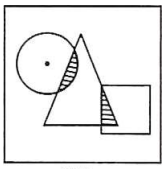
(a) 

(b) 

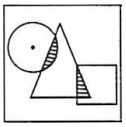
(c) 

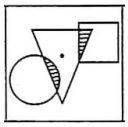
(d) 

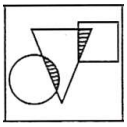
54. Problem Figure

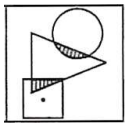


X

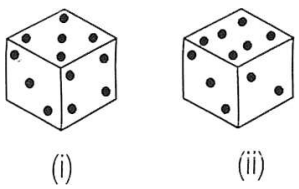
(a) 

(b) 

(c) 

(d) 

55. If the bottom face is marked as number 4, which number will be on the top among the following two figures?

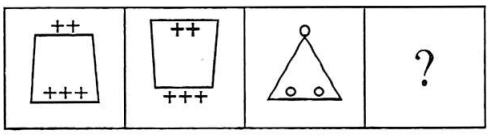


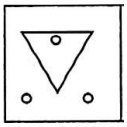
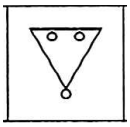
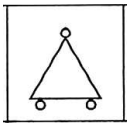
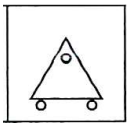
(i) (ii)

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

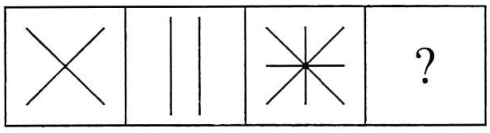
Directions (56-58) : *In the following questions, figure 'A' is related to 'B' same 'C' is related to 'D', find out the correct alternative from amongst the four.*

56. Problem Figures



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

57. Problem Figures



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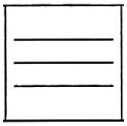
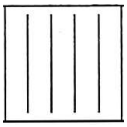
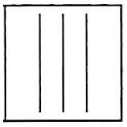
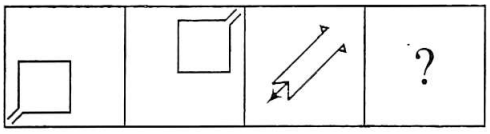
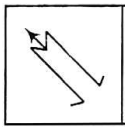
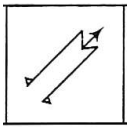
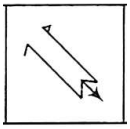
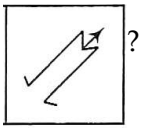
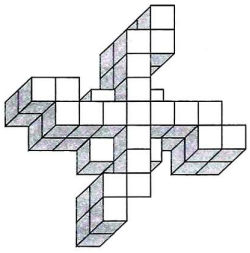
(b) 
(c) 
(d) 

58. Problem Figures



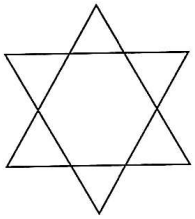
(a) 
(b) 
(c) 
(d)  ?

59. Count the number of cubes in the given figure.



(a) 45 (b) 46 (c) 48 (d) 49

60. How many triangles are there in the following figure?



(a) 7 (b) 8 (c) 9 (d) 10

PHYSICS

61. If a rock is brought from the surface of the moon

(a) its mass will change (b) its weight will change, but not mass

(c) both mass and weight will change (d) its mass and weight will remain the same

62. Which of the following has more inertia?

(a) A pin (b) A pen

(c) Your physics book (d) Your loaded school bag

63. The force acting on a mass of 1 g due to the gravitational pull on the earth is called 1 gwt. One gwt equals.

(a) 1 N (b) 9.8 N (c) 980 dyne (d) none of these

64. The momentum of a body of given mass is proportional to its:

(a) volume (b) shape (c) speed (d) colour

65. A body of mass 5 kg undergoes a change in speed from 30 to 40 m/s. Its momentum would increase by

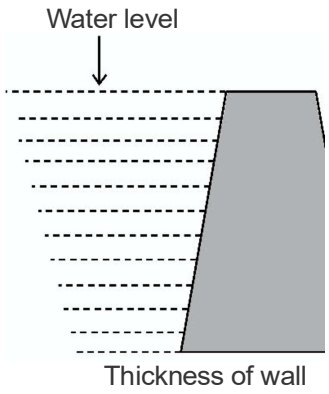
(a) 50 kg m/s (b) 75 kg m/s (c) 150 kg m/s (d) 350 kg m/s

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. The given figure shows the cross section of a dam and its reservoir. The widening of the wall, towards the bottom is because of _____



(a) increase in pressure with depth of water

(b) decrease in pressure with depth of water

(c) change in density of water

(d) increase in mass of the wall

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. Kinetic friction always acts when

(a) Body is in motion with respect to the contact surface

(b) Body in rest with respect to the contact surface

(c) Body either in rest or in motion with respect to contact surface

(d) None of these

70. A force of 160 N is distributed uniformly on one surface of a cube of edge 4 cm. The pressure on this surface is :

(a) 3500 Pa (b) 100000 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) increases (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 30° 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 15° clockwise
(c) Rotates by 60° anticlockwise
(d) Rotates by 60° clockwise

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

(a) 130° (b) 120° (c) 145° (d) 160°

CHEMISTRY

81. The most reactive metal among the following is :

(a) Ca (b) Al (c) Ni (d) Pb

82. Non-metal + dil. acid $\longrightarrow$

(a) reacts slowly (b) reacts violently (c) reacts moderately (d) no reaction

83. The minimum temperature at which a substance catches fire is called :

(a) Boiling temperature
(b) Ignition temperature
(c) Melting temperature
(d) None of these

84. CNG stands for :

(a) Central natural gas
(b) Compressed natural gas
(c) Combined natural gas
(d) Cold natural gas

85. The tip of the lead of pencil is made of :

(a) lead (b) graphite (c) zinc (d) charcoal

86. Which of the following property is not a characteristic of a good fuel?

(a) High ignition temperature
(b) Low cost
(c) Causes minimum pollution
(d) Readily available

87. Petroleum is commonly called as :

(a) Black gold (b) Yellow gold (c) Green gold (d) Blue gold

88. Air is a natural resource and cannot be exhausted by human activities. It is known as inexhaustible natural resource. Which of the following is another inexhaustible natural resource?

(a) Coal (b) Petroleum (c) Sunlight (d) Minerals

89. Hg + dil. NaOH $\longrightarrow$

(a) react vigorously (b) no reaction (c) reacts moderately (d) reacts slowly

90. ..... is heating the concentrated ore in absence of air.

(a) Roasting (b) Calcination (c) Reduction (d) Refining

91. What should be added to pure iron to make stainless steel?

(a) Nickel and Cobalt
(b) Cadmium and Chromium
(c) Nickel and Cadmium
(d) Chromium and Nickel

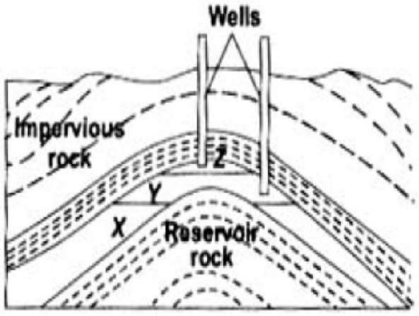
92. Cinnabar is an ore of :

(a) Pb (b) Zn (c) Hg (d) Cu

93. Which of the following is a noble gas ?

(a) Nitrogen (b) Oxygen (c) Argon (d) Carbon dioxide

94. What are X, Y and Z?

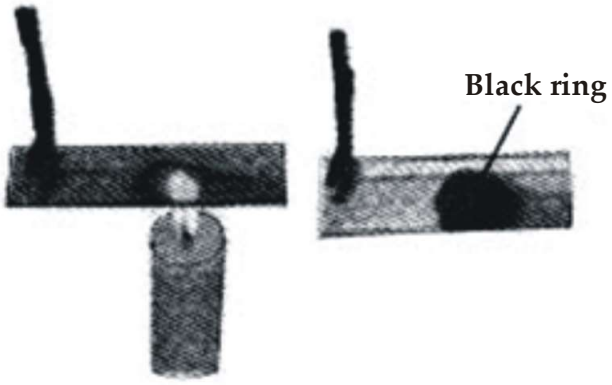


	X	Y	Z
(a)	Water	Oil	Gas
(b)	Oil	Water	Gas
(c)	Water	Gas	Oil
(d)	Gas	Oil	Water

95. Which of the following reacts with cold water vigorously?

(a) Carbon (b) Sodium (c) Magnesium (d) Sulphur

96. When you introduce a glass plate into the luminous zone of a candle flame then, which of the following is correct regarding your observation?



(a) Deposition of burnt CO_2 particles present in the air around the flame.

(b) Deposition of unburnt carbon particles in the luminous zone of the flame.

(c) Deposition of molten wax.

(d) All of these.

97. Naphthalene balls are obtained from:

(a) Carbon (b) Coke (c) Coal tar (d) Coal gas

98. CNG is stored under :

(a) Power generation (b) Electric Generators (c) Solvent (d) None of these

99. The plastic in which monomers are arranged in a straight linear chain is:

(a) Bakelite (b) Melamine (c) Formica (d) Polythene

100. Which of the following is not a combustible substance?

(a) Magnesium (b) Charcoal (c) Petrol (d) Glass

BIOLOGY

101. 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.

102. Which of the following combination is 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

103. What causes dough to rise when yeast is added to it?

(a) An increase in temperature (b) An increase in the amount of substance

(c) An increase in the amount of ethanol (d) The release of carbon dioxide gas

104. Which of the following is NOT true for chemical fertilizers?

(a) They are nutrient specific.

(b) They are readily soluble in water.

(c) They provide organic matter (humus) to the soil.

(d) Overuse of chemical fertilisers pollute the soil.

105. The most common weed which grows along with almost every crop is :

(a) *Chenopodium* (b) *Convolvulus* (c) *Amaranthus* (d) *Xanthium*

106. Which of the following methods of cultivation causes salinisation of soil?

(a) Transplantation (b) Crop rotation

(c) Excessive irrigation (d) Broadcasting

107. A membrane which bounds the chief vacuole of plant cell is called as:

(a) Tonoplast (b) Leucoplast (c) Mycoplast (d) Nucleoplast

108. Which of the following is not correctly matched?

(a) Dengue fever – *Arbovirus* (b) Plague – *Yersinia pestis*

(c) Syphilis – *Trichuris trichiura* (d) Sleeping sickness – *Trypanosoma*

109. Which ion holds ribosomal units together?

(a) Ca^{2+} (b) Mn^{2+} (c) Mg^{2+} (d) Na^{+}

110. Carbohydrates present in the plasma membrane are in the form of _____.

(a) cellulose and pectin (b) hemicellulose and cellulose

(c) starch and glycogen (d) glycolipids and glycoproteins

111. Medicines that kill or stop the growth of disease causing bacteria are :

(a) Antigens (c) Antibodies (b) Antibiotics (d) Vaccine

112. The vaccine for smallpox was discovered by :

(a) Alexander Fleming (b) Edward Jenner (c) Louis Pasteur (d) Robert Koch

113. Which of the following disease is not caused by bacteria?

(a) Measles (b) Cholera (c) Typhoid (d) Both (a) and (c)

114. The microorganism, which is a connecting link between living and non-living is:

(a) Virus (b) Bacteria (c) Protozoa (d) Both (b) and (c)

115. Which one of the following insects produce honey:-

(a) Antherae paphia (b) Apis indica (c) Kerria lacca (d) Bombyx mori

116. Which of the following crops would enrich the soil with nitrogen?

(a) Apple (b) Lentil (c) Paddy (d) Potato

117. In agriculture, broadcasting is used for:

(a) ploughing the fields (b) rotating the crops (c) removing the weeds (d) sowing the seeds

118. The organic manure is considered better than fertilizers because :-

(a) it can be prepared in the fields.

(b) it is less rich in plant nutrient.

(c) it improves the texture of the soil.

(d) it decreases the water holding capacity of the soil.

119. Rani had an uneven plot of land in which water was scarce. What system could adopt for irrigation?

(a) Canal (b) Sprinkler (c) Drip (d) Hand pump

120. How are earthworms useful to farmers?

(a) They help in nitrogen fixation in the soil. (b) They help in killing pests.

(c) They make the soil airy, soft and fertile. (d) They help in pulling out of weeds

MATHEMATICS

121. If $\sqrt[3]{3\left(\sqrt[3]{x}-\frac{1}{\sqrt[3]{x}}\right)}=2$, then $\sqrt[3]{x}-\frac{1}{\sqrt[3]{x}}=$ _____ .

(a) –3/8 (b) 3/8 (c) 8/3 (d) –8/3

122. The digit in the unit place of the cube of a four digit number of the form xyz8 is _____ .

(a) 8 (b) 4 (c) 2 (d) Can't be determined

123. If n leaves a remainder 2 when divided by 3, then n^3 leaves a remainder of _____, when divided by 3.

(a) 2 (b) 1 (c) 0 (d) 3

124. What should be added to 2714 to make the sum a perfect square?

(a) 10 (b) 517 (c) 95 (d) 150

125. If p and q are perfect squares, then $\sqrt{\frac{p}{q}}$ is always?

(a) Rational Number (b) Irrational number

(c) Integer (d) Natural number

126. If $(a^2 + b^2)^3 = (a^3 + b^3)^2$ then $\frac{a}{b}+\frac{b}{a}=$

(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) $\frac{5}{6}$ (d) $\frac{6}{5}$

127. Find the square root of the algebraic expression which is the average of the following expressions $x^2+\frac{1}{x^2}, -2\left(x+\frac{1}{x}\right)$ and 3.

(a) $\frac{x}{\sqrt{3}}-\frac{1}{\sqrt{3}}+\frac{1}{x}$ (b) $\frac{x}{\sqrt{3}}+1+x$ (c) $\frac{1}{\sqrt{3}}\left(x-1+\frac{1}{x}\right)$ (d) None of these

128. $abc + a + b + c + ab + bc + ac = 0$ then the value of $(1 + a)(1 + b)(1 + c)$ is ?

(a) 1 (b) 0 (c) −1 (d) 2

129. Find the square root of $\frac{a^2}{4}+\frac{1}{a^2}-\frac{1}{a}+\frac{a}{2}-\frac{3}{4}$

(a) $\frac{a}{2}-\frac{1}{a}+\frac{1}{2}$ (b) $\frac{a}{2}+\frac{2}{a}-1$ (c) $\frac{a}{2}+\frac{1}{a}-\frac{1}{2}$ (d) $\frac{a}{2}-\frac{2}{a}-\frac{1}{2}$

130. The square root of $(3a + 2b + 3c)^2 - (2a + 3b + 2c)^2 + 5b^2$ is

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

131. If SP of an article is $\frac{4}{3}$ of its CP then the profit in the transaction is:

(a) $\frac{1}{3}\%$ (b) $20\frac{1}{2}\%$ (c) $33\frac{1}{3}\%$ (d) $25\frac{1}{2}\%$

132. The sides of a triangle are 11 cm, 15 cm and 16 cm. The altitude corresponding to largest side is:

(a) $30\sqrt{7}$ cm (b) $\frac{15\sqrt{7}}{2}$ cm (c) $\frac{15\sqrt{7}}{4}$ cm (d) 30 cm

133. If the radius of a circle is $\frac{7}{\sqrt{\pi}}$cm, then the area of the circle is :

(a) 154 cm^2 (b) $\frac{49}{\pi}cm^2$ (c) 22 cm^2 (d) 49 cm^2

134. If the area of a circle is A, radius of the circle is r and circumference of it is C, then:

(a) rC = 2A (b) $\frac{C}{A}=\frac{r}{2}$ (c) AC = $\frac{r^2}{4}$ (d) $\frac{A}{r}=C$

135. The area of the largest triangle that can be inscribed in a semicircle whose radius is r cm is :

(a) 2r cm^2 (b) r^2 cm^2 (c) $2r^2$ cm^2 (d) $\frac{r}{2}cm^2$

136. The area of three adjacent faces of a cuboid are x, y, 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) $\sqrt{xyz}$

137. The radius of the cylinder whose lateral surface area is 704 cm^2 and height 8 cm is : $\left(\text{Take } \pi=\frac{22}{7}\right)$

(a) 6 cm (b) 4 cm (c) 8 cm (d) 14 cm

138. A diagonal of a rectangle is inclined to one side of it at 25°. The acute angle between the diagonals is:

(a) 25° (b) 40° (c) 50° (d) 55°

139. ABCD is a rhombus. If ∠ACB = 40°, then ∠ADB is :

(a) 40° (b) 45° (c) 50° (d) 60°

140. $\sqrt{12+\sqrt{12+\sqrt{12+...}}}=?$

(a) 3 (b) 4 (c) 6 (d) greater than 6

141. The value of 1 + 3 + 5 + 7 + 9 + ... + 25 is :

(a) 196 (b) 625 (c) 225 (d) 169

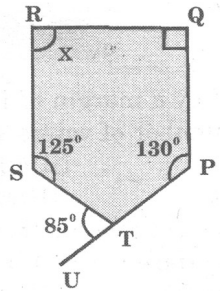
142. Simplified form of $\left\{\sqrt[4]{\left(\frac{1}{x}\right)^{-12}}\right\}^{-2/3}$ is :

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

143. A sum of money doubles itself in 3 years at CI, when the interest is compounded annually. In how many years will it amount to 16 times of itself?

(a) 6 years (b) 8 years (c) 12 years (d) 16 years

144. In the figure given below, PTU is a straight line.



What is the value of x?

(a) 100° (b) 110° (c) 120° (d) 90°

145. $\frac{2}{3}$rd of a number when multiplied by $\frac{3}{4}$th of the same number make 338. The number is:

(a) 18 (b) 24 (c) 36 (d) 26

146. The square of a natural number subtracted from its cube is 48. The number is :

(a) 6 (b) 5 (c) 4 (d) 8

147. A man can row at 8 kmph in still water. If the river is running at 2 kmph, it takes him 48 minutes to row to a place and back. How far is the place?

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

148. What percent decrease in salaries would exactly cancel out the 20% increase?

(a) $16\frac{2}{3}\%$ (b) 18% (c) 20% (d) $33\frac{1}{3}\%$

149. What is the ratio whose terms differ by 40 and the measure of which is $\frac{2}{7}$?

(a) 16 : 56 (b) 14 : 56 (c) 15 : 56 (d) 16 : 72

150. If M is a perfect square natural number, then the next immediate perfect square natural number is :

(a) M + 1 (b) $M + 2\sqrt{M} + 1$ (c) $M^2 + 2M$ (d) $M^2 + 1$

ROUGH WORK