



# School Integrated Program

Class – VIII

## ENTRANCE TEST CUM SCHOLARSHIP (SAMPLE-2)

[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. Nos. 1-9) select the related letters/word/number from the given alternatives.

1. PQR : CBA :: ?  
 (a) MNO : UVW            (b) GIH : DFE            (c) SUT : VWX            (d) LMN : ZYX
2. AZBY : ? :: EVFU : GTHS  
 (a) CWXD            (b) CXDW            (c) CDWX            (d) CXWD
3. ZXVT : ? :: MKIG : NPRT  
 (a) DCBA            (b) ACEG            (c) ABCD            (d) CXWD
4. 25 : 125 :: 36 : ?  
 (a) 180            (b) 206            (c) 216            (d) 318
5. BEGK : ADFJ :: PSVY : ?  
 (a) ROUX            (b) ORUX            (c) LQUT            (d) LOQT
6. BDFH : SUWY :: CEGI : ?  
 (a) QTWZ            (b) PTVX            (c) JLNP            (d) TVXZ
7. Spiritual : Belief :: Orchestral : ?  
 (a) Theatre            (b) Situation            (c) Music            (d) Direction
8. Finger : Hand :: ?  
 (a) Chair : Table            (b) Cycle : Wheels            (c) Bank : Money            (d) Month : Year
9. Length : Metre :: Power : ?  
 (a) Calorie            (b) Degree            (c) Watt            (d) Kilogram

Directions: (Q. Nos. 10-15) find the odd word/number/letters/number pair from the given alternatives.

10. (a) VWY            (b) QRT            (c) LMO            (d) JKL
11. (a) AB            (b) CD            (c) EF            (d) GI
12. (a) CX            (b) DW            (c) JQ            (d) LR
13. (a) Pathology            (b) Geology            (c) Cardiology            (d) Radiology
14. (a) 24            (b) 49            (c) 80            (d) 15
15. (a) 704, 11            (b) 256, 4            (c) 832, 13            (d) 310, 5

Directions: (Q. Nos. 16-20) a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

16. AZ YB CX ?  
 (a) WD            (b) DW            (c) QA            (d) UJ
17. 10, 43, 175, ?, 2815  
 (a) 703            (b) 1320            (c) 315            (d) 633
18. cdeb, ceed, cfef, cgeh, ?  
 (a) chej            (b) chik            (c) chjk            (d) cgjh

19. BCFG, JKNO, RSVW, ?  
 (a) STUX (b) HIKL (c) ZADE (d) MNPO
20. CIM, HNR, MSW, ?  
 (a) SXA (b) UYB (c) RXB (d) ZEH
21. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete the series?  
 a\_cbc\_ca\_ab\_bca\_ab  
 (a) b a b c c (b) b c a b b (c) a b c b c (d) b c a b c
22. Mohit walks a distance of 5 km towards South, then turns to his right and walks 3 km. He again turns right and walks 5 km. He then turns to his left and walks 5 km. How far is he from the starting point and in what direction?  
 (a) 5 km and West (b) 3 km and North (c) 3 km and East (d) 8 km and West
23. In certain code, RAGHAVAN is written as GARVAHNA. In that code which word will be written as MATHAVAN?  
 (a) MATVAHNA (b) TAMVAHAN (c) TAMHAVNA (d) TAMVAHNA
24. If  $38 + 15 = 66$  and  $29 + 36 = 99$ , then  $82 + 44 = ?$   
 (a) 77 (b) 88 (c) 80 (d) 94
25. If + means  $\div$ , - means  $\times$ ,  $\times$  means +,  $\div$  means -, given the value for  
 $45 + 9 - 3 \times 15 \div 2$   
 (a) 40 (b) 36 (c) 56 (d) 28
26. A man started from a place and walked towards North for 5 km then turned  $90^\circ$  to his right and walked another 5 km. Then he turned  $45^\circ$  to his right and walked 2 kms and turned  $45^\circ$  to his left. What is his direction now?  
 (a) South (b) South East (c) East (d) South West

Directions: (Q. Nos. 27-28) select the missing number from the given responses.

27.

7	8	6
4	9	5
3	2	?
25	70	29

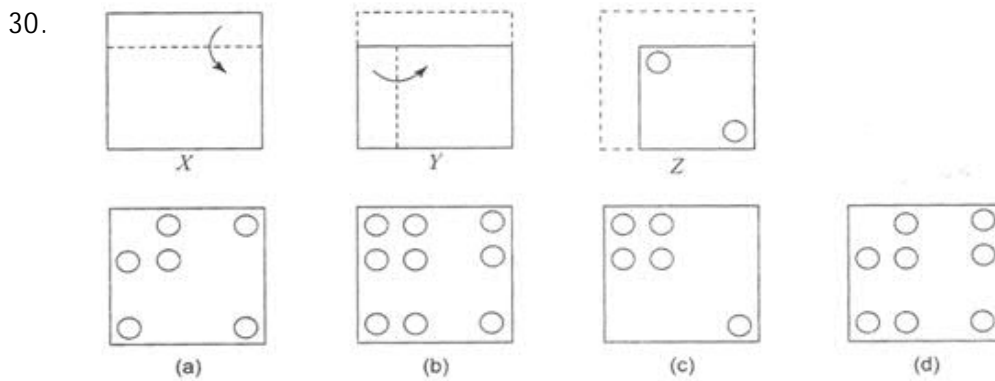
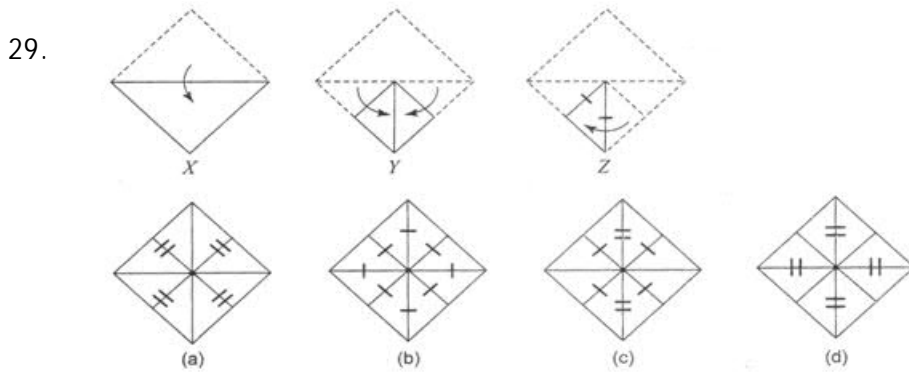
- (a) 9 (b) 1 (c) 8 (d) 5

28.

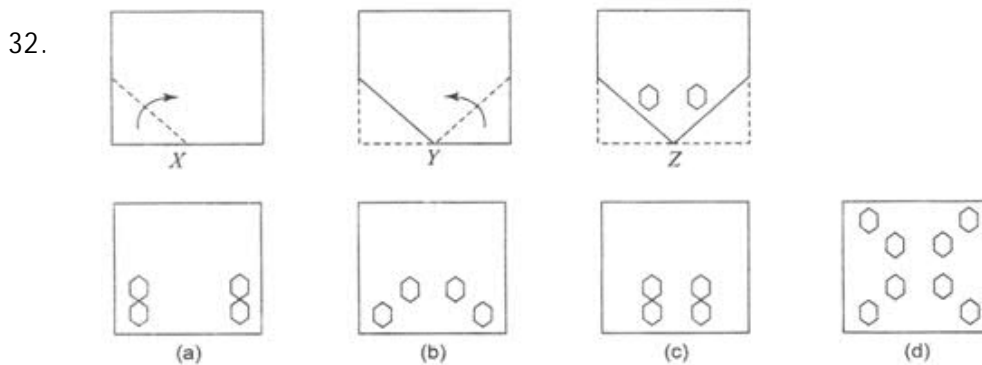
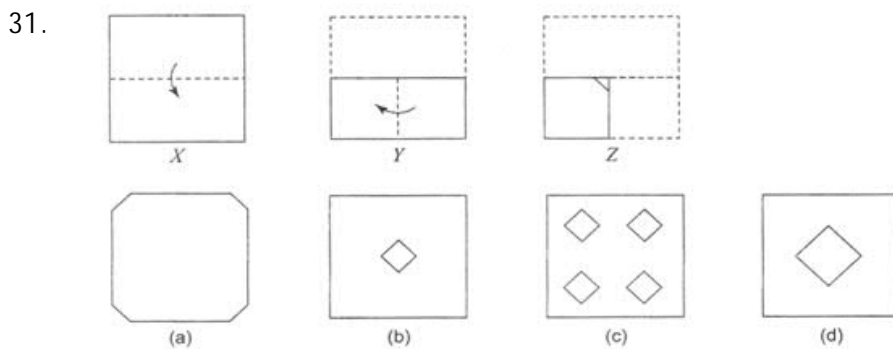
3	4	5
6	7	8
9	1	2
57	11	?

- (a) 42 (b) 21 (c) 11 (d) 18

Directions: (Q. Nos. 29-30) choose a figure out of (a), (b), (c) and (d) which would most closely resemble the unfolded form of figure Z.



Directions: (Q. Nos. 31-32) choose a figure out of (a), (b), (c) and (d) which would most closely resemble the unfolded form of figure Z.



33. If B becomes A and P becomes O, what will K become in the English alphabet?  
 (a) L                      (b) J                      (c) H                      (d) N

34. From the given details, estimate the number of people affected by Tuberculosis in particular locality in the year 1994.

1994	1995	1996	1997	1998
?	92	113	141	176
(a) 99	(b) 85	(c) 71	(d) 78	

35. Nithya is Sam's sister. Mogan is Sam's Father. Selvan is Rajan's Son. Rajan is Mogan's brother. How is Nithya related to Selvan?

- (a) Daughter (b) Sister (c) Cousin (d) Wife

36. In a certain code language, GRAPE is written as 27354 and FOUR is written 1687. How is GROUP written in that code?

- (a) 27384 (b) 27684 (c) 27685 (d) 27658

37. Two squads of soldiers A and B, facing East and West respectively received the following commands - Left turn, About turn, Right turn, Left turn. Which directions would the squads A and B face at the end?

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

38. Find out a set of numbers amongst the alternatives given which is most unlike the set given.  
3, 7, 100

- (a) 11, 12, 365 (b) 13, 17, 900 (c) 1, 2, 9 (d) 6, 7, 169

39. If A denotes +, B denotes -, C denotes  $\times$  and D denotes  $\div$ , then which of the following statements is true?

- (a)  $9C9B9D9A9 = 17$  (b)  $3A3B3C3A3D3 = 4$  (c)  $8B6D2A4C3 = 15$  (d)  $8A8B8C8 = -48$

40. Anand, David, Karim and Mano are fans of games. Each has a different favourite game among hockey, chess, cricket and football. David does not watch cricket and hockey matches. Anand does not like hockey, chess and cricket. Mano does not watch cricket. Which is the favourite game of Karim?

- (a) Chess (b) Cricket (c) Football (d) Hockey

Directions: (Q. Nos. 41-45) Read the following information carefully and answer the questions.

At a party A, B, C, D and E are sitting in a circle. The group comprises a professor, an industrialist and a businessman. The businessman is sitting in between the industrialist and his wife D. A, the professor is married to E, who is the sister of B. The industrialist is seated to the right of C. Both the ladies are unemployed.

41. What is A to B?

- (a) Brother (b) Uncle  
(c) Brother-in-law (d) Cannot be determined

42. A is sitting to the right of

- (a) the industrialist (b) his wife  
(c) D (d) Cannot be determined

43. Who is the industrialist?  
 (a) D (b) A  
 (c) B (d) Cannot be determined
44. Who is unmarried in the group?  
 (a) Professor (b) Industrialist  
 (c) Businessman (d) Cannot be determined
45. Who among them must be graduate ?  
 (a) B (b) A  
 (c) C (d) None of these

Directions: (Q. Nos. 46-47) Study the number series given below and answer the questions that follow.

7 8 9 7 6 5 3 4 2 8 9 7 2 4 5 9 2 9 7 6 4 7

46. How many 7's are preceded by 9 and followed by 6 ?  
 (a) Two (b) Three (c) Four (d) Five
47. Which figures have equal frequency ?  
 (a) 253 (b) 245 (c) 375 (d) 865

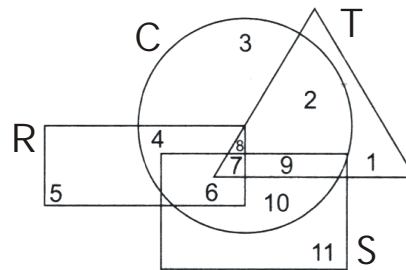
Directions: (Q. Nos. 48-53) Read the following information carefully and answer the questions.

Asha and Charu are good in Mathematics and Athletics. Deepa and Asha are good in Athletics and Studies, Charu and Beena are good in General Knowledge and Mathematics. Deepa, Beena and Ela are good in Studies and General Knowledge. Ela and Deepa are good in Studies and Art.

48. Who is good in Studies, General Knowledge, Athletics and Art?  
 (a) Asha (b) Beena (c) Charu (d) Deepa
49. Who is good in Studies, General Knowledge and Mathematics?  
 (a) Asha (b) Beena (c) Charu (d) Ela
50. Who is good in Studies, Mathematics and Athletics?  
 (a) Asha (b) Beena (c) Charu (d) Deepa
51. Who is good in Athletics General Knowledge and Mathematics?  
 (a) Asha (b) Beena (c) Charu (d) Deepa
52. Who is good in Studies, General Knowledge and Art but not in Athletics ?  
 (a) Asha (b) Beena (c) Charu (d) Ela
53. Who is not good in only one area?  
 (a) Deepa (b) Asha (c) Charu (d) Beena
54. If 25th December of 2008 is Thursday, what will be the day on 1st January of 2010?  
 (a) Friday (b) Saturday (c) Sunday (d) Monday
55. Film actor-director Raj Kapoor died on 2nd June 1988. What day of week was it?  
 (a) Monday (b) Wednesday (c) Thursday (d) Saturday
56. Find the day of the week on August 15, 1947?  
 (a) Tuesday (b) Wednesday (c) Thursday (d) Friday

57. The reflex angle between the hands of a clock at 10 : 25 is  
 (a)  $180^\circ$  (b)  $192\frac{1}{2}^\circ$  (c)  $195^\circ$  (d)  $197\frac{1}{2}^\circ$
58. A watch which gains 5 seconds in 3 min was set right at 7 a.m. In the afternoon of the same day, when the watch indicated quarter past 4 O'clock, the true time is  
 (a)  $59\frac{7}{12}$  min past 3 (b) 4 pm  
 (c)  $58\frac{7}{11}$  min past 3 (d) None of these

Directions: (Q. Nos. 59-60) In the following figure, rectangle, square, circle and triangle represent the regions of wheat, gram, maize and rice cultivation respectively. On the basis of the figure, answer the following questions.

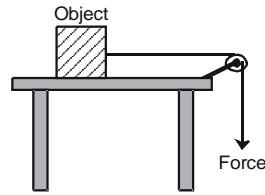


59. Which of the area is cultivated for wheat and maize only ?  
 (a) 8 (b) 6 (c) 5 (d) 4
60. Which of the area is cultivated for maize only?  
 (a) 10 (b) 2 (c) 3 (d) 4

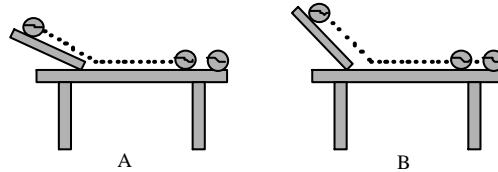
## PHYSICS

61. Which of the following is NOT a type of force?  
 (a) muscular (b) magnetic  
 (c) chemical (d) pulling a bucket of water from a well
62. During dry weather, while combing hair, sometimes we experience hair flying apart. The force responsible for this is  
 (a) force of gravity (b) electrostatic force (c) force of friction (d) magnetic force
63. In cities water supply from an overhead tank to the houses is done due to:  
 (a) difference in pressure (b) gravitational force  
 (c) decrease of friction in pipes (d) flow of liquid
64. Which of the following is NOT true?  
 (a) A sharp knife can easily cut due to its small cutting surface  
 (b) It is easier to walk in sand than on road  
 (c) A battle tank can move easily on soft ground because its tracks have bigger surface  
 (d) The pressure exerted by a needle is much more than the foot of an elephant

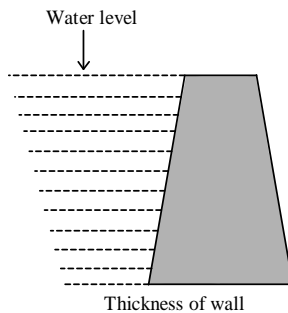
65. A force of 5 N is required to move an object from rest. The maximum value of static friction ( $f$ ) acting on the body will be:



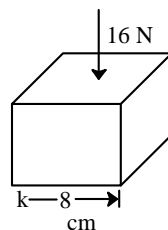
- (a) 5 N                      (b)  $f > 5$  N                      (c)  $f < 5$  N                      (d) 10 N
66. In which of the following cases, the speed of the ball will be more?



- (a)  $A > B$                       (b)  $B > A$   
 (c) In both cases speed will be same                      (d) None of the above
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 \_\_\_\_\_



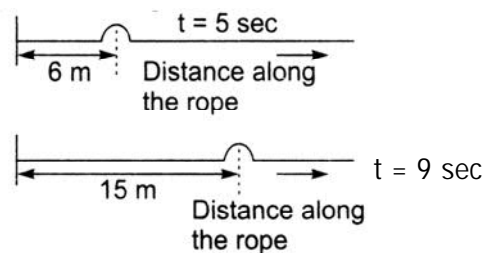
- (a) increase in pressure with depth of water                      (b) decrease in pressure with depth of water  
 (c) change in density of water                      (d) increase in mass of the wall
68. A force of 16 N is distributed uniformly on one surface of a cube of edge 8 cm. The pressure on this surface is:



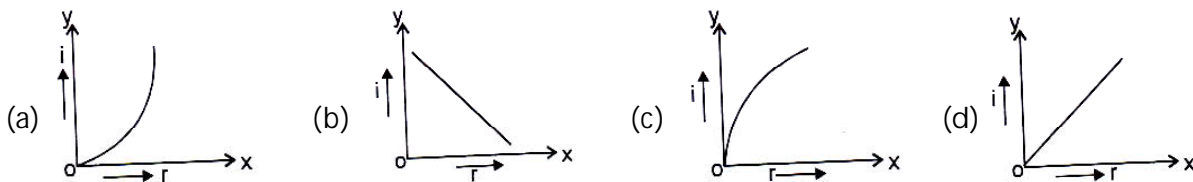
- (a) 3500 Pa                      (b) 2500 Pa                      (c) 4500 Pa                      (d) 2000 Pa
69. Which of the following statement is INCORRECT?
- (a) A freely falling body is acted upon by gravitational force  
 (b) Pressure on top of Mt. Everest is much more than 1 atm  
 (c) S.I. unit of pressure is pascal  
 (d) The blood vessels in our body maintains the internal pressure equal to the Atmospheric pressure



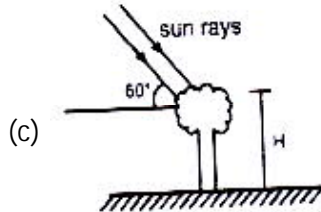
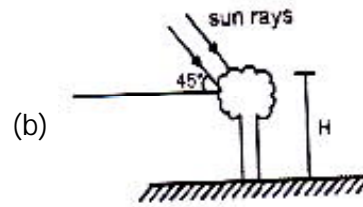
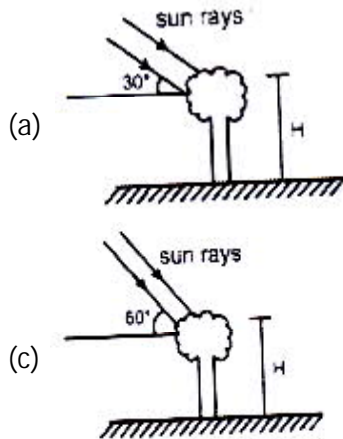
70. While walking on ice, one should take small steps to avoid slipping. This is because smaller steps ensure:
- (a) larger friction (b) smaller friction  
(c) larger normal force (d) smaller normal force
71. The voices of men, women and children are different due to difference in:
- (a) larynx (b) lungs (c) vocal chords (d) wind pipe
72. Quality of sound is used to distinguish between:
- (a) Noise and Music  
(b) Two different vibrating bodies  
(c) Two notes produced by same vibrating body  
(d) all of the above
73. Match the following and choose the correct option
- |                       |                 |
|-----------------------|-----------------|
| A. String vibration   | 1. Tabla        |
| B. Membrane vibration | 2. Bicycle bell |
| C. Vibration of air   | 3. Sitar        |
| D. Vibration of plate | 4. Flute        |
- (a) A - 1, B - 2, C - 3, D - 4 (b) A - 2, B - 1, C - 4, D - 2  
(c) A - 3, B - 1, C - 4, D - 2 (d) A - 4, B - 3, C - 2, D - 1
74. The following figure shows the position of a pulse on a rope at two different times. Find the speed of the pulse.



- (a) 1 m/s (b) 1.5 m/s (c) 1.6 m/s (d) 2.25 m/s
75. A person drops a stone into a well of depth 55 m. The stone hits the water surface and produces a sound and the time taken for this sound to reach the person is (velocity of sound =  $330 \text{ m s}^{-1}$ )
- (a)  $\frac{1}{2}$  s (b)  $\frac{1}{6}$  s (c)  $\frac{1}{4}$  s (d)  $\frac{1}{3}$  s
76. The bob of a simple pendulum is displaced and it crosses mean position 20 times in 5s. Then its time period is
- (a)  $\frac{1}{2}$  s (b)  $\frac{1}{5}$  s (c)  $\frac{1}{10}$  s (d)  $\frac{1}{20}$  s
77. Which of the following correctly represents graphical relation between angle of incidence (i) and angle of reflection (r) for a plane mirror?



78. In which case, shadow of the tree will be longest:



(d) Will be same in all cases

79. A thin layer of water is transparent but a very thick layer of water is:

- (a) translucent                      (b) opaque                      (c) most transparent                      (d) none of these

80. A tall man of height 6 feet, want to see his full image. Then required minimum length of the plane mirror will be:

- (a) 12 feet                      (b) 3 feet                      (c) 16 feet                      (d) Any length

81. The R.I. of kerosene is 1.42. Calculate the speed of light in it:

- (a) 4,26,000 km/s                      (b) 300,000 km/s                      (c) 211,268 km/s                      (d) 279,988 km/s

82. The shimmering that is observed over a hot surface is

- (a) heat  
 (b) reflections from rising heat.  
 (c) hanging refraction from the mixing of warm and cool air.  
 (d) a mirage.

83. When a light wave enters into a medium of different optical density,

- (a) its speed and frequency change.  
 (b) its speed and wavelength change.  
 (c) its frequency and wavelength change.  
 (d) its speed, frequency, and wavelength change.

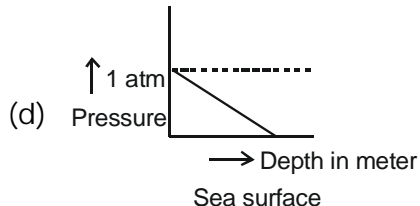
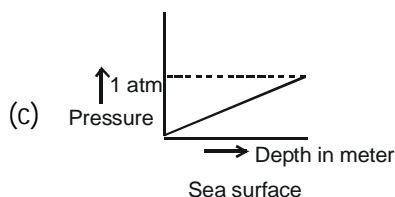
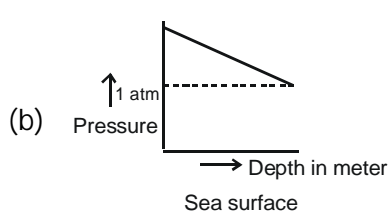
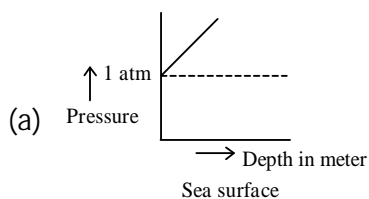
84. The time taken by the sunlight to pass through a window of thickness 4 mm is ( $\mu_{\text{glass}}=1.5$ )

- (a)  $2 \times 10^{-8}$  sec                      (b)  $2 \times 10^8$  sec                      (c)  $2 \times 10^{-11}$  sec                      (d)  $2 \times 10^{11}$  sec

85. At sunrise or at sun set the sun appears to be redish while at mid day it looks white this is because

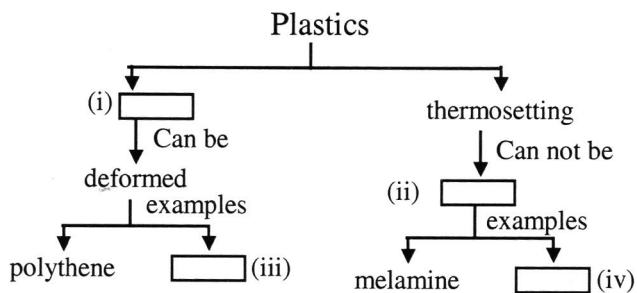
- (a) scattering due to dust particles and air molecules causes these phenomena  
 (b) the sun is cooler at sun rise or at sunset  
 (c) refraction causes these phenomena  
 (d) diffraction sends red rays to the earth at this time.

86. A body submerged in the sea is brought up to its surface. Which of the following graphs represents correctly the variation of the pressure on the body with increase in the depth?



## CHEMISTRY

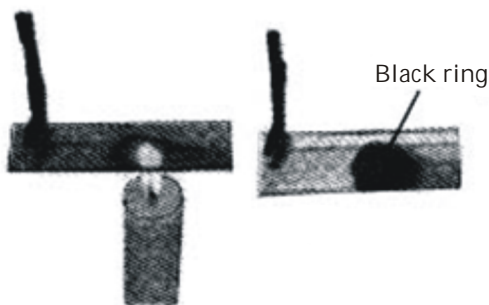
87. \_\_\_\_\_ is stronger than steel wire.  
 (a) Cotton fibre      (b) Silk thread      (c) Plastic thread      (d) Nylon fibre
88. Pick the synthetic fibre out of the following?  
 (a) Cotton      (b) Nylon      (c) Jute      (d) Wool
89. Fill in the boxes with appropriate option



- |                    |              |          |          |
|--------------------|--------------|----------|----------|
| (i)                | (ii)         | (iii)    | (iv)     |
| (a) Non-reactive   | Formed       | Bakelite | PVC      |
| (b) Thermoplastic  | Remoulded    | PVC      | Bakelite |
| (c) Cross-linked   | Manufactured | Polycot  | PVC      |
| (d) Thermoplastics | Formed       | Silk     | Polywool |

90. The material similar to silk in appearance is  
 (a) Nylon      (b) Rayon      (c) Polyester      (d) Terylene
91. Which of the following represents the correct match for items in Column A with those in Column B.
- |                            |                            |
|----------------------------|----------------------------|
| Column A                   | Column B                   |
| I. Nylon                   | (i) Thermoplastic          |
| II. PVC                    | (ii) Thermosetting plastic |
| III. Bakelite              | (iii) Fibre                |
| (a) I(ii), II(iii), III(i) | (b) I(iii), II(i), III(ii) |
|                            | (c) I(ii), II(i), III(iii) |
|                            | (d) I(iii), II(ii), III(i) |

92. Which of the following groups contain all synthetic substances?  
 (a) Nylon, Terylene, Wool (b) Cotton, Polycot, Rayon  
 (c) PVC, Polythene, Bakelite (d) Acrylic, Silk, Wool
93. Metals generally react with dilute acids to produce hydrogen gas. Which one of the following metals does not react with dilute hydrochloric acid?  
 (a) magnesium (b) aluminium (c) iron (d) copper
94. Which of the following reacts with cold water vigorously?  
 (a) carbon (b) sodium (c) magnesium (d) sulphur
95. The metal which produces hydrogen gas on reaction with dilute hydrochloric acid as well as sodium hydroxide solution is  
 (a) copper (b) iron (c) aluminium (d) sodium
96. When you introduce a glass plate into the luminous that absorbs ultraviolet radiation present in sunlight?

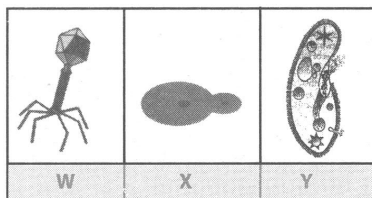


- (a) Deposition of burnt  $\text{CO}_2$  particles present in the air around the flame.  
 (b) Deposition of unburnt carbon particles in the luminous zone of the flame.  
 (c) Deposition of molten wax  
 (d) All of these
97. Metals are ductile, i.e. they can be hammered into sheets. Gold, silver, copper and aluminium are highly ductile metals.  
 Which of the following metals breaks into pieces when it is hammered?  
 (a) zinc (b) magnesium (c) iron (d) platinum
98. 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
99. Which of the following metals react with oxygen on heating to form oxides that are basic in nature and soluble in water?  
 (a) Zn (b) Fe (c) Cu (d) Na

100. In their pure state, metals shine. This property is called metallic lustre. Which of the following non metals is lustrous?  
 (a) Iodine                      (b) Chlorine                      (c) Bromine                      (d) Fluorine
101. Which of the following is an option of spontaneous combustion?  
 (a) Phosphorous catches fire in air                      (b) Charcoal burns with a dull yellow  
 (c) LPG gas burns with a blue flamed                      (d) Candle burns with a yellow flame
102. Petroleum is refined by  
 (a) fractional distillation                      (b) destructive distillation  
 (c) distillation                      (d) evaporation
103. On placing an inverted tumbler over a burning candle, the flame extinguishes after some time. This is because of non – availability of  
 (a) oxygen                      (b) water vapours                      (c) carbon dioxide                      (d) wax
104. A good fuel is one which:  
 (a) is readily available.                      (b) produces a large amount of heat.  
 (c) leaves behind many undesirable substances.                      (d) burns easily in air at a moderate rate.
105. Anuj was cooking potato curry on a chulha. To his surprise he observed that the copper vessel was getting blackened from outside. It may be due to:  
 (a) proper combustion of fuel.                      (b) improper cooking of potato curry.  
 (c) improper combustion of the fuel.                      (d) burning of copper vessel.
106. Which of the following is not obtained from coal?  
 (a) coke                      (b) coal tar                      (c) coal gas                      (d) CNG
107. Choose the correct statement from the following:  
 (a) It is difficult to transport natural gas through pipes.  
 (b) The disadvantage of natural gas is that it cannot be used directly for burning in homes.  
 (c) Natural gas is stored under high pressure as compressed natural gas.  
 (d) Natural gas cannot be used for power generation.
108. Match the items given in Column I with the items of Column II.
- |                           |                         |
|---------------------------|-------------------------|
| Column I                  | Column II               |
| A Used for road surfacing | I Black gold            |
| B Natural Gas             | II Vaseline and candles |
| C Petroleum               | III Bitumen             |
| D Paraffin Wax            | IV CNG                  |
- (a) A → III, B → IV, C → I, D → II                      (b) A → II, B → III, C → IV, D → I  
 (c) A → I, B → II, C → III, D → IV                      (d) A → VI, B → I, C → II, D → III
109. 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
110. Which of the following is a noble gas ?  
 (a) Nitrogen                      (b) Oxygen                      (c) Argon                      (d) Carbon dioxide

## BIOLOGY

111. The figures given below shows microorganisms W, X and Y. Identify them



- |   |   |   |
|---|---|---|
| W | X | Y |
|---|---|---|
- (a) virus                      protozoan                      fungus  
 (b) alga                        bacterium                      virus  
 (c) virus                        fungus                         protozoan  
 (d) fungus                      alga                             bacterium
112. What microorganisms are used in making antibiotics?  
 I. Viruses                      II. Fungi                        III. Bacteria  
 (a) I only                      (b) I and II only              (c) II and III only              (d) I, II and III
113. 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
114. Energy currency of the cell is:  
 (a) ADP                        (b) FTP                        (c) ATP                        (d) all of these
115. Which of the following organelle acts as digestive system within the cell?  
 (a) Golgi bodies              (b) Centrosomes              (c) Lysosomes                  (d) Mitochondria
116. The dense thread like and rod like structures present in the nucleus are respectively:  
 (a) Genes and Chromatin                      (b) Chromosomes and Centrosomes  
 (c) Centrosome and Chromatin                      (d) Chromatin and Chromosome
117. The membrane-bound, sac like structure which stores food, wastes and water are called:  
 (a) Lysosomes                  (b) Centrosomes              (c) Chromosomes              (d) Vacuoles
118. Which of the following should come in the box 'X' in the given sequence?  
 Ploughing → Levelling → X → Sowing seeds → Irrigation  
 (a) Broadcasting              (b) Transplanting              (c) Manuring                  (d) Drilling
119. The practice of keeping the fields free for a season to replenish the lost nutrients is:  
 (a) Monocropping              (b) Crop rotation              (c) Multiple cropping              (d) Field fallow
120. 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.

## MATHEMATICS

121. The value of  $\overline{1.34} + 4.\overline{12}$  is :

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

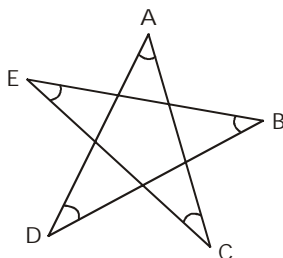
122. A man is 5 years older than his wife and the wife is now thrice as old as their daughter, who is 10 years old. How old was the man when his daughter was born?

- (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)  $540^\circ$                       (b)  $180^\circ$                       (c)  $360^\circ$                       (d)  $270^\circ$

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)  $(2)^{1/10}$                       (b)  $(2)^{1/32}$                       (c)  $(2)^{1/16}$                       (d)  $2^{31/32}$

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)  $10\frac{2}{3}\%$

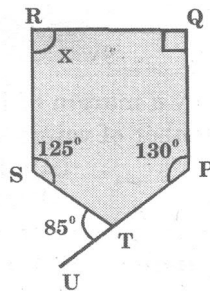
131. If SP of an article is  $\frac{4}{3}$  of its CP then the profit in the transaction is:
- (a)  $\frac{1}{3}\%$                       (b)  $20\frac{1}{2}\%$                       (c)  $33\frac{1}{3}\%$                       (d)  $25\frac{1}{2}\%$
132. The sides of a triangle are 11 cm, 15 cm and 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<sup>2</sup>                      (b)  $\frac{49}{\pi}$  cm<sup>2</sup>                      (c) 22 cm<sup>2</sup>                      (d) 49 cm<sup>2</sup>
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<sup>2</sup>                      (b)  $r^2$  cm<sup>2</sup>                      (c)  $2r^2$  cm<sup>2</sup>                      (d)  $\frac{r}{2}$  cm<sup>2</sup>
136. A sector of  $120^\circ$  cut out from a circle has an area of  $9\frac{3}{7}$  sq cm. The radius of the circle is:
- (Take  $\pi = \frac{22}{7}$ )
- (a) 3 cm                      (b) 2.5 cm                      (c) 3.5 cm                      (d) 3.6 cm
137. The radius of the cylinder whose lateral surface area is 704 cm<sup>2</sup> and height 8 cm is: (Take  $\pi = \frac{22}{7}$ )
- (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  $25^\circ$ . The acute angle between the diagonals is:
- (a)  $25^\circ$                       (b)  $40^\circ$                       (c)  $50^\circ$                       (d)  $55^\circ$
139. ABCD is a rhombus. If  $\angle ACB = 40^\circ$ , then  $\angle ADB$  is:
- (a)  $40^\circ$                       (b)  $45^\circ$                       (c)  $50^\circ$                       (d)  $60^\circ$
140.  $\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}} = ?$
- (a) 3                      (b) 4                      (c) 6                      (d) greater than 6
141. The value of  $1 + 3 + 5 + 7 + 9 + \dots + 25$  is:
- (a) 196                      (b) 625                      (c) 225                      (d) 169
142. Simplified form of  $\left\{ \sqrt[4]{\left(\frac{1}{x}\right)^{-12}} \right\}^{-2/3}$
- (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)  $100^\circ$                       (b)  $110^\circ$                       (c)  $120^\circ$                       (d)  $90^\circ$

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. X and Y together can do a piece of work in 8 days, which X alone can do in 12 days. In how many days can Y do the same work alone?

- (a) 12 days                      (b) 24 days                      (c) 36 days                      (d) 16 days

149. A wheel that has 6 cogs is meshed with a larger wheel of 14 cogs. When the smaller wheel has made 21 revolutions, then the number of revolutions made by the larger wheel is:

- (a) 4                      (b) 9                      (c) 12                      (d) 49

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**

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