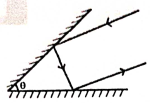
**PHYSICS**

1. If two mirrors are placed at an angle with each other as shown in the fig. If the incident light is parallel to the reflected light, then the angle is equal to

a) b) c) d)

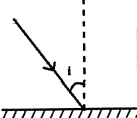
2. The angle of incidence of an incident ray is ; on a convex mirror. The angle of reflection will be

a) b) c) d) None

3. The mirror that forms always real images

a) Concave b) Convex c) Plane d) There is no such kind of mirror

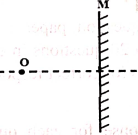
4. The minimum number of rays required to form an image is/are

 a) 1 b) 2 c) 4 d)

5. If s light ray is incident on mirror at an angle of incidence then the angle of deviation is \_\_\_

a) clockwise b) anticlockwise c) clockwise d) anticlockwise

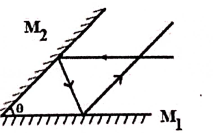
6. Refractive index of a medium is 1.5 then speed of light in that medium is

 a) b) c) d)

7. If the mirror moves towards or away from object by a distance then the distance moved by the image is

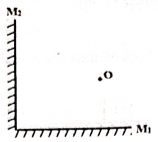
a) b) c) d)

8. If speed of light in a medium ‘A’ is . Then find the absolute refractive index of the medium

 a) 2.5 b) 3 c) 1.67 d) 1.167

9. Two mirrors are placed at an angle of as shown in fig, if the incident light us parallel to the mirror and the final reflected ray is parallel to the mirror , then the angle is equal to

a) b) c) d)



10. If the angle between two mirrors is , then the total number of images formed for an object is \_\_\_

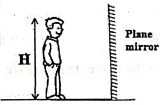
a) 1 b) 2 c) 3 d) 4

11. The relation between intensity of scattered light (I) and wavelength ( is

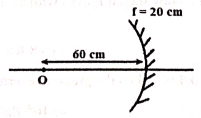
a) b) c) d)

12. Times shown by an analog clock which doesn’t have numbers is 4:30, and then the times shown by its image is

a) 8 : 30 b) 7 : 30 c) 9 : 30 d) 5 : 30

13. If a person of height H stands in front of the mirror, then the minimum length of the mirror required to see his full image is \_\_\_

a) H b) 2 H c) H/2 d) cannot say from given information



14. If an object is placed at a distance 60 cm from a concave mirror, then the distance of the image from the mirror is

a) 20 cm b) 30 cm c) 70 cm d) 80 cm

15. The cold air layer of the atmosphere behave as optically

a) Either inactive or rarer medium b) Denser medium c) Rarer medium d) Inactive medium

16. Sun appears to be risen before the actual sun rise because of

a) Atmospheric dispersion b) Atmospheric refraction  
c) Scattering of light d) Atmospheric reflection.

17. By how much time is the sunset delayed due to atmospheric refraction?

a) 2 minutes b) 5 minutes c) 20 minutes d) 2 hours

18. What will be the colour of sky if there is no atmosphere on the earth?

a) Dark blue b) Black c) Red d) White

19. The danger signals are red in colour because it is

a) strongly scattered by fog or smoke b) Least scattered by fog or smoke  
c) Least absorbed by for or smoke d) Strongly absorbed by for or smoke

20. Which light is easily scattered by the atmosphere?

a) Long wavelength light b) Short wavelength light c) Sunlight d) Coherent light

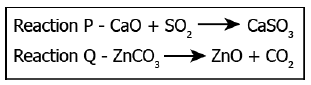
**CHEMISTRY**

21. Which of the following reactions can also be termed as thermal decomposition reaction?

a) Combination Reaction b) Decomposition Reaction c) Displacement reaction d) Double displacement reaction

22. One of the following processes does not involve a chemical reaction, that is:

a) Melting of candle wax when heated b) Burning of candle wax when heated c) Digestion of food in your stomach d) Ripening of banana

23. A student learns that some products are formed as a result of combining two compounds while some compounds are formed as a result of dissociation of two compounds. The image shows two reactions.

Which reaction is an example of a combination reaction and a decomposition reaction?

a) both the reactions are examples of combination reaction b) both the reactions are examples of a decomposition reaction c) reaction P is an example of a combination reaction while reaction Q is an example of a decomposition reaction d) P is an example of a decomposition reaction while reaction Q is an example of a combination reaction

24. Which of the reactions is used in black and white photography?

a) Combination Reaction b) Decomposition Reaction c) Displacement reaction d) Oxidation reaction

25. The chemical reaction between potassium chloride and silver nitrate is given by the chemical equation. AgNO3 + KCl → AgCl + KNO3

What can be inferred from the chemical equation?

 a) silver nitrate and potassium undergo a decomposition reaction to form silver chloride and potassium nitrate b) silver nitrate and potassium undergo a displacement reaction to form silver chloride and potassium nitrate c) silver nitrate and potassium undergo a combination reaction to form silver chloride and potassium nitrate d) silver nitrate and potassium undergo double displacement reaction to form silver chloride and potassium nitrate

26. The image shows a reaction between zinc and hydrogen.

Which option shows oxidation?

a) Zn → Zn+2 b) 2H+ → H2 c) Zn+2 → Zn d) H2 → 2H

27. Zinc granules on treating with an acid X, form the zinc sulphate (ZnSO4) salt along with the evolution of a gas Y which burns with a pop sound when brought near to a burning candle. Identify the acid X and gas evolved Y.

a) X- Sulphuric acid and Y- Oxygen gas b) X- Hydrochloric acid and Y- Oxygen gas c) X- Sulphuric acid and Y- Hydrogen gas d) X- Hydrochloric acid and Y- Hydrogen gas

28. The sample of soil from a particular place was tested for its pH value. It came out to be 5. Which one of the following should be added to the soil to make it suitable for the plant growth?

i. Calcium chloride ii. Calcium Hydroxide iii. Calcium oxide

Choose the correct option:

a) Both (i) and (ii) b) Both (ii) and (iii) c) Only (i) d) Only (iii)

29. An ant’s sting can be treated with …………which will neutralise the effect of the chemical injected by the ant’s sting into our skin.

Choose the correct option from the following to be filled in the blank space:

a) Methanoic acid b) formic acid c) Baking soda d) Caustic soda

30.  Bleaching powder is used as a disinfectant for water to:

a) Make water tastier b) Remove all the dirt from water c) Make water germ-free d) Make water clear

31. Which among the following represents the chemical formula for ‘Plaster of Paris’?

a) b) c) d)

32. In the following reaction, identify the salt formed

NH4OH (aq) + H2SO4(aq) → \_\_\_\_ +   2H2O (l)

a) NH4NO3 b) (NH4)2SO4 c) (NH4)3PO4 d) (NH4)2S

33. Copper sulphate crystals when heated strongly, lose their water of crystallization to give anhydrous copper sulphate accompanied by a change in color from:

a) Blue to green b) Blue to white c) Blue to sky blue d) Blue to grey

34. The ability of metals to be drawn into thin wires is known as

a) ductility b) malleability c) sonority d) conductivity

35. Generally metals react with acids to give salt and hydrogen gas. Which of the following acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?

a) H2SO4 b) HCl c) HNO3 d) All of these

36. Metals are refined by using different methods. Which of the following metals are refined by electrolytic refining?

(i) Au (ii) Cu (iii) Na (iv) K

a) (i) and (ii) b) (i) and (iii) c) (ii) and (iii) d) (iii)and (iv)

37. Which one of the following four metals would be displaced from the solution of its salts by other three metals?

a) Mg b) Ag c) Zn d) Cu

38. Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents?

a) Brass b) Bronze c) Amalgam d) Steel

39. The electronic configurations of three elements X, Y and Z are X – 2, 8; Y – 2, 8, 7 and Z – 2, 8, 2. Which of the following is correct?

a) X is a metal. b) Y is a metal. c) Z is a non-metal. d) Y is a non-metal and Z is a metal.

40. The metal which can be extracted from the bauxite ore is:

a) Na b) Mn c) Al d) Hg

**MATHS**

41. If ‘3’ is the least prime factor of ‘a’ and ‘7’ is the least prime factor of ‘b’ then the least prime factor of is

a) 2 b) 3 c) 5 d) 10

42. The decimal expansion of the rational number will terminate after

a) one decimal place b) two decimal place c) three decimal places d) four decimal places

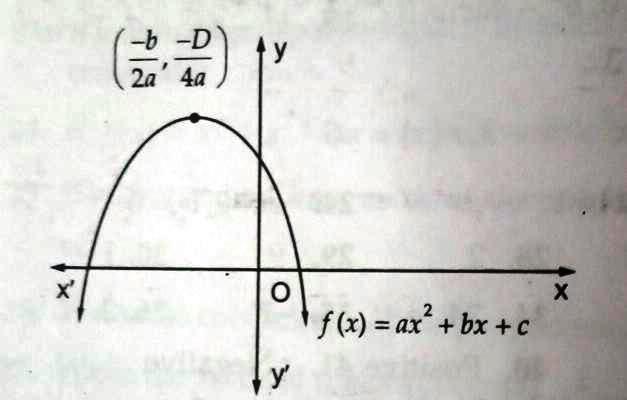
43. The zero of the polynomial are

a) b) c) d)

44. If are the zeros of the polynomial then

a) b) c) d)

45. A quadratic polynomial whose one zero is is

 a) b) c) d)

46. If the diagram in fig shows the graph then

a) and b) and c) and d) and

47. The area of the triangle formed by the lines and is

a) 7 sq units b) 7.5 sq units c) 6.5 sq units d) 6 sq units

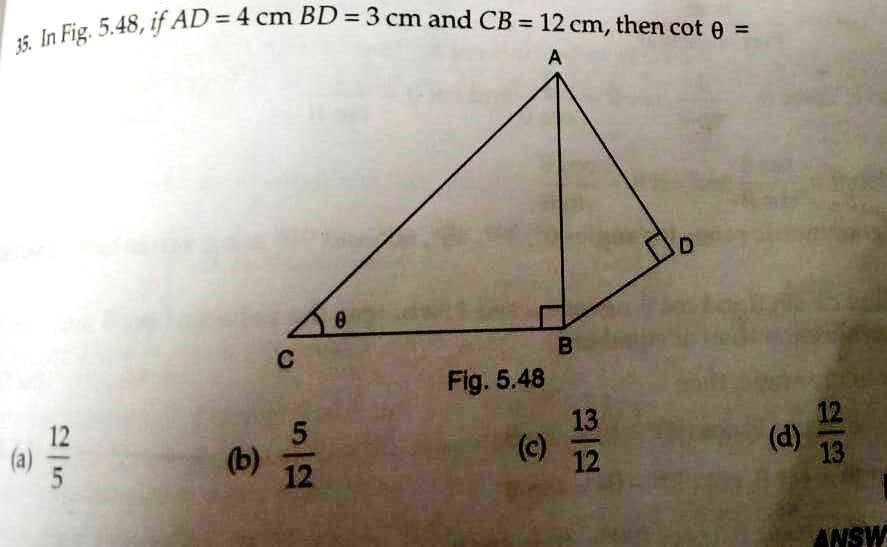
48. A system of two linear equations in two variables is dependent consistent. If their graphs

a) do not intersect at any point b) cut the -axis c) Intersect only at a point d) Coincide with each other

49. A line segment is of lengths 10 units. If the co-ordinates of its one end are and the abscissa of the other end is 10, then its ordinate

a) 9, 6 b) 3, - 9 c) -3, 9 d) 9, -6

50. If three points and form an equilateral triangle then

 a) 2 b) c) d) None of these

51. In fig, if and , then

a) 12/5 b) 5/12 c) 13/12 d) 12/13

52. Matrix matching:

**Column I Column II**

A. then p)

B. q) 1

C. r) 2

D. If are complementary angles and then s)

t)

u)

A **B C D A B C D**

a) r p q t b) q p q t c) p q t u d) p q s u

53. Matrix matching:

**Column I Column II**

A. 1.

B. 2.

C. 3.

D. 4.

**A B C D A B C D**

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

54. If ABC is an isosceles triangle ‘D’ is a point on BC such that then

a) b) c) d)

55. If ‘E’ is a point on side CA of an equilateral triangle ABC such that then

a) b) c) d)

56. Diagonal of a trapezium ABCD with AB || CD intersects each other at ‘O’. If , then area : Area

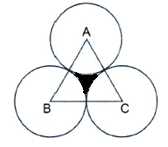
a) 4 : 1 b) 1 : 4 c) 2 : 3 d) 5 : 1

57. A bag contains cards numbered from 1 to 25, A card at random from the bag, the probability that the number on this card divisible by both 2 and 3 is

a) 1/5 b) 3/25 c) 4/25 d) 2/25

58. If two digit number is choose at random then the probability that the number chosen is a multiple of 3, is

a) 3/10 b) 29/100 c) 1/3 d) 7/25

59. Two numbers ‘a’ and ‘b’ are selected successively with out replacement in that order from integer 1 to 10, the probability that a/b is an integer

a) 17/45 b) 1/5 c) 17/90 d) 8/45

60. ABC is an equilateral triangle, the area of the shaded region (shown in the fig), if the radius of each of the circle 1 cm.

a) b) c) d)

**BIOLOGY**

61. Here, the maximum material exchange between the blood and its surrounding cells takes place.

a) Heart b) Veins c) Capillaries d) Arteries

62. The enzymes that are found in the secreted intestinal juice finally convert \_\_\_\_?

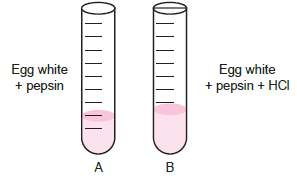
a) Proteins to amino acids b) Fats into fatty acids and glycerol c) Complex carbohydrates into glucose. d) All the above

63. Pick the correct one from the following.

a) Plasma = Blood – Lymphocytes b) Lymph = Plasma + RBC + WBC c) Serum = Blood + Fibrinogen d) Blood = Plasma + RBC + WBC

64. During contraction, what prevents the backflow of blood inside the heart?

a) Valves in heart b) Thick muscular walls of ventricles c) Thin walls of atria d) All of the above

65. A student sets up an experiment to study the role of enzymes in digestion of food.

In which test tube, the digestion of protein will occur?

a) Test tubes A as pepsin will breakdown protein into simple molecules.  
b) Test tube B as HCl will breakdown protein into simple molecules.  
c) Test tube A as pepsin will breakdown into simple molecules.  
d) Test tube B as HCl will activate pepsin for breakdown of protein into simple molecules.

66. Which of the substances given below are transported by the blood plasma?

a) Carbon dioxide b) Nitrogenous waste c) Food d) All of the above

67. In which mode of nutrition, an organism derives its food from the body of another living organism without killing it?

a) Saprotrophic nutrition b) Autotrophic nutrition c) Holozoic nutrition d) Parasitic nutrition

68. The site of photosynthesis in the cells of a leaf is known as \_\_\_\_?

a) Chloroplast b) Protoplasm c) Cytoplasm d) Mitochondria

69. The roots of the plants absorb water from the soil through the process of \_\_\_\_?

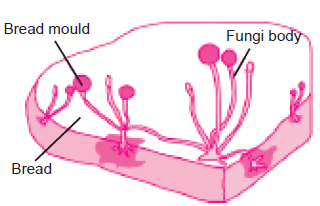
a) Diffusion b) Transpiration c) Osmosis d) None of the above

70. Which of the below events in the mouth cavity will be affected if the salivary amylase is lacking in the saliva?

a) Starch breaking down into sugars b) Absorption of vitamins c) Proteins breaking down into amino acids d) Fats breaking down into fatty acids and glycerol

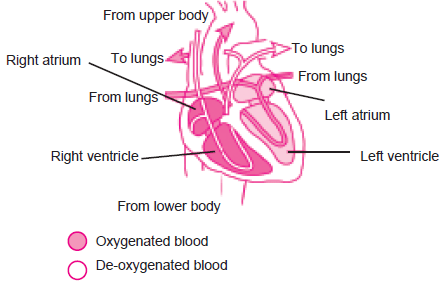
71. Gastric glands release \_\_\_\_, a protein digesting enzyme called pepsin, and mucus.

a) Sulphuric acid b) hydrochloric acid c) nitric acid d) none of the above

72. The image shows the bread moulds on a bread. How these fungi obtain nutrition?

a) By using nutrients from the bread to prepare their own food.  
b) By allowing other organisms to grow on the bread and then consuming them.  
c) By breaking down the nutrients of bread and then absorbing them.  
d) By eating the bread on which it is growing.

73. The end product of fat digestion is

 a) Fatty acid b) Glycerol c) Amino acids d) Both A and B

74. The image shows oxygenated and de-oxygenated blood in the human heart.

What is the direction of deoxygenated blood from right ventricle of the heart?

a) towards the lungs. b) towards the left atrium of heart.  
c) towards the upper body. d) towards the lower body.

75. The enzymes present in secrete intestinal juice finally convert the

a) Proteins to amino acids b) Complex carbohydrates into glucose c) Fats into fatty acids and glycerol d) All of the above

76. Which of the following is not a digestive enzyme contained in the pancreatic juice?

(i) Lipase (ii) Hydrochloric acid (iii) Mucus (iv) Trypsin

(a) (i) and (ii) (b) (i) and (iv) (c) (ii) and (iii) (d) (i) and (iii)

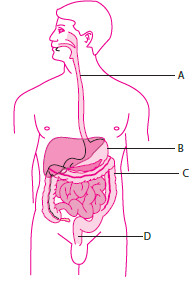
77. Plasma transports \_\_\_\_\_ in dissolved form

a) Food b) carbon dioxide c) nitrogenous wastes d) all of the above

78. Following is (are) true about heart

a) Oxygen-rich blood from the lungs comes to the left atrium b) De-oxygenated blood comes from the body to the upper chamber on the right, the right atrium, as it relaxes. c) Valves ensure that blood does not flow backwards when the atria or ventricles contract d) All of the above

79. Following is true for plants

 a) Plants have low energy needs b) The xylem moves water and minerals obtained from the soil c) Phloem transports products of photosynthesis from the leaves to other parts of the plant d) All of the above

80. From the given picture of the digestive system, identify the part labelled as gastric gland.

a) A

b) B

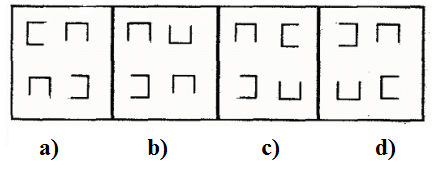
c) C

d) D

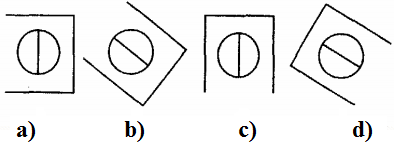
**MENTAL ABILITY**

**81-88 Directions**: In the following questions, four items (figures, letter clusters or numbers) are given. Three of them are alike in a certain way. Find the one which is different from others.

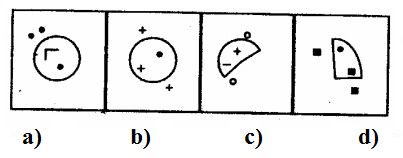
81. Find the one which is different from others.



82. Find the one which is different from others.



83. Find the one which is different from others.



84. Find the one which is different from others.

a) CDBE b) LMKN c) RSQT d) WXYV

85. Find the one which is different from others.

a) KEAI b) NEAL c) REAT d) DEAB

86. Find the one which is different from others.

a) b) c) d)

87. Find the one which is different from others.

a) b) c) d)

88. Find the one which is different from others.

a) 54 b) 90 c) 135 d) 188

89. Vineeta’s house is to the right of Kareena’s house at a distance of 30 metres in the same row facing north. Sonal’s house is in the north-east direction of Kareena’s house at distance of 35 metres. Determine the direction of Vineeta’s house with respect to Sonal’s house.

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

90. From his house Mohan moves 30 km in North-West direction and the 30 km in South West direction. Next he moves 30 km in South East direction. Finally he turns towards his house. In which direction is he moving?

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

91. In certain language, if 1 is coded as A, 2 as B, 3 as C, and so on, how is PINNAACLE coded in that code?

a) 123456789 b) 987654321 c) 1691414113125 d) 5213114141961

92. 4 mangoes = 5 apples, 5apples = 10 bananas. So instead of buying 2 mangoes, how many bananas are available?

a) 5 b) 10 c) 2 d) 4

93. If CAT is code as 3, 1, 2 then MAT will be coded as?

a) 4,1, 2 b) 5,1,2 c) 3,1,2 d) None

94. If air is called blue, blue is called water, water is called green, green is called white, which of the following does fish live in?

a) Water b) Blue c) Green d) White

95. If ‘A’ means ‘+’, ‘B’ means ‘- ‘, ‘C’ means ‘x’, ‘D’ means ‘/’ then what is the value of 3 A 6 D 3 C 2 B 12 =?

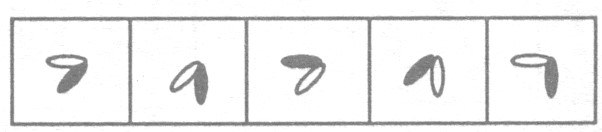
a) 10 b) 1 c) 0 d) -5

96. If X is the brother of the son of the son of y’s son, how is X related to Y?

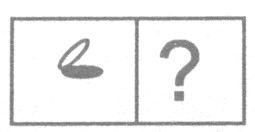
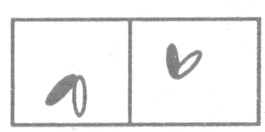
a) Son b) Cousin c) Grandson d) Brother

97. A walks 20 meters towards North and then 20 meters to his left. Then every time turning to his right, he walks 20, 20 and 20 meters respectively. How far is he now his starting point?

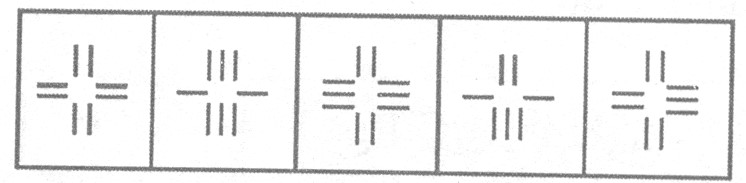
a) 80 b) 60 c) 40 d) 20

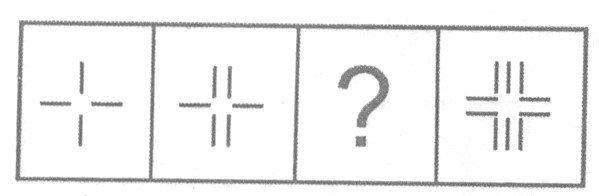
98. **Problem Figure Answer Figure**

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



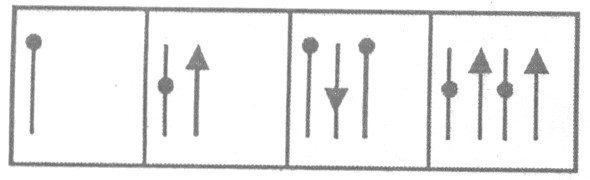
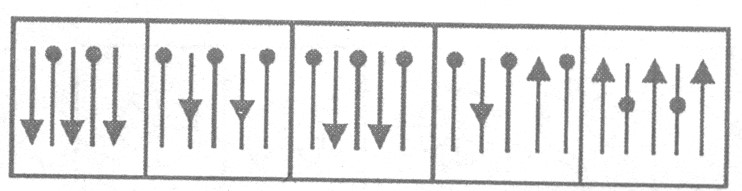
99. **Problem Figures Answer Figures**





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

100. The following problems, contains four Problem Figures marked 1, 2, 3, and 4 and four Answer Figure marked a, b, c and d. Select a figure from amongst the Answer figures which will continue the same series as given in the Problem Figures.

**** **Problem Figures Answer Figures**

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

***!!! ALL THE BEST !!!***