



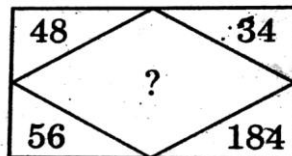
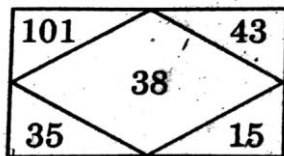
CLASS-X	AARAMBH	DATE: 03-10-19
Max. Time: 120 min		Max marks: 320

Instructions:

- i. The test paper consists of **80** multiple choice questions numbered from **1 to 80**, each question followed by four alternatives 1, 2, 3 and 4.
- ii. Mental Ability 1 to 20, Mathematics 21 to 35, Physics 36 to 50 and Chemistry 51 to 65, Biology 66 to 80.
- iii. Each question has only one correct option.
- iv. (a) Each correct answer carries **+4 Marks**.
 (b) For each wrong answer **1 mark** will be **deducted**.

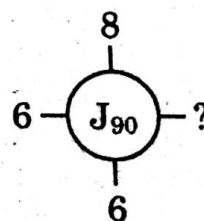
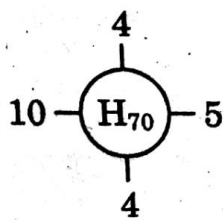
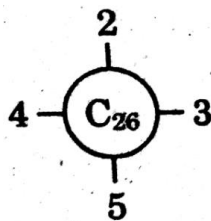
MAT (Q.NO.1 TO 20)

1.



- 1) 127 2) 142 3) 158 4) 198

2.



- 1) 17 2) 19 3) 4 4) 25

3.

5	6	7
3	4	5
9	10	11
345	460	?

- 1) 535 2) 577 3) 755 4) 775

Directions (Q. No-4 to 8): Read the following information carefully and answer the questions that follow:

i) Five friends P, Q, R, S and T travelled to five different cities of Chennai, Kolkata, Delhi, Bangalore and Hyderabad by different modes of transport of Bus, Train, Aeroplane, Car and Boat from Mumbai.

ii) The person who travelled to Delhi did not travel by boat.

iii) R went to Bangalore by car and Q went to Kolkata by Aeroplane.

iv) S travelled by boat whereas T travelled by train

v) Mumbai is not connected by bus to Delhi and Chennai

4. Which of the following combinations of persons and mode is not correct?

- 1) T-Aeroplane 2) P-Bus 3) R-Car 4) S-Boat

5. Which of the following combinations is true for S?

- 1) Delhi-Bus 2) Chennai-Bus 3) Chennai- Boat 4) Data inadequate

6. Which of the following combinations of place and mode is not correct?

- 1) Delhi-Bus 2) Kolkata-Aeroplane
3) Bangalore-Car 4) Chennai-Boat

7. The person travelling to Delhi went by which of the following modes?

- 1) Bus 2) Train 3) Aeroplane 4) Car

8. Who among the following travelled to Delhi?

- 1) R 2) S 3) T 4) Data inadequate

Directions (Q. No-9) : Read the following information carefully and answer the question given below:

'A + B' means 'A is the daughter of B';

'A × B' means 'A is the son of B';

'A – B' means 'A is the wife of B'.

9. If T-S × B – M, which of the following is not true?

- 1) B is mother of S. 2) M is husband of B
3) T is wife of S 4) S is daughter of B

10. Ashish leaves his house at 20 minutes to seven in the morning, reaches Kunal's house in 25 minutes, they finish their breakfast in another 15 minutes and leave for their office which takes another 35 minutes, at what time do they leave Kunal's house to reach their office?

- 1) 7.40 a.m 2) 7.20 a.m 3) 7.45 a. m 4) 8.15 a.m

11. Ajay left home for the bus stop 15 minutes earlier than usual. It takes 10 minutes to reach the stop. He reached the stop at 8.40 a.m. What time does he usually leave home for the bus stop?

- 1) 8.30 a.m 2) 8.45 p.m 3) 8.55 a.m 4) 8.45 a.m

12. How much does a watch lose per day, if its hands coincide every 64 minutes?

- 1) $32\frac{8}{11}$ min 2) $36\frac{5}{11}$ min 3) 90 min. 4) 96 min.

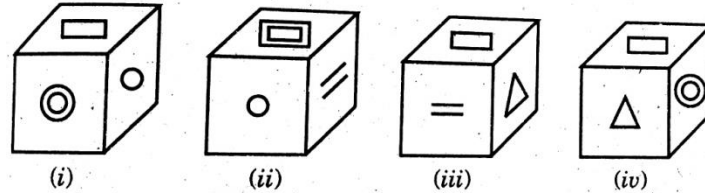
13. At what time between 7 and 8 o'clock will the hands of a clock be in the same straight line but, not together?

- 1) 5 min. past 7 2) $5\frac{2}{11}$ min. past 7
3) $5\frac{3}{11}$ min. past 7 4) $5\frac{5}{11}$ min. past 7

Directions (Q.No-14) : If > denotes +, < denotes −, + denotes ÷, ^ denotes ×, − denotes =, × denotes > and =denotes <, choose the correct statement in each of the following questions.

14. (a) $6+3 > 8=4+2 < 1$ (b) $4 > 6+2 \times 3 2+4 < 1$
 (c) $8 < 4+2 = 6 > 3$ (d) $14+7 > 3 = 6+3 > 2$
 1) a 2) b 3) c 4) d

Directions (Q.No-15) : Below question based on the following illustrations, which are four views of a cube.



15. The symbol at the bottom of (iv) is

- 1) 2) 3) 4)

16. The six faces of a dice have been marked with alphabets A, B, C, D, E and F respectively. This dice is rolled down three times. The three positions are shown as :

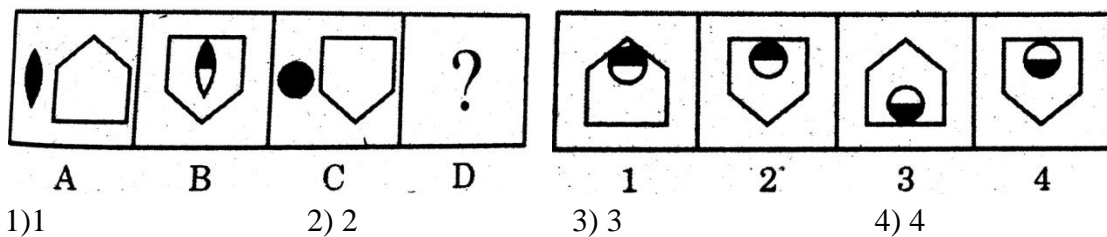


Find the alphabet opposite A.

- 1) C 2) D 3) E 4) F

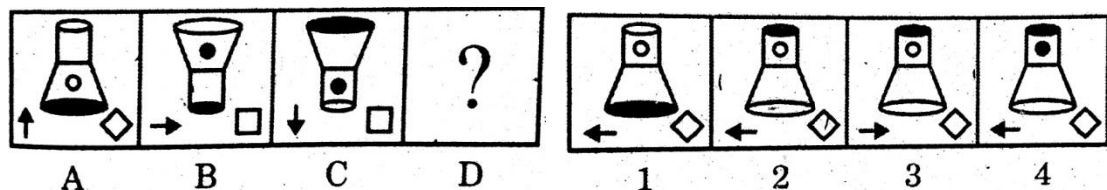
FIGURE ANALOGY(17-18)

17.



- 1) 1 2) 2 3) 3 4) 4

18.

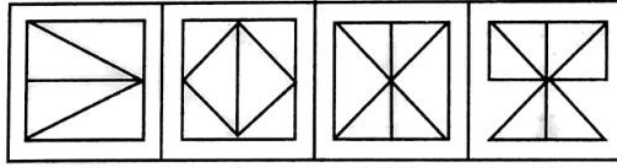


Directions (Q. No:19): Embedded Figure:

19.



(X)



(1)

(2)

(3)

(4)

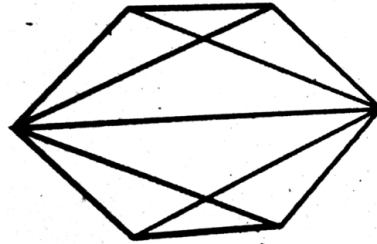
1) 1

2) 2

3) 3

4) 4

Directions (Q.No-20) : Analyse the following figure and answer the given questions based on this figure.



20 Find the number of quadrilaterals in the given figure

1) 6

2) 7

3) 9

4) 11

MATHEMATICS (Q.NO.21 TO 35)

21. Boundaries of solids are

1) surfaces

2) curves

3) lines

4) points

22. If one of the angles of a triangle is 130° , then the angle between the bisectors of the other two angles can be

1) 50°

2) 65°

3) 145°

4) 155°

23. If $AB = 12\text{cm}$, $BC = 16\text{cm}$ and AB is perpendicular to BC , then the radius of the circle passing through the points A , B and C is

1) 6cm

2) 8cm

3) 10cm

4) 12cm

24. The area of an equilateral triangle with side $2\sqrt{3}\text{ cm}$ is

1) 5.196 cm^2

2) 0.866 cm^2

3) 3.496 cm^2

4) 1.732 cm^2

25. The radii of two cylinders are in the ratio of $2:3$ and their heights are in the ratio of $5:3$. The ratio of their volumes is

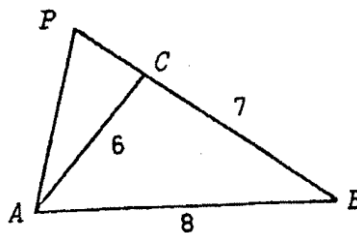
1) $10:17$

2) $20:27$

3) $17:27$

4) $20:37$

26. In $\triangle ABC$, $AB = 8$, $BC = 7$, $CA = 6$ and side BC is extended, as shown in the figure, to a point P so that $\triangle PAB$ is similar to $\triangle PCA$. The length of PC is



1) 7

2) 8

3) 9

4) 10

27. The quadrilateral formed by joining the mid-points of the side of quadrilateral PQRS, taken in order, is a rhombus, if

- 1) PQRS is a rhombus
- 2) PQRS is a parallelogram
- 3) diagonals of PQRS perpendicular
- 4) diagonals of PQRS are equal

28. If a and b are integers such that $x^2 - x - 1$ is a factor of $ax^3 + bx^2 + 1$, then b is

- 1) -2
- 2) -1
- 3) 0
- 4) 1

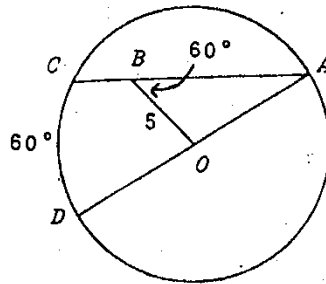
29. The graph $y = -x^2$ lies in quadrants

- 1) 1,2
- 2) 2,3
- 3) 3,4
- 4) 2,4

30. If $x + 2y = 7$ and $4x - ay = 10$ has no solution then a = _____

- 1) 6
- 2) -6
- 3) 8
- 4) -8

31. In a circle with center O, AD is a diameter, ABC is a chord, BO = 5 and $\angle ABO = \angle C = 60^\circ$. Then the length of BC is



- 1) 3
- 2) $3 + \sqrt{3}$
- 3) $5 - \frac{\sqrt{3}}{2}$
- 4) 5

32. The distance between the centres of two circles is 'd' If the radii are r_1 and r_2 , then the length of their transverse common tangent is

- 1) $d^2 + (r_1 + r_2)^2$
- 2) $\sqrt{d^2 - (r_1 + r_2)^2}$
- 3) $\sqrt{d^2 - r_1^2 - r_2^2}$
- 4) $\sqrt{d^2 - r_1 - r_2 - r_1 r_2}$

33. Let a and b be real numbers such that $x^4 + 2x^3 - x^2 + ax + b = (Q(x))^2$ for some polynomial Q(x). What is the value of a + b?

- 1) -2
- 2) -1
- 3) 0
- 4) 1

34. If $\cot \theta = \frac{b}{a}$, then $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta} =$

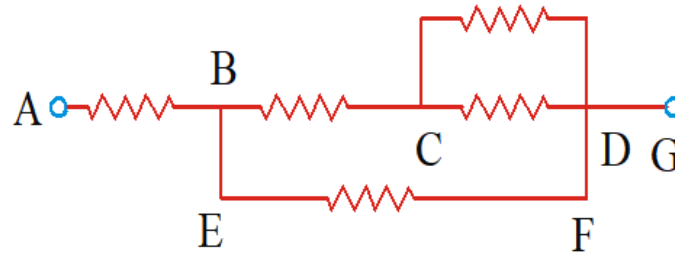
- 1) $\frac{a^2 + b^2}{a^2 - b^2}$
- 2) $\frac{a^2 - b^2}{a^2 + b^2}$
- 3) $\frac{a - b}{a + b}$
- 4) $\frac{a + b}{a - b}$

35. Two uniform dice marked 1 to 6 are thrown together. The probability that the sum is even is

- 1) $\frac{1}{4}$
- 2) $\frac{1}{3}$
- 3) $\frac{1}{2}$
- 4) $\frac{1}{12}$

PHYSICS (Q.NO.36 TO 50)

36. Resistance of each $10\ \Omega$ are connected as shown in the fig. The effective resistance between A and G is

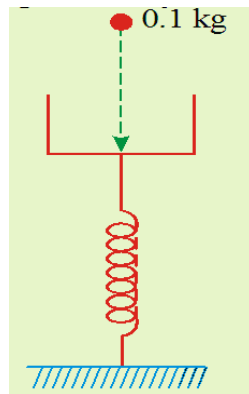


- 1) $16\ \Omega$ 2) $20\ \Omega$ 3) $12\ \Omega$ 4) $8\ \Omega$
37. According to ohm's law potential difference (V), Current (I) and resistance (R) are related as
- 1) $V = IR$ 2) $V = I/R$ 3) $R = VI$ 4) $R = I/V$
38. A letter 'A' is constructed as a uniform wire of resistance $1\ \text{ohm/cm}$. The sides of the letter are $20\ \text{cm}$ long and the cross piece in the middle is $10\ \text{cm}$ long while the vertex angle is 60° . The resistance of the letter between the two ends of the legs is
- 1) $40/3\ \Omega$ 2) $80/3\ \Omega$ 3) $40\ \Omega$ 4) $10\ \Omega$
39. A wire carrying a current of $140\ \text{ampere}$ is bent into the form of a circle of radius $6\ \text{cm}$. The flux density at a distance of $8\ \text{cm}$ on the axis passing through the centre of the coil and perpendicular to its plane is (in Wb/m^2 (approximately))
- 1) $\pi \times 10^{-4}$ 2) $2\pi \times 10^{-4}$ 3) $\frac{\pi}{2} \times 10^{-4}$ 4) $\frac{1}{\pi} \times 10^{-4}$
40. If a current carrying solenoid is suspended freely it will
- 1) Be rotating 2) Come to rest in N-S direction
3) Vibrating like needle 4) Comes to rest after
41. A current carrying power line carries current from west to east. The direction of magnetic field at a short distance, above it, is
- 1) North to south 2) south to north
3) east to west 4) west to east
42. The displacement of a body is proportional to the cube of the time lapsed. The magnitude of acceleration is:
- 1) Increases with time 2) Decreasing with time
3) Constant 4) Zero
43. If the average velocity of a body is equal to mean of its initial velocity and final velocity, then the acceleration of the body is:
- 1) Variable 2) Zero 3) Negative 4) Uniform

44. The gravitational potential of two homogeneous spherical shells A and B of same surface density at their respective centres are in the ratio. If the two shells coalesce into single one such that surface density remains same, then the ratio of potential at an internal point of the new shell to shell A is equal to :

- 1) 3 : 2 2) 4 : 3 3) 5 : 3 4) 5 : 6

45. A massless platform is kept on a light elastic spring as shown in figure. When a sand particle of 0.1kg mass is dropped on the pan from a height of 0.24m, the particle strikes the pan and the spring compresses by 0.01m. From what height should particle be dropped to cause a compression of 0.04m?



- 1) 1.96 m 2) 2.86 m 3) 3.56 4) 3.96 m

46. How much time will be required to perform 520 J of work at the rate of 20 W?

- 1) 24s 2) 16s 3) 20 s 4) 26 s

47. Under the action of force 2kg body moves such that its position 'x' varies as a function of time t given by $x = \frac{t^3}{3}$, x is in metre and t in second. Calculate the workdone by the force in first two seconds.

- 1) 8 J 2) 16 J 3) 24 J 4) 36 J

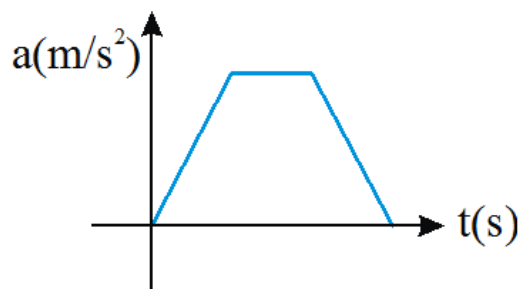
48. To hear a distinct echo each time interval between the original sound and the reflected sound must be:

- 1) 0.2 s 2) 1s 3) 2s 4) 0.1 s

49. Speed (v) abs wavelength (λ) and the frequency (ν) of sound are related as

- 1) $\lambda = v \times \nu$ 2) $\nu = \lambda \times v$ 3) $\nu = \lambda \times v$ 4) $\nu = \lambda / v$

50. For a particle moving on a straight line the variation of acceleration with time is given by the graph as shown. Initially the particle was at rest. Then the corresponding kinetic energy of the particle versus time graph will be



- 1) 2)
- 3) 4)

CHEMISTRY (Q.NO.51 TO 65)

51. A student was given four unknown solutions. The samples were labelled as A, B, C and D. The student then tested the pH of all the four solutions. He observed that the colour of the pH paper turned to light green, dark red, light orange and dark blue for samples A, B, C and D respectively. What will be the correct sequence of the pH values in increasing order for the given samples?

1) $B < C < A < D$ 2) $C < B < A < D$ 3) $A < C < B < D$ 4) $D < C < A < B$

52. The ratio of e/m for a cathode ray

1) Varies with a gas in a Discharge tube 2) Is fixed
3) varies with different electrodes 4) Is maximum if hydrogen is taken

53. Take one of the following sets, X and Y of chemicals

X

Y

- | | |
|----------------------|--------------------------------|
| (i) copper sulphate | sodium carbonate 1.25 g 1.43 g |
| (ii) barium chloride | sodium sulphate 1.22 g 1.53 g |
| (iii) lead nitrate | sodium chloride 2.07 g 1.17 g |

* Prepare separately a 5% solution of any one pair of substances listed under X and Y each in 10 mL in water.

* Take a little amount of solution of Y in a conical flask and some solution of X in an ignition tube.

* Hang the ignition tube in the flask carefully; see that the solutions do not get mixed. Put a cork on the flask (see Fig).

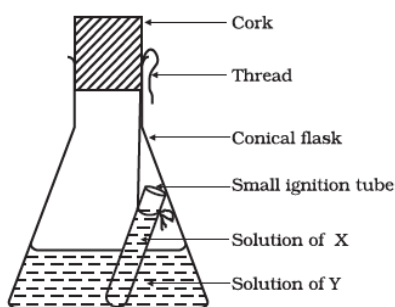


Fig. : Ignition tube containing solution of X, dipped in a conical flask containing solution of Y.

* Weigh the flask with its contents carefully.

* Now tilt and swirl the flask, so that the solutions X and Y get mixed.

* Weigh again.

* The above activity proves the following

1) law of conservation of mass

2) law of definite proportions

3) Henry's law

4) Boyle's law

54. If the weight of 44.8 litres of unknown gas is 88g at STP, then the gas might be

1) CO₂

2) NO₂

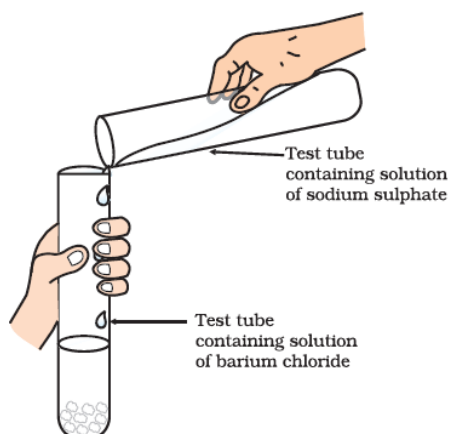
3) SO₃

4) SO₂

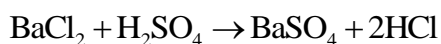
55. * Take about 3 mL of sodium sulphate solution in a test tube.

*** In another test tube, take about 3 mL of barium chloride solution.**

*** Mix the two solutions**



Colour of BaSO₄ precipitate which is formed in



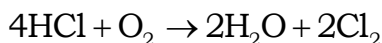
1) Red

2) Blue

3) White

4) Pink

56. How many moles of HCl are needed to form 71 g of Cl_2 in accordance with the following equation.



- 1) 4 2) 2 3) 3 4) 5

57. The compound that is not a Lewis acid is:

- 1) BF_3 2) AlCl_3 3) BeCl_2 4) NH_3

58. Acid which is used for eye wash

- 1) Boric acid 2) Nitric acid 3) Acetic acid 4) Oxalic acid

59. P^H of 0.01M HCl, If HCl is completely ionized

- 1) 10^{-2} 2) 2 3) 1 4) 3

60. Which of the following represents the correct set of four quantum number of a 6f electron ?

- 1) 6, 3, 2+1/2 2) 6,2,1,0 3) 4, 3, -2, 0 4) 6,2,1,0

61. Which of the following is the correct electronic configuration of Fe^{3+} ion?

- 1) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^4, 4s^1$ 2) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^3, 4s^2$
3) $1s^2, 2s^2, 2p^6, 3s^2, 3p^5$ 4) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^5$

62. Which one of the following are possible values of n & l for an atom having maximum value of $m = +2$

- 1) $n=4, l=-3$ 2) $n=4, l=-2$ 3) $n=4, l=2$ 4) $n=4, l=3$

63. Arrange the following metals in the increasing order of their reactivity towards water Zn, Fe, Mg, Na.

- 1) $\text{Fe} < \text{Mg} < \text{Na} < \text{Zn}$ 2) $\text{Fe} < \text{Zn} < \text{Mg} < \text{Na}$ 3) $\text{Mg} < \text{Fe} < \text{Na} < \text{Zn}$ 4) $\text{Na} < \text{Fe} < \text{Mg} < \text{Zn}$

64. Exothermic reaction among the following

- 1) $\text{Cr}_2\text{O}_3 + 2\text{Al} \rightarrow 2\text{Cr} + \text{Al}_2\text{O}_3$ 2) $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$
3) $3\text{Mn}_3\text{O}_4 + 8\text{Al} \rightarrow 4\text{Al}_2\text{O}_3 + 9\text{Mn}$ 4) All

65. Which one of the following reaction is an example for calcination process?

- 1) $2\text{Ag} + 2\text{HCl} + [\text{O}] \rightarrow 2\text{AgCl} + \text{H}_2\text{O}$
2) $2\text{Zn} + \text{O}_2 \rightarrow 2\text{ZnO}$
3) $2\text{ZnS} + 3\text{O}_2 \rightarrow 2\text{ZnO} + 2\text{SO}_2$
4) $\text{MgCO}_3 \rightarrow \text{MgO} + \text{CO}_2$

- 73. Which of the following is the correct path of urine in our body?**
- 1) Kidney - Ureter - Urethra - Bladder
 - 2) Kidney - Bladder- Urethra - Ureter
 - 3) Kidney - Ureter - Bladder - Urethra
 - 4) Bladder - Kidney Ureter - Urethra
- 74. When a man inhales air containing normal concentration of O₂ as well as CO he suffers from suffocation because**
- 1) CO reacts with O₂ reducing its percentage in air
 - 2) Hemoglobin combines with CO instead of O₂ and forms carboxyhaemoglobin
 - 3) CO affects diaphragm and intercostal muscles
 - 4) CO affects the nerves of the lungs.
- 75. In aerobic respiration, total number of ATP molecules formed from 1 glucose molecule is**
- 1) 28
 - 2) 32
 - 3) 36
 - 4) 30
- 76. Match the Column-A with Column-B**
- | Column-A | Column-B |
|-------------------------------|--------------------------------|
| a. Smog | i) Flouro carbons |
| b. Clouds | ii) Marine animals make shells |
| c. Aerosols | iii) Condensation |
| d. Fixation of Carbon dioxide | iv) Smoke and Fog |
| | v) Snow and Fog |
- 1) a-v; b-i; c-iv; d-ii
 - 2) a-iv; b-i; c-ii; d-iii
 - 3) a-v; b-ii; c-iii; d-iv
 - 4) a-iv; b-iii; c-i; d-ii
- 77. Which of the following helps in ascent of sap?**
- 1) Root pressure
 - 2) transpiration
 - 3) capillarity
 - 4) all of these
- 78. The first heart sound 'lubb'**
- 1) Marks the beginning of ventricular systole
 - 2) Marks the end of ventricular systole
 - 3) is due to closure of atrio ventricular valves
 - 4) is produced by the closure of semi lunar valves
- 79. Liver is damaged by the ___ i ___ in the disease ___ ii ___.**
- 1) i-bacteria, ii- pneumonia
 - 2) i- bacteria, ii- jaundice
 - 3) i- Virus, ii- Pneumonia
 - 4) i- Virus, ii- jaundice
- 80. Which step is not involved in the carbon cycle ?**
- 1) Photosynthesis
 - 2) Transpiration
 - 3) Respiration
 - 4) Burning of fossil fuels