



--	--	--	--	--	--	--	--

# ASAT

SET  
B

(ALLEN Scholarship Cum Admission Test)  
(Session : 2024-25)  
For

**ALLEN UAE : NURTURE & CAREER FOUNDATION : (CLASS XI)**

Time : 2 Hrs.

(For X to XI Moving Students)

Maximum Marks : 320

Please read the instruction carefully. You are allotted 5 minutes specially for this purpose

Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these then keep them at a place specified by invigilator at your own risk

## INSTRUCTION

1. This booklet is your Question Paper. **DO NOT** open the Booklet until the invigilator instructs to do so.
2. Fill your Form No. in the space provided on the top of this page.
3. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black & blue ball point pen.
4. Total Questions to be Attempted 80. Part-I : 20 Questions & Part-II : 60 Questions.
5. After opening the Question Paper, check the following:
  - a. There are **15 pages** in the booklet containing question no. **1 to 100 under 2 Parts i.e. Part-I & Part-II.**
  - b. Part-I contains total 20 questions of IQ (Mental Ability).
  - c. Part-II contains total 80 questions under 4 sections which are –  
Section (A): Physics, Section (B): Chemistry, Section (C): Mathematics & Section (D): Biology.  
**\*Important :** \*For Engineering Stream attempt Only Part-I and Part-II [Section-A (Physics), Section-B (Chemistry) & Section-C (Mathematics)].  
\*For Medical Stream attempt Only Part-I and Part-II [Section-A (Physics), Section-B (Chemistry) & Section-D (Biology)].
6. Marking Scheme:
  - a. If darkened bubble is RIGHT answer: **4 Marks.**
  - b. If no bubble is darkened in any question: **No Mark.**
  - c. **Only for part - II:** If darkened bubble is WRONG answer: **-1 Mark (Minus One Mark).**
7. Think wisely before darkening bubble as there is negative marking for wrong answer.
8. If you are found involved in cheating or disturbing others then your ORS will be cancelled.
9. Do not put any stain on ORS and hand it over back properly to the invigilator.

**Note : Return This Test Paper**

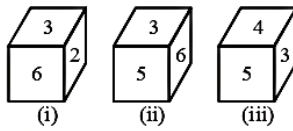


**PART - I**  
**IQ (MENTAL ABILITY)**

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. Q's mother is sister of P and daughter of M. S is daughter of P and sister of T. How is M related to T?  
 (1) Father (2) Grandfather  
 (3) Grandmother (4) Grandfather or grandmother

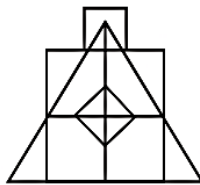
2. Three positions of the same dice has been shown in the figure. What digit will be on the top if digit 2 is on the bottom?



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

3. Village Chimur is 20 km to the North of village Rewa. Village Rahate is 18 km to the East of village Rewa. Village Angne is 12 km to the West of Chimur. If Sanjay starts from village Rahate and goes to village Angne, in which direction is he from his starting point?  
 (1) North (2) North-West (3) South (4) South-East

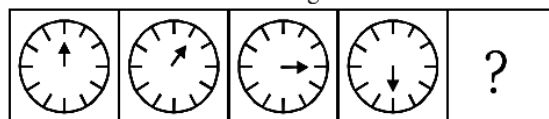
4. Count the number of triangles and squares in the given figure.



- (1) 21 triangles, 7 squares (2) 18 triangles, 8 squares  
 (3) 20 triangles, 8 squares (4) 22 triangles, 7 squares

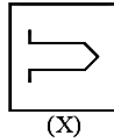
5. Select a figure from amongst the options which will continue the series established by Problem Figures.

Problem Figure

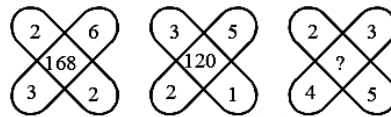


- (1) (2) (3) (4)

6. If the 3<sup>rd</sup> of the month falls on Thursday. What day will be fourth after 22<sup>nd</sup> of the month?  
 (1) Saturday (2) Tuesday (3) Thursday (4) Sunday
7. Sarita is on 11<sup>th</sup> place from upwards in a group of 45 girls. If we start counting from downwards, what will be her place?  
 (1) 36<sup>th</sup> (2) 34<sup>th</sup> (3) 35<sup>th</sup> (4) Cannot be determined
8. You are given a fig. (X) followed by four alternative figures (1), (2), (3) and (4) such that fig. (X) is embedded in one of them. Trace out the alternative figure which contains fig. (X) as its part.



9. A watch showed 5 past 5 o'clock on Wednesday evening when the correct time was 5:00 PM. It loses uniformly, and was 5 min slow after two days at 7:00 PM. When did the watch show the correct time?  
 (1) Thursday 6:00 AM (2) Thursday 6:00 PM (3) Thursday 6:30 PM (4) Thursday 5:00 AM
10. Find the missing character in the following question.



- (1) 84 (2) 195 (3) 240 (4) None of these

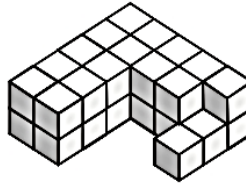
11. Which figure in the options completes the second pair in a similar way as the first pair?



12. Study the following informaton and answer the questions given below.  
 (i) 'P = Q' means 'Q is the father of P'. (ii) 'P \* Q' means 'P is the sister of Q'.  
 (iii) 'P ? Q' means 'Q is the mother of P'. (iv) 'P \$ Q' means 'P is the brother of Q'.  
 (v) 'P ξ Q' means 'P is the son of Q'. (vi) 'P × Q' means 'P is the daughter of Q'.  
 Which of the following indicates 'A' is the grandfather of B?  
 (1)  $M \times A = N \times B$  (2)  $B \$ L \times Q \times A$  (3)  $B \times L \times A \$ M$  (4)  $L * B = S \$ Q = A$

13. Shrikant is shorter than Nilima, Pratima is taller than Shrikant, Subhash is taller than Nilima but shorter than Heramb. Nilima is taller than Pratima.  
 Who will be in the middle if they stand in a row according to height?  
 (1) Pratima (2) Heramb (3) Shrikant (4) Nilima

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



- (1) 32                      (2) 42                      (3) 30                      (4) 28

15. P, Q, R, S, T, and U are sitting in a row facing north. Q and T are at the center. S and P are at two ends. R is between T and P. Who is to the left of S?

- (1) P                      (2) R                      (3) T                      (4) U

16. How will you code ACCOMMODATE if S and V are coded as 8 and 5 respectively?

- (1) 26-24-24-12-14-14-23-22-26-7-21                      (2) 26-24-24-12-14-14-12-23-26-7-22  
(3) 2-25-25-12-14-14-23-26-22-21-7                      (4) 26-24-12-14-14-23-21-26-22-12-7-21

17. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

**Statements :** All buildings are chalks. No chalk is toffee.

**Conclusions :** 1. No building is toffee                      2. All chalks are buildings.

**Give answer :**

- (1) If only (1) conclusion follows                      (2) If only (2) conclusion follows  
(3) If either (1) or (2) follows                      (4) If neither (1) nor (2) follows

18. If '×' stands for 'addition', '<' for 'subtraction', '+' for 'division', '>' for 'multiplication', '=' for 'equal to', '÷' for 'greater than' and '≠' for 'less than', then state which of the following is true?

- (1)  $3 \times 4 > 2 - 9 + 3 < 3$                       (2)  $5 \times 3 < 7 \div 8 + 4 \times 1$   
(3)  $5 > 2 + 2 = 10 < 4 \times 8$                       (4)  $3 \times 2 < 4 \div 16 > 2 + 4$

19. When the time by the watch is 20 minutes past 7, the angle between the hands of the watch is?

- (1) 100°                      (2) 90°                      (3) 80°                      (4) 95°

20. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

**Statements :** All stones are water. Some water are clean.

**Conclusions :** 1. Some stones are clean.                      2. No stone is clean.

**Give answer :**

- (1) If only (1) conclusion follows                      (2) If only (2) conclusion follows  
(3) If either (1) or (2) follows                      (4) If neither (1) nor (2) follows

**PART-II**  
**SECTION-A : PHYSICS**

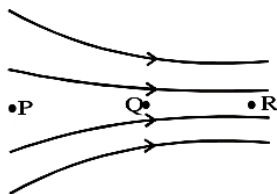
---

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

---

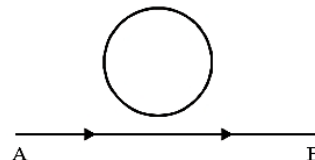
- 21.** The heating element of an electric heater should be made with material which has
- (1) high specific resistance and high melting point.
  - (2) high specific resistance and low melting point.
  - (3) low specific resistance and low melting point.
  - (4) low specific resistance and high melting point.
- 22.** Direction of induced emf is determined by
- |                              |                                |
|------------------------------|--------------------------------|
| (1) Fleming's left hand rule | (2) Fleming's right hand rule  |
| (3) Maxwell's rule           | (4) Ampere's rule of swimming. |
- 23.** Newton's law of gravitation is valid
- |                              |                                |
|------------------------------|--------------------------------|
| (1) in laboratory only       | (2) only on the Earth          |
| (3) only in our solar system | (4) everywhere in the universe |
- 24.** The magnetic lines of forces inside a bar magnet
- (1) are from north pole to south pole of the magnet
  - (2) do not exist
  - (3) depend upon the area of cross-section of bar magnet
  - (4) are from south pole to north pole of the magnet
- 25.** A bird sitting on a high voltage live wire does not get an electric shock, because
- (1) The wire is very high above the ground.
  - (2) Bird's body acts as an insulator.
  - (3) Bird's body can tolerate the electric shock.
  - (4) Bird's feet are at same potential so no current flows through the bird's body.
- 26.** A positively charged particle is moving in a uniform magnetic field with the initial velocity of the particle perpendicular to the field. The path followed by the charged particle is
- |                 |                   |                    |                     |
|-----------------|-------------------|--------------------|---------------------|
| (1) Linear path | (2) Circular path | (3) Parabolic path | (4) Elliptical path |
|-----------------|-------------------|--------------------|---------------------|
- 27.** The muscles of the iris, control the
- |                                   |                          |
|-----------------------------------|--------------------------|
| (1) focal length of the eye-lens  | (2) opening of the pupil |
| (3) shape of the crystalline lens | (4) optic nerve          |
- 28.** When the branch of a tree is shaken, the ripe fruits get detached from the branch. This is an example of
- |                     |                       |                          |              |
|---------------------|-----------------------|--------------------------|--------------|
| (1) Inertia of rest | (2) Inertia of motion | (3) Inertia of direction | (4) Friction |
|---------------------|-----------------------|--------------------------|--------------|

29. Arrange the points P, Q, R in the decreasing order of the magnetic field strengths at these points according to the given figure.



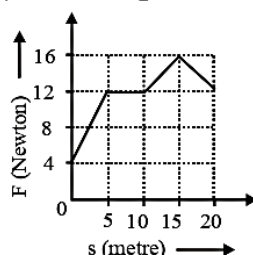
- (1)  $P > Q > R$       (2)  $R > Q > P$       (3)  $Q > P = R$       (4)  $P = Q = R$
30. In an electric circuit, ammeter is always connected in
- (1) Series
  - (2) Parallel
  - (3) Either way
  - (4) Series or parallel depending on the nature of the circuit.
31. Magnetic field lines determine
- (1) The shape of the magnetic field
  - (2) Only the direction of the magnetic field
  - (3) Only the relative strength of the magnetic field
  - (4) Both the direction and the relative strength of the magnetic field
32. Choose the correct option. A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each
- (1) two revolutions
  - (2) one revolution
  - (3) half revolution
  - (4) one-fourth revolution
33. Which of these will never get deflected when moving in a uniform magnetic field ?
- (1) Electron beam
  - (2)  $\alpha$ -rays
  - (3)  $\beta$ -rays
  - (4) Gamma rays
34. The density of a newly discovered planet is twice that of earth. The acceleration due to gravity at the surface of the planet is equal to that at the surface of the earth. If the radius of earth is R, the radius of planet would be
- (1)  $\frac{R}{4}$
  - (2)  $\frac{R}{2}$
  - (3)  $2R$
  - (4)  $4R$
35. Which statement is true about the image produced by a plane mirror?
- (1) It appears to be located on the same side of the mirror as the object.
  - (2) It appears to be larger than the object.
  - (3) It appears to be inverted relative to the object.
  - (4) It appears to have reversed left and right, relative to the object.

36. An electron moves along the line AB, which lies in the same plane as a circular loop of conducting wire as shown in the diagram. What will be the direction of current induced if any, in the loop?
- (1) No current will be induced  
 (2) The current will be clockwise  
 (3) The current will be anticlockwise  
 (4) The current will change direction as the electron pass by



37. For a conductor following Ohm's law, resistance is the constant of proportionality for
- (1) potential difference and length  
 (2) current and length  
 (3) current and cross-sectional area  
 (4) current and potential difference

38. Figure shows the frictional force versus displacement for a particle in motion. The loss of kinetic energy (work done against friction) in travelling over  $s = 0$  to  $s = 20$  m will be



- (1) 80 J                      (2) 160 J                      (3) 240 J                      (4) 24 J
39. Which describes the image produced by a concave lens?
- (1) diminished and real                      (2) enlarged and real  
 (3) diminished and virtual                      (4) enlarged and virtual
40. Hydroelectric dams can generate electricity because the dammed water used to turn the turbines has high
- (1) electrical energy                      (2) electromagnetic energy  
 (3) chemical potential energy                      (4) gravitational potential energy

**SECTION-B : CHEMISTRY**

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

41. Ammonium hydroxide is a weak base because
- (1) it has low vapour pressure.                      (2) it is only slightly ionized in aqueous solution.  
 (3) it is not a hydroxide of any metal.                      (4) it has low density.
42. Which of the following pair of elements do not belong to the same group ?
- (1) F, I                      (2) Li, Be                      (3) N, P                      (4) Mg, Ca
43. Which of the following has same number of electrons (isoelectronic) ?
- (1) H, He<sup>+</sup>                      (2) Na, Mg<sup>2+</sup>                      (3) Cl<sup>-</sup>, Ne                      (4) Li, Be<sup>+</sup>

- 44.** One of the most common solvent used for crystallisation is  
 (1) water (2) syrup (3) normal saline (4) sulphuric acid
- 45.** Colour of hydrated copper sulphate is  
 (1) green (2) blue (3) white (4) colourless
- 46.** Which of the following equations is representing combination of two compounds?  
 (1)  $\text{CaO} + \text{CO}_2 \longrightarrow \text{CaCO}_3$  (2)  $\text{CO} + \frac{1}{2} \text{O}_2 \longrightarrow \text{CO}_2$   
 (3)  $\text{SO}_2 + \frac{1}{2} \text{O}_2 \longrightarrow \text{SO}_3$  (4)  $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow 2\text{NaOH} + \text{H}_2$
- 47.** Which of the following statement(s) is / are incorrect for anode rays ?  
 (1) They are deflected by electric and magnetic fields.  
 (2) Their charge/mass ratio depends upon the gas taken in the discharge tube.  
 (3) They are produced by ionisation of the gas in the discharge tube.  
 (4) The charge/mass ratio of particles in anode rays is constant.
- 48.** In electrolytic reduction of sodium chloride, the reaction which occurs at anode is  
 (1)  $\text{Cl}^- \longrightarrow \frac{1}{2} \text{Cl}_2 + e^-$  (2)  $\text{NaCl} \longrightarrow \text{Na}^+ + \text{Cl}^-$   
 (3)  $\text{Na}^+ + e^- \longrightarrow \text{Na}$  (4)  $\text{Na}^+(\text{aq}) + e^- \longrightarrow \text{Na}(\text{s})$
- 49.** On electrolysis of solution of sodium chloride, which substance will be observed at cathode?  
 (1)  $\text{H}_2$  gas (2)  $\text{Cl}_2$  gas (3)  $\text{O}_2$  gas (4) None of these
- 50.** Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?  
 (i) Displacement reaction (ii) Precipitation reaction  
 (iii) Combination reaction (iv) Double displacement reaction  
 (1) (i) only (2) (ii) only (3) (iv) only (4) (ii) and (iv)
- 51.** A metal 'M' belongs to group 13, the formula of its chloride will be  
 (1)  $\text{MCl}$  (2)  $\text{M}_3\text{Cl}_2$  (3)  $\text{M}_2\text{Cl}_3$  (4)  $\text{MCl}_3$
- 52.** Mass of one atom of oxygen is  
 (1)  $\frac{16}{6.022 \times 10^{23}}$  gm (2)  $\frac{32}{6.022 \times 10^{23}}$  gm (3)  $\frac{1}{6.022 \times 10^{23}}$  gm (4) 8u
- 53.** Froth floatation method can be used to enrich \_\_\_\_\_ ore.  
 (1) Limestone (2) Zinc blend (3) Magnetite (4) Fluorspar



54. Which of these will cause a chemical change to occur?  
 (1) Grinding of wheat into flour. (2) Lighting of a gas stove.  
 (3) Evaporation of water from a lake. (4) Ringing of an electric bell.
55. Alpha particles deflected when they approached the nucleus very close, because  
 (1) nucleus contains negatively charged particles  
 (2) nucleus contains positively charged particles  
 (3) nucleus contains neutral charged particles  
 (4) all of these
56. When carbon dioxide gas is passed through lime water  
 (1) calcium hydroxide is formed. (2) white precipitate of CaO is formed.  
 (3) white precipitate of  $\text{CaCO}_3$  is formed. (4) colour of lime water disappears.
57. The mixture of manganese dioxide and aluminium when heated produces manganese and alumina. The manganese produced is in the \_\_\_\_\_ state.  
 (1) aqueous (2) molten (3) solid (4) gaseous
58. (a)  $\text{AgNO}_3(\text{aq}) + \text{Cu}(\text{s}) \longrightarrow \text{CuNO}_3(\text{aq}) + \text{Ag}(\text{s})$   
 (b)  $\text{CuSO}_4(\text{aq}) + \text{Fe}(\text{s}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$   
 (c)  $\text{FeO}_4(\text{aq}) + \text{Zn}(\text{s}) \longrightarrow \text{ZnSO}_4(\text{aq}) + \text{Fe}(\text{s})$   
 The most reactive among these metals is  
 (1) Zn (2) Ag (3) Cu (4) Fe
59. Newland gave the idea of reoccurrence of properties after every  
 (1) 8<sup>th</sup> element (2) 7<sup>th</sup> element (3) 6<sup>th</sup> element (4) None of these
60. Ethanol on reaction with alkaline potassium permanganate yields  
 (1) ethanal (2) ethane (3) ethanoic acid (4) none of these

## **Attempt any one of the section C or D**

### **SECTION-C : MATHEMATICS**

#### **FOR ADMISSION IN ENGINEERING STREAM**

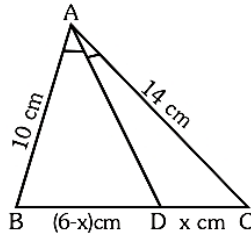
This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

61. D, E and F are the mid-points of side AB, BC and CA respectively of  $\Delta ABC$ . The ratio of the areas of  $\Delta EFD$  and  $\Delta ABC$  is  
 (1) 1 : 2 (2) 4 : 1 (3) 3 : 4 (4) 1 : 4
62. In an A.P., the sum of first n terms is  $\frac{3n^2}{2} + \frac{5n}{2}$ . Find its 25th term.  
 (1) 74 (2) 75 (3) 76 (4) 77

63. The value of  $\sin^2 5^\circ + \sin^2 10^\circ + \sin^2 15^\circ + \frac{1}{4} + \sin^2 85^\circ + \sin^2 90^\circ$  is  
 (1) 7.5 (2) 8.5 (3) 9.5 (4) 10.5
64. A metallic sphere of radius 10.5 cm is melted and then recast into small cones each of radius 3.5 cm and height 3cm. The number of such cones is  
 (1) 63 (2) 126 (3) 21 (4) 130
65. If  $\sec \theta + \tan \theta = x$  then possible value of  $\sin \theta$   
 (1)  $\frac{1}{2} \left( x + \frac{1}{x} \right)$  (2)  $\frac{1}{2} \left( x - \frac{1}{x} \right)$   
 (3)  $\frac{x^2 - 1}{x^2 + 1}$  (4) Can't be determined
66. Six years hence, a man's age will be three times the age of his son and three years ago, he was nine times as old as his son. Find their present ages.  
 (1) 20 yr, 4 yr (2) 30 yr, 6 yr (3) 60 yr, 12 yr (4) None of these
67. If one root of a quadratic equation is  $\frac{1}{\sqrt{4} - \sqrt{3}}$ , then the quadratic equation can be  
 (1)  $x^2 - 2\sqrt{4}x + 1 = 0$  (2)  $x^2 - \sqrt{4}x + 1 = 0$  (3)  $x^2 + 2\sqrt{4}x + 1 = 0$  (4)  $x^2 - 2\sqrt{3}x + 1 = 0$
68. If the mean of  $x$  and  $1/x$  is  $M$ , the mean of  $x^3$  and  $1/x^3$  is  
 (1)  $M = \frac{(M^2 - 3)}{2}$  (2)  $M(4M^2 - 3)$  (3)  $M^3$  (4)  $M^3 + 3$
69. The number  $3^{13} - 3^{10}$  is divisible by  
 (1) 2 and 3 (2) 3 and 10 (3) 2, 3 and 10 (4) 2, 3 and 13
70. The area of an isosceles triangle having base 24 cm and each of the equal sides equal to 13 cm is  
 (1)  $60 \text{ cm}^2$  (2)  $80 \text{ cm}^2$  (3)  $62 \text{ cm}^2$  (4)  $82 \text{ cm}^2$
71. A sphere, a cylinder and a cone are of the same height and same radius then the ratio of their curved surfaces is  
 (1)  $4 : \sqrt{5} : 4$  (2)  $\sqrt{5} : 4 : 4$  (3)  $4 : 4 : \sqrt{5}$  (4) None of these
72. If  $\alpha, \beta$  are zeroes of  $f(x) = bx^2 + 2x + 3b$  and  $\alpha + \beta = \alpha\beta$ , then  $b =$   
 (1)  $\frac{1}{3}$  (2)  $-\frac{1}{3}$  (3)  $\frac{2}{3}$  (4)  $-\frac{2}{3}$

73. Two complementary angles are such that twice the measure of the one is equal to three times the measures of the other. The larger of the two measures  
 (1)  $72^\circ$  (2)  $54^\circ$  (3)  $63^\circ$  (4)  $36^\circ$

74. In a  $\triangle ABC$ , it is given that AD is the internal bisector of  $\angle A$ . If  $AB = 10$  cm,  $AC = 14$  cm and  $BC = 6$ cm, then  $CD = ?$



- (1) 4.8 cm (2) 3.5 cm (3) 7 cm (4) 10.5 cm

75. The product of the zeroes of the polynomial  $ax^2 + bx + c$  is 6 and that of  $bx^2 + cx + a$  is 8, what is the product of the zeroes of  $cx^2 + ax + b$

- (1)  $\frac{1}{42}$  (2)  $\frac{1}{46}$  (3)  $\frac{1}{48}$  (4)  $\frac{1}{50}$

76. The value of  $\theta$  satisfying  $6\sin^2\theta - 5\cos\theta = 2$  is

- (1)  $\theta = 90^\circ$  (2)  $\theta = 60^\circ$  (3)  $\theta = 45^\circ$  (4)  $\theta = 30^\circ$

77. The 2 digit number which becomes  $(5/6)$ th of itself when its digits are reversed. The difference in the digits of the number being 1 is

- (1) 45 (2) 54 (3) 36 (4) None of these

78. The value of  $\frac{\cos^4 x + \cos^2 x \sin^2 x + \sin^2 x}{\cos^2 x + \sin^2 x \cos^2 x + \sin^4 x}$  is

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

79. A cubic polynomial with sum, sum of product of its zeros taken two at a time, and product of its zeros as 3,  $-1$  and  $-3$  respectively is

- (1)  $k(x^3 - x^2 + 3)$  (2)  $k(x^3 - 3x^2 - x + 3)$   
 (3)  $k(x^3 + 3x^2 + x + 3)$  (4) None of these

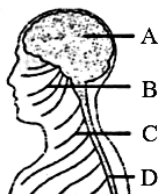
80. The value of  $x$ , for which the polynomials  $x^2 - 1$  and  $x^2 - 2x + 1$  vanish simultaneously, is

- (1) 2 (2)  $-2$  (3)  $-1$  (4) 1

**SECTION-D : BIOLOGY**  
**FOR ADMISSION IN MEDICAL STREAM**

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

**81.** In the accompanying diagram of a part of the human body, the structures belonging to the central nervous system are labelled as



- (1) A and C                      (2) B and C                      (3) A and D                      (4) C and D

**82.** Which set is mixed with the food in small intestine?

- (1) Saliva, gastric juice, bile                      (2) Gastric juice, bile, pancreatic juice  
(3) Bile, pancreatic juice, intestinal juice                      (4) Bile, pancreatic juice, saliva

**83.** The egg laying poultry birds are called \_\_ (i) \_\_ while the one reared for obtaining meat is called \_\_ (ii) \_\_.

	(i)	(ii)
(1)	Broilers	Layers
(2)	Egger	Fries
(3)	Layers	Broilers
(4)	Layers	Fries

**84.** Which of the following is not an external factor influencing photosynthesis?

- (1) CO<sub>2</sub> concentration                      (2) O<sub>2</sub> concentration  
(3) Availability of H<sub>2</sub>O                      (4) Chlorophyll concentration

**85.** Tube like structures extending between the kidneys and urinary bladder are

- (1) Ureters                      (2) Collecting duct  
(3) Urethra                      (4) Oesophagus

**86.** Example of greenhouse gas is

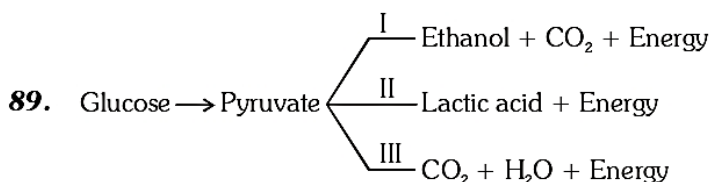
- (1) CO<sub>2</sub>                      (2) Methane                      (3) Hydrogen                      (4) Both (1) & (2)

**87.** An example of homologous organs is

- (1) our arm and a dog's fore leg                      (2) our teeth and an elephant's tusks  
(3) potato and runners of grass                      (4) all of the above

**88.** If green plant cells are incubated with O<sup>18</sup> - labelled water, which of the following molecule with become radioactive when the cells are exposed to light ?

- (1) O<sub>2</sub>                      (2) CO<sub>2</sub>                      (3) H<sub>2</sub>O                      (4) Sugar



The above flow chart shows the three steps of glucose breakdown in different conditions. Which of the given steps is responsible for muscle cramps?

- (1) Step I                      (2) Step II                      (3) Step III                      (4) Both (1) & (2)

90. Read the following statements about the transmission of nerve impulse and select the correct ones.

(i) In a neuron, nerve impulse travels from the axonal end to the dendritic end as:

Axonal end  $\rightarrow$  Axon  $\rightarrow$  Cell body  $\rightarrow$  Dendritic end.

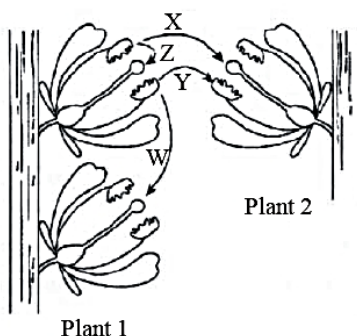
(ii) The chemicals released from the axonal end of one neuron cross the synapse and generate a similar electrical impulse in the dendrite of another neuron.

(iii) A neuron transmits the nerve impulses not only to another neuron but also to the muscle cells and gland cells.

(iv) The neurotransmitter released at the post-synaptic membrane, diffuses across the synapse and comes into contact with the chemoreceptor sites in the pre-synaptic membrane.

- (1) (i) and (ii) only                      (2) (ii) and (iii) only  
(3) (iii) and (iv) only                      (4) (i) and (iv) only

91. The diagram below shows two plants of the same species. Refer to the diagram to answer the following questions.



(i) Which arrow indicates a process that would not lead to sexual reproduction?

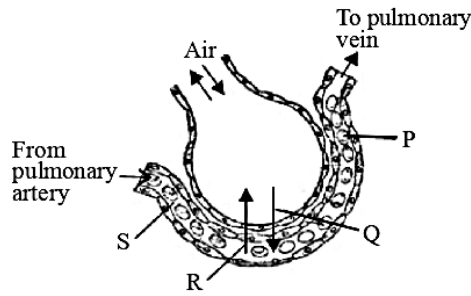
(ii) Which arrow represents self pollination ?

- (1) (i)-Y, (ii)-Z                      (2) (i)-Z, (ii)-X                      (3) (i)-Y, (ii)-X                      (4) (i)-X, (ii)-Y

92. Lymph does not have

- (1) Plasma                      (2) RBC                      (3) White blood cells                      (4) All of the above

93. The diagrammatic section given below shows exchange of gases between an alveolus and a pulmonary blood capillary.



Identify the labels (P, Q, R and S) and select the incorrect option regarding this.

- (1) P - Contain a red pigment (2) Q - O<sub>2</sub> diffuses from the alveoli to the blood  
 (3) R - O<sub>2</sub> diffuses from the blood to the alveoli (4) S - Blood with high CO<sub>2</sub> content
94. Which of the following sets of animals produce the same substance as their chief excretory product?  
 (1) Camel, housefly and fish (2) Fish, pigeon and frog  
 (3) Amoeba, ant and cow (4) Frog, monkey and dog
95. The female gametophyte of a typical dicot at the time of fertilization is  
 (1) 8-celled (2) 7-celled (3) 6-celled (4) 5-celled
96. Which of the following statements is incorrect?  
 (1) Walls of the arteries are elastic, enabling them to stretch and contract with changes in blood pressure.  
 (2) Blood pressure in the veins is normally too low for blood to return to the heart without the action of skeletal muscles.  
 (3) Capillaries lack muscular wall and is lined by simple squamous epithelium.  
 (4) Arteries have wider lumen than veins
97. Fruits are not formed in gymnospermous plants because  
 (1) they are not pollinated (2) they are seedless plants  
 (3) process of fertilisation does not take place (4) they have no ovary
98. Refer the given experimental set-up in which a ring of bark along with the phloem is removed from the stem and select the incorrect statement regarding this.



- (1) Swelling of the stem occurs above the ring due to accumulation of nutrients.  
 (2) Downward translocation of food is blocked.  
 (3) Roots are starved and killed first due to non-availability of food.  
 (4) The experiment demonstrates that phloem is responsible for upward conduction of water and minerals.

**99.** Gambusia is a fish which is being introduced into the ponds in order to check the vector borne diseases such as

- (1) dengue                      (2) malaria                      (3) chikungunya                      (4) all of these

**100.** During ventricular systole

- (1) oxygenated blood is pumped into the pulmonary artery and deoxygenated blood is pumped into the aorta.  
(2) oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary vein  
(3) oxygenated blood is pumped into the pulmonary vein and deoxygenated blood is pumped into the pulmonary artery  
(4) oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary artery.

Space for rough work