



# Monthly Progressive Test

Class: XI

Subject: PCMB



Test Booklet No.: MPT09

Test Date: 

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Time: 120 mins

Full Marks: 200

## Important Instructions :

1. The Test is of 120 mins duration and the Test Booklet contains 100 multiple choice questions of single correct option only. There are four sections with four subjects. You have to attempt all 100 questions (Candidates are advised to read all 100 questions). Questions 1 to 25 contain Physics, Questions 26 to 50 contain Chemistry, Questions 51 to 75 contain Mathematics, Questions 76 to 100 contain Biology.
2. Each question carries 2 marks. For each correct response, the candidate will get 2 marks. There is no negative mark for wrong response. The maximum mark is 200.
3. Use Blue / Black Ball point Pen only for writing particulars marking responses on Answer Sheet.
4. Rough work is to be done in the space provided for this purpose in the Test Booklet only.
5. On completion of the test, the candidate must handover the Answer Sheet to the invigilator before leaving the Room / Hall. The candidates are allowed to take away this Test Booklet with them.
6. The CODE for this Booklet is Off Line MPT09 20012025.
7. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your UID No. anywhere else except in the specified space. Use of white fluid for correction is NOT permissible on the Answer Sheet. **Do not scibble or write on or beyond discrete bars of OMR Sheet at both sides.**
8. Each candidate must show on-demand his/her Registration document to the Invigilator.
9. No candidate, without special permission of the Centre Superintendent or Invigilator, would leave his/her seat.
10. Use of Electronic Calculator/Cellphone is prohibited.
11. The candidates are governed by all Rules and Regulations of the examination with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of this examination.
12. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
13. There is no scope for altering response mark in Answer Sheet.

**Space For Rough Works**



## Physics

1. If at absolute temperature  $T$ , total energy of one mole gas is  $E$ , where  $f$  is degree of freedom of gas, then  $E =$ 

(A)  $\frac{fRT}{2}$                       (B)  $\frac{RT}{2}$                       (C)  $fRT$                       (D)  $2fRT$
2. Amount of heat needed to increase temperature of  $n$  mole gas by  $dT$  at constant pressure  $dQ =$ 

(A)  $nC_v dT$                       (B)  $nC_p dT$                       (C)  $nr dT$                       (D)  $nRT$
3. Degree of freedom of  $\text{CO}_2$  gas is
 

(A) 3                      (B) 2                      (C) 5                      (D) 7
4.  $r \left( = \frac{C_p}{C_v} \text{ ratio} \right)$  for triatomic (non-linear like  $\text{O}_3$ )
 

(A)  $\frac{5}{3}$                       (B)  $\frac{9}{7}$                       (C)  $\frac{9}{7}$                       (D)  $\frac{4}{3}$
5. When 1 mole of mono atomic He is mixed with 1 mole of diatomic  $\text{O}_2$  gas, then specific heat of the mixture at constant pressure will be
 

(A)  $3R$                       (B)  $R$                       (C)  $R/2$                       (D)  $4R$

### Assertion and Reason:

**Directions:** Read the following questions and choose any one of the following four responses.

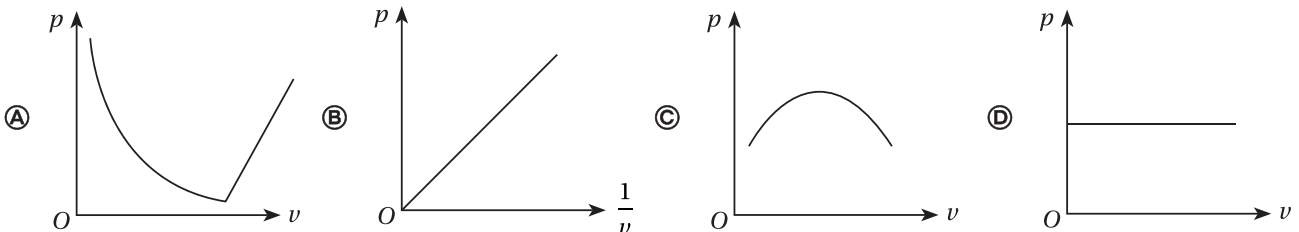
- A: Assertion and Reason both are correct and Reason is the correct explanation of Assertion.  
 B: Assertion and Reason both are correct and Reason is not the correct explanation of Assertion.  
 C: Assertion is correct but Reason is wrong.  
 D: Assertion is wrong but Reason is correct.

6. **Assertion (A):** The ratio  $\frac{C_v}{C_p}$  for a mono atomic gas is more than for a diatomic gas.

**Reason (R):** The degree of freedom of a mono atomic gas is less than for a diatomic gas.

- (A) A                      (B) B                      (C) C                      (D) D

7. At constant temperature, for ideal gas, select the correct option.

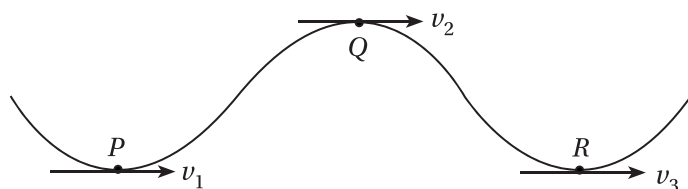


8. The pressure of an ideal gas is written as  $p = \frac{2E}{3v}$ . Here  $E$  refers to

- (A) Translational kinetic energy                      (B) Rotational kinetic energy  
 (C) Vibrational kinetic energy                      (D) Total energy

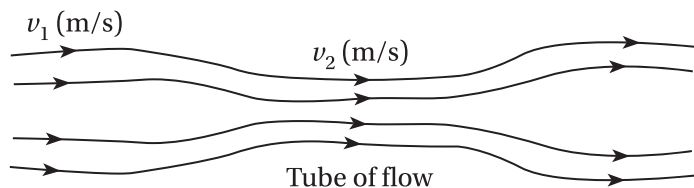
9. The velocities of ten particles in  $\text{ms}^{-1}$  are 0, 1, 2, 3, 4, 4, 4, 5, 5, 9, then most probable speed is (m/s)  
 (A) 3 (B) 4 (C) 5 (D) 9
10. The internal energy for 2 mole of a gas at  $T$  (Kelvin) is  
 (A)  $fRT$  (B)  $2C_vT$   
 (C) Both (A) & (B) are correct (D) None of these
11. The time period of S.H.M is 2 s and 5 cm is the maximum distance of extreme position of particle. At the starting of motion, the particle is at the maximum displacement in right side from equilibrium position. Then  
 (A)  $y = 5\sin\pi t$  (B)  $y = 5\cos\pi t$   
 (C)  $y = 5\cos 2\pi t$  (D)  $y = 5\sin 2\pi t$
12. If equation of displacement of a particle is  $y = A\sin PT + B\cos PT$  (where  $T$  in s), then motion of particle is  
 (A) simple harmonic motion (B) non linear motion  
 (C) uniform circular motion (D) projectile motion
13. Amplitude of SHM is  $a$ , when the velocity of particle is half of maximum velocity, then position of the particle will be  
 (A)  $a$  (B)  $\frac{\sqrt{3}}{2}a$  (C)  $\frac{\sqrt{3}}{2}a$  (D)  $\frac{3}{\sqrt{2}}a$
14. The graph between displacement and velocity ( $\omega \neq 1$ ) in SHM is  
 (A) Circle (B) Parabolic (C) Straight line (D) Ellipse
15. The slope of the graph between acceleration (along  $y$ -axis) and displacement (plotting along  $x$ -axis) is  
 (A)  $\omega$  (B)  $\omega^2$  (C)  $-\omega$  (D)  $(-\omega^2)$
16. If frequency of SHM is  $f$ , then frequency of oscillation of kinetic energy is  
 (A)  $f$  (B)  $f/2$  (C)  $2f$  (D)  $3f$
17. In SHM, ratio of  $KE_{\max}$  and  $PE_{\max}$  is  
 (A) 1 (B) 2 (C)  $1/2$  (D) 4
18. In SHM, at  $x = \frac{A}{\sqrt{2}}$  (where  $A$  is amplitude)  
 (A)  $KE > PE$  (B)  $KE < PE$   
 (C)  $KE = PE$  (D) Data insufficient
19. Two objects  $A$  and  $B$  of equal mass are suspended from two springs of spring constants  $K_A$  and  $K_B$ , if the objects oscillate vertically in such a manner that their maximum kinetic energies are equal, then ratio of their amplitudes is  
 (A)  $\frac{K_B}{K_A}$  (B)  $\sqrt{\frac{K_B}{K_A}}$  (C)  $\frac{F_A}{K_B}$  (D)  $\sqrt{\frac{K_A}{K_B}}$
20. In SHM, acceleration leads displacement in phase by angle  
 (A)  $\pi$  (B)  $\pi/2$  (C)  $\pi/3$  (D)  $\pi/4$

21. In case of steady flow of fluid particle a stream line is shown below.



- (A)  $v_1 = \text{constant}$       (B)  $v_2 = \text{constant}$       (C)  $v_1 \neq v_2 \neq v_3$       (D) All the above are correct

22. In the given streamline diagram for venturimeter



- (A)  $v_1 > v_2$       (B)  $v_1 < v_2$       (C)  $v_1 = v_2$       (D) Data insufficient

### Case Base Question (Q23 to Q25)

In case of steady flow, at any given point, velocity of each passing fluid particle remains constant in time. The path taken by a fluid particle under a steady flow is called a streamline. Streamlines form a boundary which is called tube of flow.

23. In a tube of flow, streamlines, they don't cross each other.

- (A) True      (B) Sometimes false      (C) False      (D) Insufficient data

24. In a tube of flow, same set of streamlines are always present.

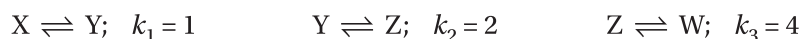
- (A) False      (B) Sometimes false      (C) True      (D) Insufficient data

25. The assumption/s of equation of continuity

- (A) Steady flow      (B) Incompressible fluid  
(C) Mass flow rate is constant      (D) All the above

## Chemistry

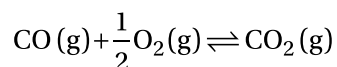
26. For the given hypothetical reaction the equilibrium constants are given as follows :



The equilibrium constant for the reaction  $X \rightleftharpoons W$  is :

- (A) 12      (B) 7      (C) 6      (D) 8

27. The ratio of  $\frac{k_p}{k_c}$  for the reaction



- (A) 1      (B)  $\frac{1}{\sqrt{RT}}$       (C)  $(RT)^{1/2}$       (D)  $RT$

28. If the equilibrium constant for

$\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$  is  $k$ , the equilibrium constant for :

$\frac{1}{2}\text{N}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g}) \rightleftharpoons \text{NO}(\text{g})$  will be

- (A)  $k^{1/2}$                       (B)  $\frac{1}{2}k$                       (C)  $k$                       (D)  $k^2$

29. Given that the equilibrium constant for the reaction  $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$  has a value of 278 at a particular temperature. What is the value of the equilibrium constant for the following reaction at the same temperature?

$\text{SO}_3(\text{g}) \rightleftharpoons \text{SO}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g})$

- (A)  $1.8 \times 10^{-3}$                       (B)  $3.6 \times 10^{-3}$                       (C)  $6 \times 10^{-2}$                       (D)  $1.3 \times 10^{-5}$

30. In which of the following equilibrium  $k_c$  and  $k_p$  are not equal?

- (A)  $2\text{NO}(\text{g}) \rightleftharpoons \text{N}_2(\text{g}) + \text{O}_2(\text{g})$                       (B)  $\text{SO}_2(\text{g}) + \text{NO}_2(\text{g}) \rightleftharpoons \text{SO}_3(\text{g}) + \text{NO}(\text{g})$   
 (C)  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$                       (D)  $2\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{CO}_2(\text{g})$

31. The value of equilibrium constant of the reaction,  $\text{HI}(\text{g}) \rightleftharpoons \frac{1}{2}\text{H}_2(\text{g}) + \frac{1}{2}\text{I}_2(\text{g})$  is 8.0. The equilibrium constant of the reaction :

$\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$  will be

- (A)  $\frac{1}{16}$                       (B)  $\frac{1}{64}$                       (C) 16                      (D)  $\frac{1}{8}$

32. For the equilibrium :

$\text{MgCO}_3(\text{s}) \xrightleftharpoons{\Delta} \text{MgO}(\text{s}) + \text{CO}_2(\text{g})$

which of the following expression is correct?

- (A)  $k_p = p_{\text{CO}_2}$                       (B)  $k_p = \frac{[\text{MgO}][\text{CO}_2]}{[\text{MgCO}_3]}$                       (C)  $k_p = \frac{p_{\text{MgO}} + p_{\text{CO}_2}}{p_{\text{MgCO}_3}}$                       (D)  $k_p = \frac{p_{\text{MgO}} + p_{\text{CO}_2}}{p_{\text{MgCO}_3}}$

33. For the reversible reaction :

$\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + \text{heat}$

the equilibrium shifts in forward direction.

- (A) By increasing the concentration of  $\text{NH}_3$   
 (B) By decreasing the pressure  
 (C) By decreasing the concentration of  $\text{N}_2(\text{g})$  and  $\text{H}_2(\text{g})$   
 (D) By increasing pressure and decreasing temperature

34. The reaction quotient ( $Q$ ) for the reaction,

$\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$

is given by  $Q = \frac{(\text{NH}_3)^2}{[\text{N}_2][\text{H}_2]^3}$

The reaction will proceed towards right side if,

- (A)  $Q > k_c$                       (B)  $Q = 0$                       (C)  $Q = k_c$                       (D)  $Q < k_c$

where  $k_c$  = equilibrium constant

35. The molar solubility of  $\text{CaF}_2$  ( $k_{sp} = 53 \times 10^{-11}$ ) in 0.1 M solution of NaF will be :
- (A)  $53 \times 10^{11}$  mole  $(\text{L})^{-1}$       (B)  $53 \times 10^{-8}$  mole  $(\text{L})^{-1}$   
 (C)  $53 \times 10^{-9}$  mole  $(\text{L})^{-1}$       (D)  $53 \times 10^{-10}$  mole  $(\text{L})^{-1}$
36. The concentration of  $[\text{H}^+]$  and concentration of  $[\text{OH}^-]$  of a 0.1 M aqueous solution of 2% ionised weak monobasic acid is : (ionic product of water =  $1 \times 10^{-14}$ )
- (A)  $0.02 \times 10^{-3}$  M &  $5 \times 10^{-11}$  M      (B)  $1 \times 10^{-3}$  M &  $3 \times 10^{-11}$  M  
 (C)  $2 \times 10^{-3}$  M &  $5 \times 10^{-12}$  M      (D)  $3 \times 10^{-2}$  M &  $4 \times 10^{-13}$  M
37. If  $\alpha$  is dissociation constant, then the total number of moles for the reaction,  $2\text{HI} \rightarrow \text{H}_2 + \text{I}_2$  will be :
- (A) 1      (B)  $1 - \alpha$       (C) 2      (D)  $2 - \alpha$
38. The solubility of a saturated solution of calcium fluoride is  $2 \times 10^{-4}$  mol/L. Its solubility product is
- (A)  $12 \times 10^{-2}$       (B)  $14 \times 10^{-2}$       (C)  $22 \times 10^{-11}$       (D)  $32 \times 10^{-12}$
39. Which of the following is most soluble?
- (A)  $\text{Bi}_2\text{S}_3$  ( $k_{sp} = 1 \times 10^{-70}$ )    (B)  $\text{MnS}$  ( $k_{sp} = 7 \times 10^{-16}$ )    (C)  $\text{CuS}$  ( $k_{sp} = 8 \times 10^{-37}$ )    (D)  $\text{Ag}_2\text{S}$  ( $k_{sp} = 6 \times 10^{-51}$ )
40. In which of the following the solubility of AgCl will be minimum?
- (A) 0.1 M  $\text{NaNO}_3$       (B) Water      (C) 0.1 M NaCl      (D) 0.1 M NaBr

#### ■ Assertion Reason Type Question (43–45):

Read the two statements carefully and select the correct option given below.

- A:** Assertion and Reason both are correct and Reason is the correct explanation of Assertion  
**B:** Assertion and Reason both are correct and Reason is not the correct explanation of Assertion  
**C:** Assertion is correct but Reason is wrong  
**D:** Assertion is wrong but Reason is correct

41. **Assertion (A):** n-pentane has higher-boiling point than neopentane.

**Reason (R):** Larger surface area is responsible for greater Vanderwaal's force of attraction.

- (A) A      (B) B      (C) C      (D) D

42. **Assertion (A):** Addition of HBr on  $\text{CH}_2 = \text{CH}-\text{NO}_2$  follows anti Markonikov's rule

**Reason (R):** Electron withdrawing  $\text{NO}_2$  group destabilizes Carbocation on the adjacent carbon.

- (A) A      (B) B      (C) C      (D) D

43. **Assertion (A):** Anthracene and phenanthrene are isomers.

**Reason (R):** Anthracene and phenanthrene both have  $14\pi$ -electrons each.

- (A) A      (B) B      (C) C      (D) D

#### ■ Case Based Questions :

Redox is a reaction in which both oxidation and reduction will take place simultaneously. It is obvious that if one substance gives electron there must be another substance to provide these electron. In some reaction same substance is reduced as well as oxidised, these reactions are termed as disproportion reactions. For calculating equivalent mass in redox reaction change in oxidation number is related to n-factor or valence factor which is reciprocal of molar ratio. Choose the correct answer.

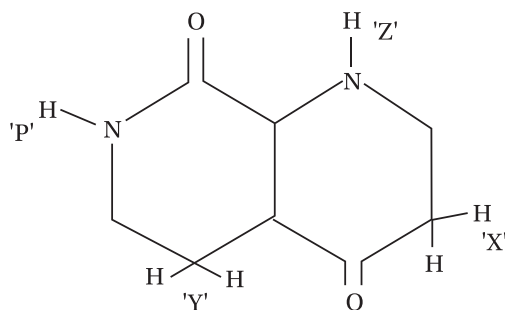
44. Oxidation number of iron in  $\text{Fe}_{0.94}\text{O}$  is:

- (A) +2                      (B) +3                      (C)  $+\frac{200}{94}$                       (D)  $+\frac{8}{3}$

45. How many moles of  $\text{KMnO}_4$  reacted with one mole of ferrous oxalate in acidic medium?

- (A)  $\frac{2}{5}$                       (B)  $\frac{1}{5}$                       (C)  $\frac{3}{5}$                       (D)  $\frac{5}{3}$

46. Which of the indicated 'H' in the following is most acidic?



- (A) 'X'                      (B) 'Y'                      (C) 'Z'                      (D) 'P'

47.  $\text{C}_n\text{H}_{2n+2}$  completely reacts with pure oxygen gas to form carbon dioxide and water. The correct option will be

- |     | Mole of oxygen needed         | Mole of water produced |
|-----|-------------------------------|------------------------|
| (A) | $\left(\frac{2n+1}{2}\right)$ | $(n+2)$                |
| (B) | $\left(\frac{3n+2}{2}\right)$ | $(n+1)$                |
| (C) | $\left(\frac{3n+1}{2}\right)$ | $(n+2)$                |
| (D) | $\left(\frac{3n+1}{2}\right)$ | $(n+1)$                |

48. Excess  $\text{H}_3\text{CCH}(\text{Br})\text{CH}_2\text{CH}_3$  reacts with alcoholic KOH. The correct product will be

- (A)  $\text{H}_3\text{CCH}=\text{CHCH}_3$  only                      (B)  $\text{H}_3\text{CCH}_2\text{CH}=\text{CH}_2$  only  
 (C) (A) major, (B) minor                      (D) (B) major, (A) minor

49. Which of the following compound has two chiral centres ?

- (A) 3-bromo-3-phenyl-2-propanol  
 (B) 1-bromo-4-chloro-2-butanol  
 (C) 2-(N,N-dimethylanimo)-propanoic acid  
 (D) 2-amino propanoic acid

50. Solution of 0.1 (N)  $\text{NH}_4\text{OH}$  and 0.1 N  $\text{NH}_4\text{Cl}$  has pH 9.25  $pK_b$  of  $\text{NH}_4\text{OH}$  is

- (A) 9.25                      (B) 4.75                      (C) 3.75                      (D) 8.25





63. If 4 bulbs are there each of which can be defective or non-defective, then what is the probability that all the bulbs are defective ?
- (A)  $\frac{1}{8}$                       (B)  $\frac{1}{16}$                       (C)  $\frac{1}{4}$                       (D)  $\frac{1}{2}$
64. Let A, B, C be three events such that  $P(A)=0.3$ ,  $P(B)=0.4$ ,  $P(C)=0.8$ ,  $P(A \cap B) = 0.08$ ,  $P(A \cap C) = 0.28$ ,  $P(A \cap B \cap C) = 0.09$  and  $P(A \cup B \cup C) = 0.75$ . Find  $P(B \cup C)$ .
- (A) 0.4                      (B) 0.48                      (C) 0.08                      (D) 0.8
65. If A and B are two events such that  $P(A \cup B) = \frac{3}{4}$ ,  $P(A \cap B) = \frac{1}{4}$  and  $P(A^c) = \frac{2}{3}$ , then find  $P(B)$ .
- (A)  $\frac{2}{3}$                       (B)  $\frac{1}{3}$                       (C)  $\frac{1}{9}$                       (D)  $\frac{2}{9}$

**Case Based Questions (66-68):**

A coach is training 3 players. He observes that the player A can hit a target 4 times in 5 shots, player B can hit 3 times in 4 shots and the player C can hit 2 times in 3 shots.

From this situation answer the following :

66. Let the target is hit by A, B and C. Then, the probability that A, B and C all will hit is
- (A)  $\frac{4}{5}$                       (B)  $\frac{3}{5}$                       (C)  $\frac{2}{5}$                       (D)  $\frac{1}{5}$
67. Let the target is hit by A, B and C.  
what is the probability that B, C will hit and A will lose ?
- (A)  $\frac{1}{10}$                       (B)  $\frac{3}{10}$                       (C)  $\frac{7}{10}$                       (D)  $\frac{4}{10}$
68. Let the target is hit by A, B and C.  
what is the probability that any two of A, B and C will hit ?
- (A)  $\frac{1}{30}$                       (B)  $\frac{11}{30}$                       (C)  $\frac{17}{30}$                       (D)  $\frac{13}{30}$

**Assertion-Reason type Questions (69 - 70):**

**Direction :** A statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).  
b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).  
c) Assertion (A) is true but reason (R) is false.  
d) Assertion (A) is false but reason (R) is true.
69. Let  $x_1, x_2, \dots, x_n$  be n observations and let  $\bar{x}$  be their arithmetic mean and  $\sigma^2$  be the variance.  
**Assertion (A):** Variance of  $2x_1, 2x_2, \dots, 2x_n$  is  $4\sigma^2$   
**Reason (R):** Arithmetic mean of  $2x_1, 2x_2, \dots, 2x_n$  is  $4\bar{x}$
- (A) a                      (B) b                      (C) c                      (D) d
70. **Assertion (A):** The mean deviation of the data 2, 9, 9, 3, 6, 9, 4 from the mean is 2.57.

**Reason (R):** For individual observation, Mean deviation  $(\bar{X}) = \frac{\sum |x_i - \bar{x}|}{n}$

- (A) a                      (B) b                      (C) c                      (D) d

71. If the sum of two numbers is 4 times their geometric mean, then find the ratio of numbers.  
 (A)  $7 + 4\sqrt{3} : 1$       (B)  $7 + 5\sqrt{3} : 1$       (C)  $7 + 6\sqrt{3} : 1$       (D)  $7 - 5\sqrt{3} : 1$
72. What is the even value of n, if 11th term of  $(a + b)^{2n-3}$  is middle term ?  
 (A) 12      (B) 10      (C) 20      (D) 22
73. Find the distance of point (2, 3, 5) from X-Z plane.  
 (A) 2 units      (B) 3 units      (C) 5 units      (D) 1 unit
74. If length of transverse axis is 8 and conjugate axis is 10 and transverse axis is along x-axis, then find the equation of hyperbola.  
 (A)  $\left(\frac{x}{4}\right)^2 - \left(\frac{y}{5}\right)^2 = 1$       (B)  $\left(\frac{x}{5}\right)^2 - \left(\frac{y}{4}\right)^2 = 1$   
 (C)  $\left(\frac{x}{10}\right)^2 - \left(\frac{y}{8}\right)^2 = 1$       (D)  $\left(\frac{x}{8}\right)^2 - \left(\frac{y}{10}\right)^2 = 1$
75. What is the value of the limit of  $f(x) = \frac{\sin^2 x + \sqrt{2} \sin x}{x^2 - 4x}$  if x approaches 0 ?  
 (A)  $\frac{1}{\sqrt{2}}$       (B)  $\frac{-1}{\sqrt{2}}$       (C)  $\frac{-1}{2\sqrt{2}}$       (D)  $\frac{1}{2\sqrt{2}}$

## Biology

76. Choose the least toxic excretory product.  
 (A) Ammonia      (B) Urea      (C) Uric acid      (D) All are equally toxic
77. The condition of failure of kidney to form urine is called :  
 (A) Anuria      (B) Ketonuria  
 (C) Glycosuria      (D) Haematuria
78. When a person is suffering from poor renal absorption, which of the following will not help in maintenance of blood volume?  
 (A) Increased ADH secretion      (B) Increased arterial pressure in kidney  
 (C) Decreased arterial pressure in kidney      (D) Decreased glomerular filtration
79. Vasa recta is :  
 (A) A minute vessel of the peritubular capillaries, running parallel to the Henle's loop.  
 (B) A direct branch of the renal artery.  
 (C) Another name for peritubular capillaries.  
 (D) One of the glomerular capillaries leading to the efferent arteriole.
80. What are podocytes?  
 (A) Endothelial cells of glomerulus      (B) Cuboidal cells of PCT  
 (C) Epithelial cells of Bowman's capsule      (D) Epithelial cells of the thin limb of loop of Henle
81. ANF stands for:  
 (A) Atrial Natriuretic Factor      (B) Arterial Natriuretic Fraction  
 (C) Arterial Natriuretic Factor      (D) Anti Natriuretic Factor

82. Choose the correct statement about the ascending limb of loop of Henle:
- (A) Impermeable to water but permeable to electrolytes  
 (B) Impermeable to electrolytes but permeable to water  
 (C) Impermeable to both water and electrolytes  
 (D) Permeable to both water and electrolytes
83. Neurons found in the embryonic stages are:
- (A) Unipolar                      (B) Bipolar                      (C) Multipolar                      (D) Non polar
84. The dorsal portion of the mid brain consists of four lobes called \_\_\_\_\_
- (A) Cerebral aqueduct      (B) Corpora quadrigemina      (C) Corpus callosum      (D) None
85. Gastric secretions are regulated by:
- (A) Pons                      (B) Cerebellum                      (C) Medulla                      (D) All
86. In a reflex arc, the efferent neuron leads to the:
- (A) CNS                      (B) Interneuron                      (C) Receptor                      (D) Motor end plate
87. The ciliary body is an extension of which layer of the eyeball?
- (A) Sclera                      (B) Choroid                      (C) Retina                      (D) Both B and C
88. The fovea contains:
- (A) Only rods                      (B) Both rods and cones      (C) Only cones                      (D) Neither rods nor cones
89. Malleus, incus and stapes are actually:
- (A) Ear labyrinth                      (B) Ear ossicles  
 (C) Parts of cochlea                      (D) Parts of external auditory meatus
90. The sound waves from the external ear are received by the :
- (A) Ear drum                      (B) Ear ossicles                      (C) Semi circular canals                      (D) Vestibular apparatus

#### Assertion-Reason type Questions (91–94):

**Direction :** A statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- A. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).  
 B. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).  
 C. Assertion (A) is true but reason (R) is false.  
 D. Assertion (A) is false but reason (R) is true.

91. **Assertion (A):** Neurons are excitable cells.

**Reason (R):** The ion channels present on the neural membranes are selectively permeable to different ions.

- (A) A                      (B) B                      (C) C                      (D) D

92. **Assertion (A):** Neurotransmitters are involved in the transmission of impulses at the synapse.

**Reason (R):** The axon terminals contain vesicles filled with neurotransmitters.

- (A) A                      (B) B                      (C) C                      (D) D

93. **Assertion (A):** The volume of nephric filtrate produced per day is 180 litres.

**Reason (R):** The volume of urine released per day is 5 litres

- (A) A                      (B) B                      (C) C                      (D) D

