VIDYAM CLASSES
विद्या for NEET-JEE
(A New Venture by Senior Teachers of Janakpuri-Delhi)

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TEST SERIES TEST – 04

MEDICAL (DATE : 28-01-2026) M.M. 720 : TIME 3 HR

Topic Covered:

Physics	**:**	Heat & Thermodynamics, Oscillation	$\mathbf{P_{PS}}$
Chemistry:		General Organic Chemistry (GOC), Hydrocarbon.	$\mathbf{C_{VS}}$
Botany	**:**	Respiration in Plants, Plant Growth & Development.	$\mathbf{B_{HNS}}$
Zoology	**:**	Animal Kingdom, Structural Organisation in Animals, Biomolecules Breathing and Exchange of Gases , Body Fluids & Circulation, Excretory Products and Their Elimination.	$\mathbf{Z_{SP}}$

INSTRUCTIONS:

1. The paper contains 180 objective type questions. Four alternatives are given for each objective type question out of which only one is correct. Darken the correct alternative on the given answer-sheet, with a pencil or pen.
2. Objective type questions carry 4 marks each. For each incorrect answer 1 mark will be deducted.
3. No student is permitted to leave examination hall before the time is complete.
4. Use of calculator is not permitted.
5. Use of unfair means shall invite cancellation of the test.

PHYSICS

1. Two thermometers X and Y have ice points marked at 15° and 25° and steam points marked as 75 deg and 125° respectively. When thermometer X measures the temperature of a bath as 60° on it, what would thermometer Y read when it is used to measure the temperature of the same bath?

(1) 60° (2) 75°

(3) 100° (4) 90°

2. The volume of a metal sphere increases by 0.15% when its temperature is raised by 25°C. The coefficient of linear expansion of metal is:

(1) 2.5×10^{-5}/°C (2) 2.0×10^{-5}/°C

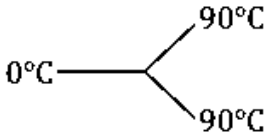
(3) -1.5×10^{-5}/°C (4) 1.2×10^{-5}/°C

3. 1 kg of ice at –10°C is mixed with 4.4 kg of water at 30°C. The final temperature of mixture is: (specific heat of ice = 2100 J/kg-k)

(1) 2.3°C (2) 4.4°C

(3) 5.3°C (4) 8.7°C

4. Three rods made of the same material and having the same cross-section have been joined as shown in the figure. Each rod is of the same length. The left and right ends are kept at 0°C and 90°C respectively. The temperature of the junction of the three rods will be



(1) 45°C (2) 60°C

(3) 30°C (4) 20°C

5. Consider a compound slab consisting of two different materials having equal thicknesses and thermal conductivities K and 2K, respectively. The equivalent thermal conductivity of the slab is

(1) 3K (2) 4/3 K

(3) 2/3 K (4) $\sqrt{2}$ K

6. Cooling rate of a sphere of 600 K at external environment (200 K) is R. When the temperature of sphere is reduced to 400 K then cooling rate of the sphere becomes

(1) 3/16 R (2) 16/3 R

(3) 9/27 R (4) None

7. The rate of emission of radiation of a black body at 273°C is E, then the rate of emission of radiation of this body at 0°C will be

(1) E/16 (2) E/4

(3) E/8 (4) 0

8. If e_λ and a_λ be the emissive power and absorption power respectively of a body and E_λ be the emissive power of an ideal black body, then from Kirchhoff's laws

(1) $a_\lambda = E_\lambda / e_\lambda$ (2) $a_\lambda / e_\lambda = E_\lambda$

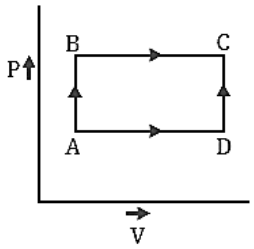
(3) $e_\lambda / a_\lambda = E_\lambda$ (4) $e_\lambda = E_\lambda / a_\lambda$

9. The rms velocity of H_2 is 2×10^3 m/s. What will be the rms velocity of O_2 molecules at the same temperature

(1) 10^3 m/s (2) 500 m/s

(3) 0.5×10^4 m/s (4) 3×10^3 m/s

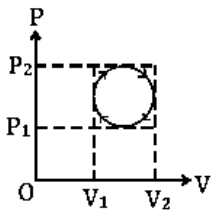
10. As shown in the figure the amount of heat absorbed along the path ABC is 90 J and the amount of work done by the system is 30 J. If the amount of work done along the path ADC is 20 J then amount of heat absorbed will be



(1) 80 J (2) 90 J

(3) 110 J (4) 120 J

11. In a cyclic process shown on the P–V diagram, the magnitude of the work done is



(1) $\pi\left(\frac{P_2-P_1}{2}\right)^2$ (2) $\pi\left(\frac{V_2-V_1}{2}\right)^2$

(3) $\frac{\pi}{4}(P_2-P_1)(V_2-V_1)$ (4) $\pi(P_2V_2-P_1V_1)$

12. One mole of an ideal gas at temperature T_1 expands according to the law $\frac{P}{V^2} = a$ constant. The work done by the gas till temperature of gas becomes T_2 is

(1) $\frac{1}{2}R(T_2-T_1)$ (2) $\frac{1}{3}R(T_2-T_1)$

(3) $\frac{1}{4}R(T_2-T_1)$ (4) $\frac{1}{5}R(T_2-T_1)$

13. A Carnot engine takes 3×10^6 cal of heat from reservoir at 627° C and gives it to a sink at 27°C. Then work done by the engine is

(1) 4.2×10^6 J (2) 8.4×10^6 J

(3) 16.8×10^6 J (4) zero

14. A refrigerator works between temperature –10°C & 27°C, the coefficient of performance is

(1) 7.1 (2) 1

(3) 8.1 (4) 15.47

15. Four rods of same material with different radii *r* and length l are used to connect two reservoirs of heat at different temperatures. Which one will conduct maximum heat?

(1) r = 1 cm, l = 1m

(2) r = 2cm, l = 2m

(3) r = 1 cm, l = 1/2 m

(4) r = 2 cm, l = 1/2 m

16. A seconds pendulum clock has a steel wire. The clock shows correct time at 25°C. How much time does the clock lose or gain, in one week, when the temperature is increased to 35°C? ($\alpha_{steel} = 1.2 \times 10^{-5}$ / °C)

(1) 321.5 s (2) 3.828 s

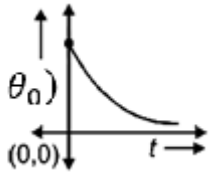
(3) 82.35 s (4) 36.28 s

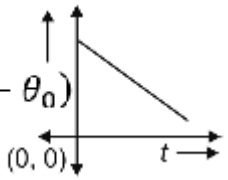
17. 200 g of ice at –20°C is mixed with 500 g of water at 20°C in an insulating vessel. Final mass of water in vessel is (specific heat of ice = 0.5 $calg^{-1}°C^{-1}$)

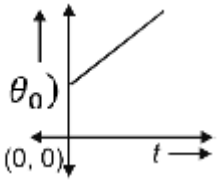
(1) 700 g (2) 600 g

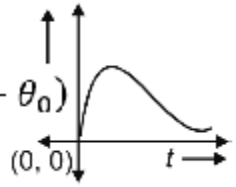
(3) 400 g (4) 200 g

18. Instantaneous temperature difference between cooling body and the surroundings obeying Newton's law of cooling is θ. Which of the following represents the variation of In θ with time *t*?

(1) 

(2) 

(3) 

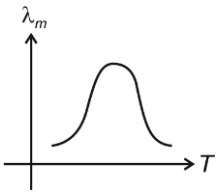
(4) 

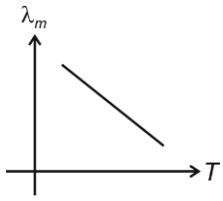
19. A black body which is at a high temperature *T* K, emitted thermal radiation at the rate of *E* watt/m². The thermal radiation emitted by a body of emissivity equal to 0.5 at temperature *T*/4 K (in watt/m²) is

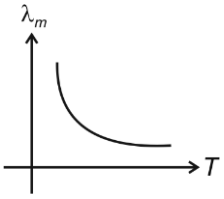
(1) *E*/512 (2) *E*/4

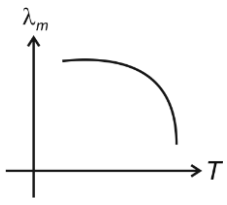
(3) *E*/256 (4) *E*/128

20. The maximum wavelength of black body emission λ_m, changes with absolute temperature *T* of body as

(1) 

(2) 

(3) 

(4) 

21. One mole of ideal gas follows a law according to that its pressure varies with volume as $P = \frac{a}{1+\frac{V}{b}}$ (where *a* and *b* are positive constant). The temperature of gas at volume *V* = a is

(1) $\frac{a^2b}{(b+a)R}$ (2) abR

(3) $\frac{ab}{(b+a)R}$ (4) $\frac{ab}{(b-a)}R$

22. The graph between mean free path and number density for a gas molecule will be

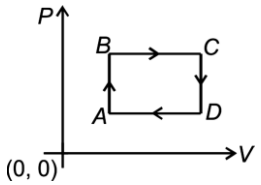
(1) Straight line

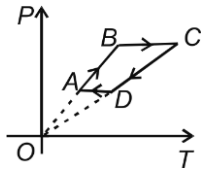
(2) Parabola

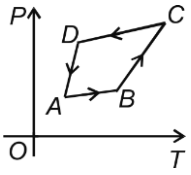
(3) Circle

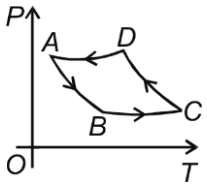
(4) Rectangular hyperbola

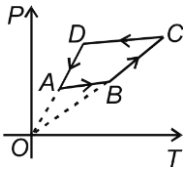
23. The figure shows *P*-*V* diagram of a thermodynamic cycle. Which corresponding curve is correct?



(1) 

(2) 

(3) 

(4) 

24. A monatomic gas at a pressure *P*, having a volume *V* expands isothermally to a volume 3*V* and then compresses adiabatically to the volume *V*, the final pressure of the gas is

(1) $3^{5/3}P$ (2) $3^{2/3}P$

(3) $P/3$ (4) $3P$

25. An ideal gas is taken through a cyclic thermodynamic process through four steps. The amounts of heat given to the system in these steps are Q_1 = 1000 J, Q_2 = –800 J, Q_3 = 450 J, Q_4 = –200 J respectively. The efficiency of cycle is nearly

(1) 31% (2) 45%

(3) 35% (4) 48%

26. The equation of motion of a particle executing S.H.M. where letters have usual meaning is

(1) $\frac{d^2x}{dt^2} = -\frac{k}{m}x$ (2) $\frac{d^2x}{dt^2} = +\omega^2 x$

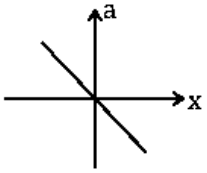
(3) $\frac{d^2x}{dt^2} = -\omega^2 x^2$ (4) $\frac{d^2x}{dt^2} = -kmx$

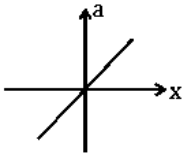
27. The displacement of a particle in S.H.M. is indicated by equation $y = 10 \sin(20t + \pi/3)$ where y is in metres. The value of maximum velocity of the particle will be

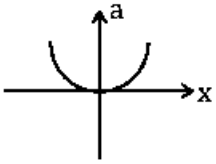
(1) 100 m/sec. (2) 150 m/sec.

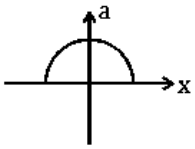
(3) 200 m/sec. (4) 400 m/sec.

28. The variation of acceleration (a) and displacement (x) of the particle executing SHM is indicated by the following curve

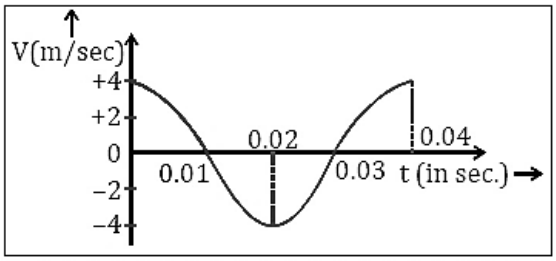
(1) 

(2) 

(3) 

(4) 

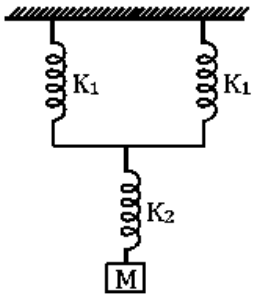
29. The velocity-time diagram of a harmonic oscillator is shown in the adjoining figure. The frequency of oscillation is



(1) 25 Hz (2) 50 Hz

(3) 12.25 Hz (4) 33.3 Hz

30. The total spring constant of the system as shown in the figure will be



(1) $\frac{K_1}{2} + K_2$ (2) $\left[\frac{1}{2K_1} + \frac{1}{K_2}\right]^{-1}$

(3) $\frac{1}{2K_1} + \frac{1}{K_2}$ (4) $\left[\frac{2}{K_1} + \frac{1}{K_2}\right]^{-1}$

31. A particle is describing SHM with amplitude 'a'. When the potential energy of particle is one fourth of the maximum energy during oscillation, then its displacement from mean position will be

(1) $a/4$ (2) $a/3$

(3) $a/2$ (4) $2a/3$

32. The force acting on a 4 gm mass in the energy region $U = 8x^2$ at $x = -2cm$ is

(1) 8 dyne (2) 4 dyne

(3) 16 dyne (4) 32 dyne

33. Simple pendulum of large length is made equal to the radius of the earth. Its period of oscillation will be

(1) 84.6 min. (2) 59.8 min.

(3) 42.3 min. (4) 21.15 min.

34. A lift is ascending with acceleration $g/3$. What will be the time period of a simple pendulum suspended from its ceiling if its time period in stationary lift is T?

(1) $\frac{T}{2}$ (2) $\frac{\sqrt{3}T}{2}$

(3) $\frac{\sqrt{3}T}{4}$ (4) $\frac{T}{4}$

35. The average P.E. of the body executing S.H.M. is

(1) $\frac{1}{2}ka^2$ (2) $\frac{1}{4}ka^2$

(3) ka^2 (4) zero

36. The displacements of two particles executing SHM on the same line are given as $y_1 = a\sin\left(\frac{\pi}{2}t + \phi\right)$ and $y_2 = b\sin\left(\frac{2\pi}{3}t + \phi\right)$. At $t = 1$, the phase difference between the two is

(1) π (2) $\pi/2$

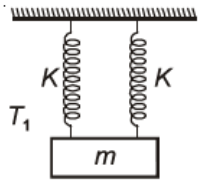
(3) $\pi/4$ (4) $\pi/6$

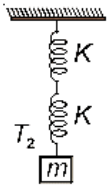
37. For a particle showing motion under the force $F = -5(x - 2)^2$, the motion is

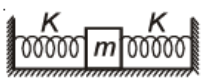
(1) Translatory (2) Oscillatory

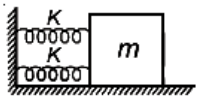
(3) SHM (4) All of these

38. A mass m is attached to two springs of same force constant K, as shown in following four arrangements. If T_1, T_2, T_3 and T_1 respectively be the time periods of oscillation in the following arrangements, in which case time period is maximum?

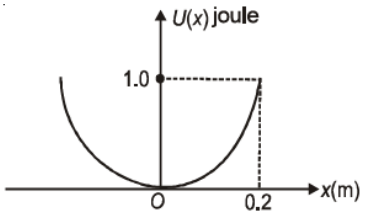
(1) 

(2) 

(3) 

(4) 

39. A particle of mass 4 kg moves simple harmonically such that its PE (*U*) varies with position *x*, as shown. The period of oscillations is



(1) 2π/25 s (2) $\frac{\pi\sqrt{2}}{5}s$

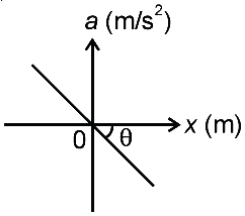
(3) $\frac{4\pi}{5}s$ (4) $\frac{2\pi\sqrt{2}}{5}s$

40. In damped oscillations, damping force is directly proportional to speed of oscillator. If amplitude becomes half of its maximum value in 1s, then after 2 s amplitude will be (Initial amplitude = A_0)

(1) $\frac{1}{4}A_0$ (2) $\frac{1}{2}A_0$

(3) A_0 (4) $\frac{\sqrt{3}A_0}{2}$

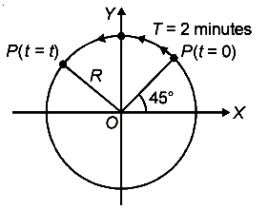
41. Acceleration displacement (*a*-*x*) graph of a particle executing S.H.M. is shown in the figure. The frequency of oscillation is (tanθ = 8)



(1) $\frac{2}{\pi}Hz$ (2) $\frac{\sqrt{2}}{\pi}Hz$

(3) $\frac{2\sqrt{2}}{\pi}Hz$ (4) $\frac{1}{\pi}Hz$

42. A particle *P* is moving on a circular path of radius *R* as shown in figure. If time period is 2 minutes, then the equation of projection on *y* axis for particle *P* is (where *t* is in seconds)



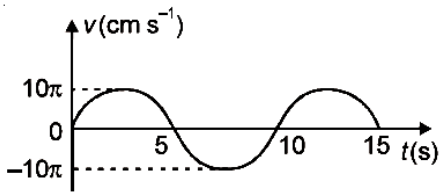
(1) $y = Rsin\left[\frac{\pi}{60}t - \frac{\pi}{4}\right]$

(2) $y = Rcos\left[\frac{\pi}{60}t + \frac{\pi}{4}\right]$

(3) $y = Rcos\left[\frac{\pi}{60}t - \frac{\pi}{4}\right]$

(4) $y = Rsin\left[\frac{\pi}{60}t + \frac{\pi}{4}\right]$

43. Figure shows the velocity-time graph of an object executing SHM. The correct equation for displacement - time (*x*-*t*) representing this motion is



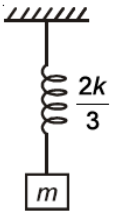
(1) $x = 50cos\left(\frac{\pi}{5}t + \pi\right)cm$

(2) $x = -50\sin\frac{\pi}{5}t\ cm$

(3) $x = 10\pi\sin\frac{\pi}{5}t\ cm$

(4) $x = -10\pi\sin\frac{\pi}{5}t\ cm$

44. A block of mass m is suspended from a massless spring of spring constant as shown in figure. If block of mass *m* is slightly displaced vertically downward and released, then it executes SHM. The time period of block is



(1) $2\pi\sqrt{\frac{m}{k}}$ (2) $2\pi\sqrt{\frac{m}{2k}}$

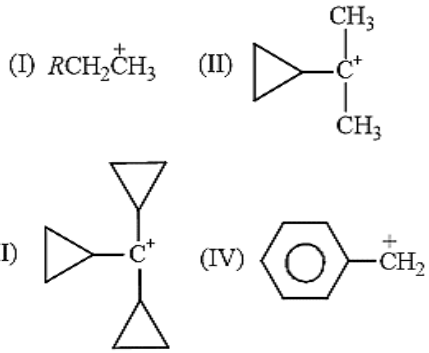
(3) $2\pi\sqrt{\frac{3m}{2k}}$ (4) $2\pi\sqrt{\frac{2m}{3k}}$

45. The shortest distance travelled by a particle executing SHM from extreme position in 3 seconds is equal to half of its amplitude. The time period of given particle is

(1) 18 seconds (2) 36 seconds

(3) 9 seconds (4) 6 seconds

46. In the following carbocations, the stability order is



(1) III > II > IV > I (2) IV > I > II > III

(3) IV > III > II > I (4) III > IV > II > I

47. Which of the following orders is not correct regarding the –I effect of the substituents?

(1) $-I < -Cl < -Br < -F$

(2) $-\overset{+}{N}R_3 < -\overset{+}{O}R_2$

(3) $-\overset{+}{N}R_2 < -OR < -F$

(4) $-SR < -OR < -\overset{+}{O}R_2$

48. The highest electrical conductivity of the following aqueous solutions is of

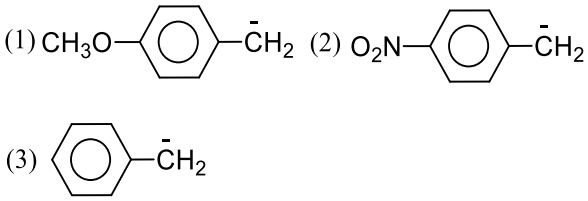
(1) 0.1 M difluoroacetic acid

(2) 0.1 M fluoroacetic acid

(3) 0.1 M chloroacetic acid

(4) 0.1 M acetic acid

49. Consider the following carbanions

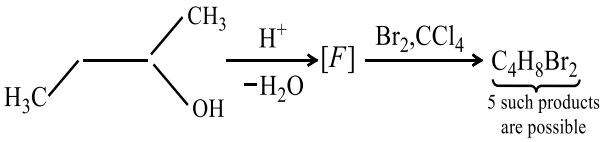


Correct order of stability is

(1) 1 > 2 > 3 (2) 3 > 2 > 1

(3) 2 > 3 >1 (4) 1 > 3 > 2

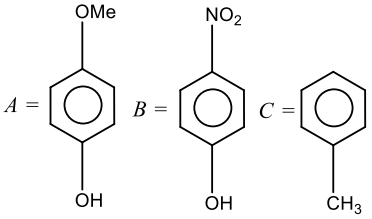
50. How many structures of F are possible?



(1) 2 (2) 5

(3) 6 (4) 3

51. Given,

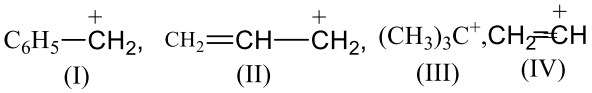


The decreasing order of the acidic character is

(1) A > B > C (2) B > A > C

(3) B > C > A (4) C > B > A

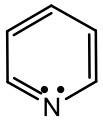
52. Stability order of... is in order

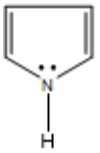


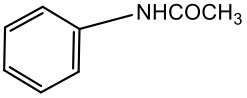
(1) IV < III < II < I (2) IV < II < I < III

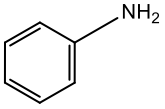
(3) I < II < III < IV (4) IV < I < III < II

53. Which one of the following has the most nucleophilic nitrogen?

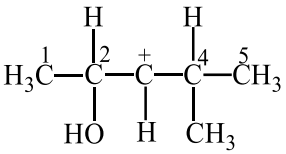
(1) 

(2) 

(3) 

(4) 

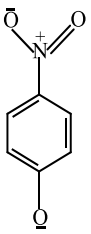
54. In the following carbocation, H/CH_3 that is most likely to migrate to the positively charged carbon is :

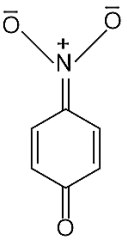


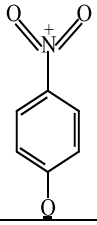
(1) CH_3 at C–4 (2) H at C–4

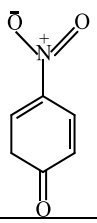
(3) CH_3 at C–2 (4) H at C–2

55. The most unlikely representation of resonance structures of p-nitrophenoxide ion is :

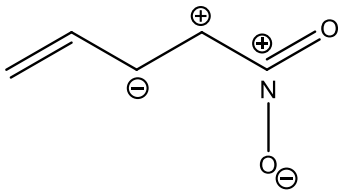
(1) 

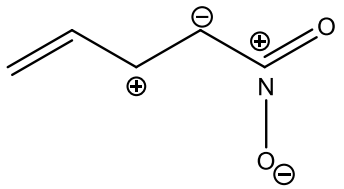
(2) 

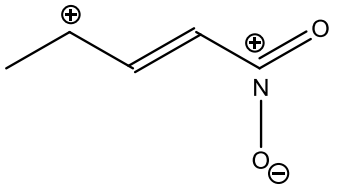
(3) 

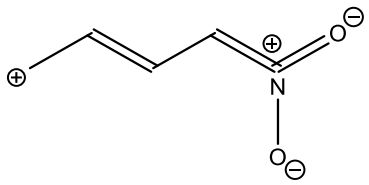
(4) 

56. Among the following the least stable resonance structure is

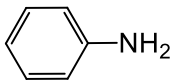
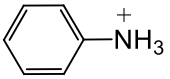
(1) 

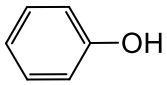
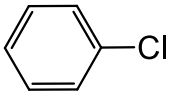
(2) 

(3) 

(4) 

57. In which of the following molecules, the resonance effect is not present?

(1)  (2) 

(3)  (4) 

58. Shifting of electrons of a multiple bond under the influence of a reagent is called :

(1) I-effect (2) E-effect

(3) M-effect (4) T-effect

59. The stability of

$CH_3 - CH = CH - CH_3, CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} = C - CH_3$

(I) (II)

$CH_3 - \underset{\underset{CH_3}{|}}{C} = CH_2$ $CH_3 - \underset{\underset{CH_3}{|}}{C} = CH - CH_3$

(III) (IV)

In the increasing order is

(1) III < I < IV < II (2) I < II < III < IV

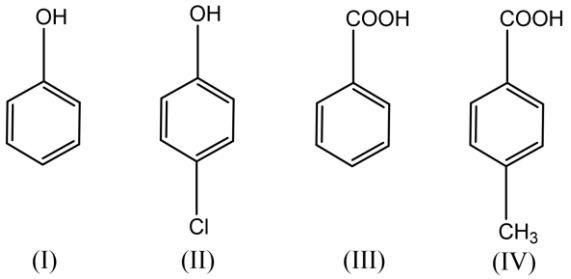
(3) IV < III < II < I (4) II < III < IV < I

60. Heterolysis of $CH_3CH_2CH_3$ result in formation of

(1) $\overset{\oplus}{C}H_3$ and $\overset{-}{C}_2H_5$ (2) $\overset{\bullet}{C}H_3$ and $\overset{\bullet}{C}_2H_5$

(3) $\overset{-}{C}H_3$ and $\overset{\oplus}{C}_2H_5$ (4) $CH_3$and C_2H_5

61. The correct acidity order of the following is



(I) (II) (III) (IV)

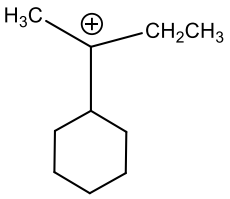
(1) (III) > (IV) > (II) > (I)

(2) (IV) > (III) > (I) > (II)

(3) (III) > (II) > (I) > (IV)

(4) (II) > (III) > (IV) > (I)

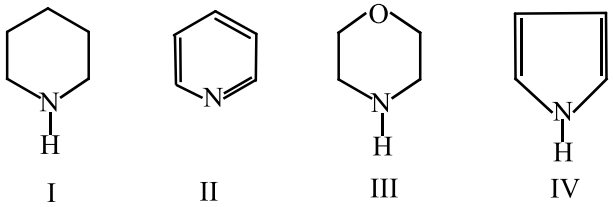
62. The total number of contributing structures showing hyperconjugation (involving – C – H bonds) for the following carbocation is



(1) Three (2) Five

(3) Eight (4) Six

63. In the following compounds,



I II III IV

the order of basicity is :

(1) IV > I > III > II (2) III > I > IV > II

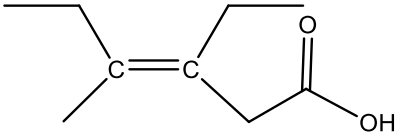
(3) II > I > III > IV (4) I > III > II > IV

64. Which of the following belongs to $-I$ group?

(1) $-C_6H_5$ (2) $-CH_3$

(3) $-CH_2CH_3$ (4) $-C(CH_3)_3$

65. The correct IUPAC name of the acid



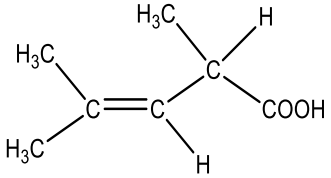
(1) Z-3-ethyl-4-methyl hex-3-en-1-oic acid

(2) Z-3-ethyl-4-methyl hexanoic acid

(3) Z-3, 4-diethylpent-3-en-1-oic acid

(4) E-3-ethyl-4-methylhex-3-en-1-oic acid

66. Compound can exhibit



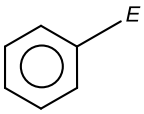
(1) Geometrical isomerism

(2) Tautomerism

(3) Optical isomerism

(4) Geometrical and optical isomerism

67. In a compound



electrophilic substitution has occurred. The substitute-E are methyl $-CH_2Cl, -CCl_3$ and $-CHCl_2$. The correct increasing order towards electrophilic substitution is

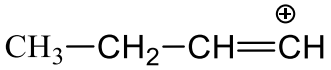
(1) $-CH_3 < -CH_2Cl < -CHCl_2 < -CCl_3$

(2) $-CH_3 < -CHCl_2 < -CH_2Cl < -CCl_3$

(3) $-CCl_3 < -CH_2Cl < -CHCl_2 < -CH_3$

(4) $-CCl_3 < -CHCl_2 < -CH_2Cl < -CH_3$

68. In the given structure, which carbon atom is most electronegative?

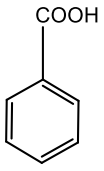


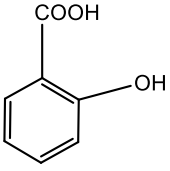
(I) (II) (III) (IV)

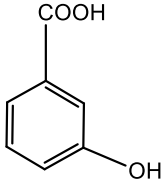
(1) (I) (2) (II)

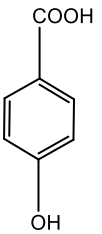
(3) (III) (4) (IV)

69. Which of the following aromatic acid is most acidic?

(1) 

(2) 

(3) 

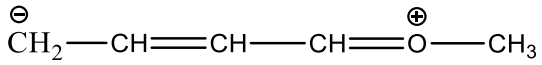
(4) 

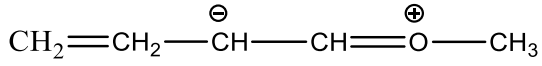
70. The hybridization of carbon in diamond, graphite and acetylene is in the order:

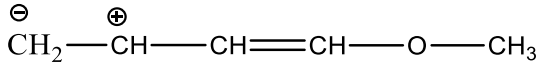
(1) sp^3, sp^2, sp (2) sp^2, sp^3, sp

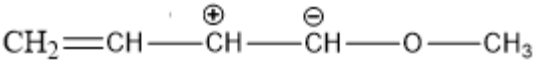
(3) sp, sp^2, sp^3 (4) sp^2, sp, sp^3

71. Which of the following resonating structures of 1-methoxy-1, 3-butadiene is least stable?

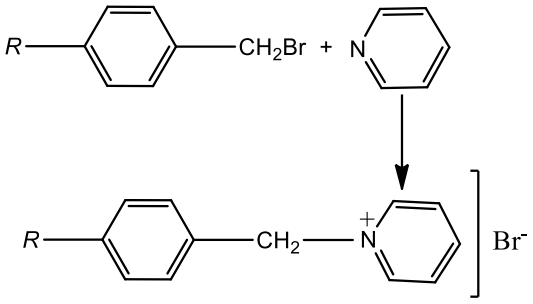
(1) 

(2) 

(3) 

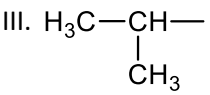
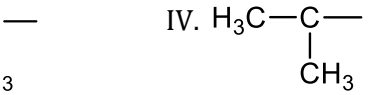
(4) 

72. The rate of the reaction,



is influenced by the hyper conjugation effect of group R. If R sequentially is

I. CH_3- II. CH_3-CH_2-

III.  IV. 

the increasing order of speed of the above reaction is

(1) IV, III, II, I (2) I, II, III, IV

(3) I, IV, III, II (4) III, II, I, IV

73. Which of the following is most reactive towards elimination reaction?

(1) $RCOO^-$ (2) CN^-

(3) NO_3^- (4) RO^-

74. Alkyne, C_7H_{12}, when reacted with alkaline $KMnO_4$ followed by acidification with HCl gives a mixture of $(CH_3)_2CHCOOH + CH_3CH_2COOH$, The alkyne C_7H_{12} is

(1) 3-hexyne (2) 2-methyl-2-hexene

(3) 2-methyl-3-hexene (4) 3-methyl-2-hexyne

75. The ozonolysis of ethylene, acetylene and propylene respectively gives:

(1) $HCHO, CHO—CHO$ and $CH_3CHO + HCHO$

(2) $CHO—CHO, HCHO$ and CH_3CHO

(3) $HCHO + CH_3CHO, CHO—CHO$ and HCH

(4) $CHO—CHO, CH_3CHO + HCHO$ and $HCHO$

76. $CH_3—C \equiv CH$ reacts with HCl to give:

(1) 2, 2-dichloropropane

(2) 1,1-dichloropropane

(3) 1, 2-dichloropropane

(4) 1-chloropropene

77. Which of the following statement is correct?

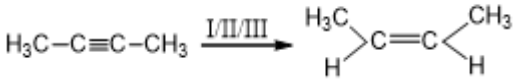
(1) Benzene has a tetrahedral geometry like an alkane

(2) Benzene is aromatic while naphthalene is not

(3) Benzene and Cyclohexane are both aromatic

(4) Benzene behaves more like and alkane than an alkene

78. Consider the following reaction



I. H_2/Ni_2B

II. $H_2/Pd - CaCO_3$ in quinoline

III. Na/NH_3 or $LiAlH_4$

This reaction takes place by

(1) I or II (2) I or III

(3) II or III (4) I, II or III

79. Which of the following reagent can distinguish between 1-butyne and 2-butyne?

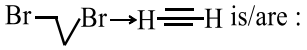
(1) Aqueous NaOH

(2) Bromine water

(3) Fehling's solution

(4) Ammoniacal $AgNO_3$

80. The reagent for the following conversion



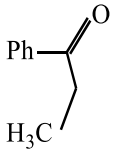
(1) Alc. KOH

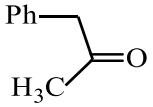
(2) Alc. KOH followed by $NaNH_2$

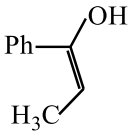
(3) Aqueous KOH followed by $NaNH_2$

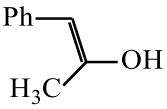
(4) Zn/CH_3OH

81. $Ph—C \equiv C—CH_3 \xrightarrow{Hg^{2+}/H^+} A$. A is:

(1) 

(2) 

(3) 

(4) 

82. 1-butyne on reaction with hot alkaline $KMnO_4$ gives:

(1) $CH_3CH_2CH_2COOH$

(2) $CH_3CH_2COOH + CO_2$

(3) CH_3CH_2COOH

(4) $CH_3CH_2COOH + HCOOH$

83. The treatment of $R'MgX$ with $RC \equiv CH$ produces

(1) RH (2) $R'H$

(3) $R - R$ (4) $R - R'$

84. In the following reaction, A and B, respectively are

$$A \xrightarrow{HBr} C_2H_5Br \xrightarrow{B} A$$

(1) C_2H_4, alc. KOH/Δ

(2) C_2H_5Cl, aq. KOH/Δ

(3) CH_3OH, aq. KOH/Δ

(4) C_2H_5, PBr_3

85. *Meso*-dibromobutane on debromination gives

(1) *trans*-2-butene (2) *cis*-2-butene

(3) 1-butene (4) 1-butyne

86. In the reactions,

$$B \xleftarrow{\text{Lindlar catalyst}/H_2} RC \equiv CR \xrightarrow[H_2]{Na/NH_3} A$$

A and B are geometrical isomers. Then,

(1) A is cis and B is $trans$

(2) A is $trans$ and B is cis

(3) A and B are cis

(4) A and B are $trans$

87. Which of the following reactions can be used to prepare methane?

(1) Clemmensen reduction

(2) Wurtz reaction

(3) Reduction of $CH_2 = CH_2$ by $LiAlH_4$

(4) Reduction of methyl iodine by using a zinc-copper couple

88. The synthesis of 3-octyne is achieved by adding a bromoalkane into a mixture of sodium amide and an alkyne. The bromoalkane and alkyne respectively are

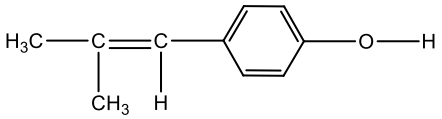
(1) $BrCH_2CH_2CH_2CH_2CH_3$ and $CH_3CH_2C \equiv CH$

(2) $BrCH_2CH_2CH_3$ and $CH_3CH_2CH_2C \equiv CH$

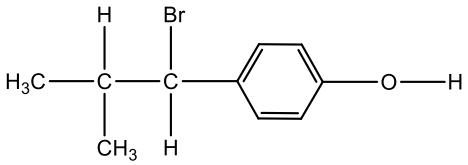
(3) $BrCH_2CH_2CH_2CH_2CH_3$ and $CH_3C \equiv CH$

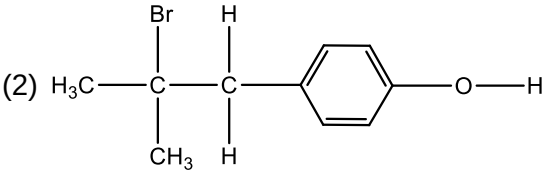
(4) $BrCH_2CH_2CH_2CH_3$ and $CH_3CH_2C \equiv CH$

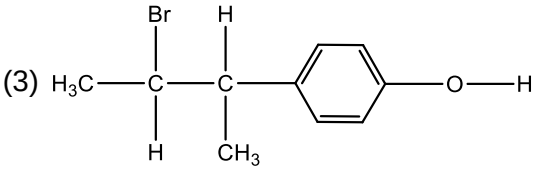
89. The reaction of

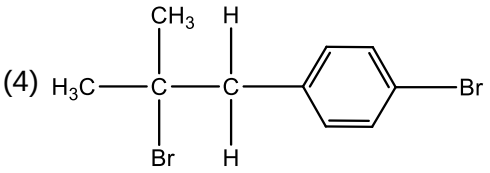


with HBr gives predominantly

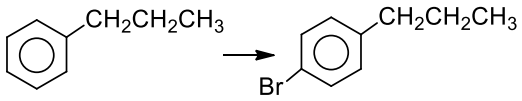
(1) 

(2) 

(3) 

(4) 

90. The conversion



can be effected using

(1) Br_2/CCl_4

(2) Br_2/H_2O

(3) Br_2/Fe

(4) Br/ benzoyl peroxide

BOTANY

91. In the electron transport system present in the inner mitochondrial membrane, complexes I and IV are respectively

(1) NADH Dehydrogenase and $FADH_2$

(2) $NADH_2$ and NADH Dehydrogenase

(3) NADH Dehydrogenase and cytochrome-c oxidase complex

(4) NADH dehydrogenase and ATP synthase

92. The cellular respiration first takes place in the

(1) Matrix of Cytoplasm

(2) Cisternae of Golgi bodies

(3) Organelle of cytoplasm

(4) Vesicles of Lysosomes

93. Which metabolic pathway is a common pathway to both anaerobic and aerobic metabolism?

(1) CAM pathway (2) EMP pathway

(3) Link reaction (4) GERL complex

94. How many ATP molecules could maximally be generated from one molecule of glucose, if the complete oxidation of one mole of glucose to carbon dioxide and water yields 686 kcal and the useful chemical energy available in the high energy phosphate bond of one mole of ATP is 12 kcal?

(1) Two (2) Thirty

(3) Fifty Seven (4) One

95. Select the wrong statement.

(1) When tripalmitin is used as a substrate in respiration, the RQ is 0.7

(2) The intermediate compound which links glycolysis with Krebs' cycle is malic acid

(3) One glucose molecule yields a net gain of 38 ATP molecules during aerobic respiration

(4) One glucose molecule yields a net gain of 2 ATP molecules during fermentation

96. Acetyl Co-A binds to oxaloacetic acid to form

(1) Formaldehyde (2) Citrate

(3) Acetate (4) Isocitrate

97. Which of the following reaction does not take place in the cell organelle, that is referred to as 'Power house of the cell'?

(1) Glycine Decarboxylation

(2) Glyceraldehyde 3-phosphate dehydrogenation

(3) Fumaric acid hydration

(4) Cytochrome oxidation

98. The enzymes for TCA cycle are present in

(1) Inter membrane space

(2) Golgi complex

(3) Mitochondrial matrix

(4) Endoplasmic reticulum

99. If a starving plant is provided with glucose, the rate of respiration would

(1) First rise then fall

(2) Become constant

(3) Decrease

(4) Increase

100. During anaerobic respiration in yeast

(1) H_2O and CO_2 are end-products

(2) CO_2, methanol and energy are end-products

(3) CO_2, ethanol and energy are end-products

(4) CO_2, acetic acid and energy are end-products

101. Most of the biological energy is supplied by mitochondria through

(1) Breaking of proteins

(2) Reduction of $NADP^+$

(3) Breaking of sugars

(4) Oxidizing TCA products

102. Rapid and dramatic increase in shoot length is called

(1) Triple response growth

(2) Bolting

(3) Scarification

(4) Night break effect

103. Which plant hormone promotes root hair formation?

(1) Purine derivatives (2) Agent orange

(3) Promotory PGR (4) Gaseous PGR

104. I. Lag phase → Log phase → Stationary phase

II. Geometric and Arithmetic phase of growth

III. Growth shown by all living organism $in\ vivo$

IV. $L_t = L_0 + rt$

Match the above characters with sigmoid curve, arithmetic growth, embryo development and choose the correct option accordingly

	Sigmoid curve	**Arithmetic growth**	**Embryo development**
(1)	II	I	III, IV
(2)	I, III	IV	II
(3)	I	II, III	IV
(4)	III, IV	I	II

105. The phytohormone that induces cell elongation is known to be produced by a fungus. The asexual stage of this fungus is called

(1) *Rhizopus sexualis*

(2) *Fusarium moniliformae*

(3) *Gibberella fujikuroi*

(4) *Fusarium oxysporum*

106. The natural plant hormone isolated from corn kernels and coconut milk is

(1) Kinetin (2) GA_3

(3) Free auxins (4) Zeatin

107. In the expression, $W_1 = W_0\, e^{rt}$ (geometrical growth), W_1, W_0, r, t represents

	W_0	W_1	r	t
(1)	Initial size	Final size	Growth rate	Time of growth
(2)	Final size	Initial size	Growth rate	Time of growth
(3)	Final size	Initial size	Growth rate	Time of dividing
(4)	Initial size	Final size	Growth rate	Time of dividing

108. Fruits can be left on the tree longer, so as to increase the market period. This is due to the function of

(1) Delay senescence by auxin

(2) Delay senescence by CH_2 — CH_2

(3) Delay senescence by cytokinin

(4) Delay senescence by GA

109. One hormone helps in ripening of fruits, while the other stimulates closure of stomata. These are respectively

(1) Abscisic acid and auxin

(2) Ethylene and abscisic acid

(3) Auxin and ethylene

(4) Ethylene and gibberellic acid

110. H.H. Cousins confirmed the release of

(1) IBA (2) GA_3

(3) C_2H_4 (4) ABA

111. Respiratory climacteric is related with

(1) ABA (2) C_2H_4

(3) Auxin (4) GA

112. Member of auxin, which is widely used to kill the dicotyledonous weed is

(1) IAA (2) IBA

(3) NAA (4) 2-4-D

113. The first stage of plant growth is

(1) Zygote formation (2) Plasticity

(3) Seed germination (4) Differentiation

114. Indole, 3 acetic acid, called as auxin was first isolated from

(1) Human urine (2) Corn germ oil

(3) *Fusarium* (4) *Rhizopus*

115. Apical dominance means :-

(1) Suppression of growth of apical bud by axillary buds

(2) Suppression of growth of axillary buds by the presence of apical bud.

(3) Stimulation of growth of axillary buds by removal of apical bud

(4) Inhibition of growth of axillary buds by removal of apical bud.

116. The maximum growth rate occurs in

(1) Exponential phase

(2) Stationary phase

(3) Senescent phase

(4) Lag phase

117. Plants bend toward the light because

(1) They need light for photosynthesis

(2) They need light for respiration

(3) Light attracts them

(4) Cells on the shaded side elongate more

118. What causes a green plant exposed to the light on only one side, to bend toward the source of light as it grows?

(1) Green plants need light to perform photosynthesis.

(2) Green plants seek light because they are phototropic.

(3) Light stimulates plant cells on the lighted side to grow faster.

(4) Auxin accumulates on the shaded side, stimulating greater cell elongation there.

119. The movement of auxin is

(1) Acropetal (2) Basipetal

(3) Lateral (4) Centripetal

120. How many oxygen molecules are required to oxidize six molecules of Acetyl Co-A?

(1) 12

(2) 24

(3) 6

(4) Cannot be calculated

121. In germinating seeds Amylase, Proteases, Lipases are stimulated by

(1) Auxin (2) Gibberellin

(3) Cytokinin (4) Ethylene

122. Abscisic acid treatment results in

(1) Leaf expansion (2) Stem elongation

(3) Stomatal closure (4) Root elongation

123. In tissue culture, differentiation of shoot is controlled by

(1) Light Intensity

(2) Temperature shock

(3) Low Auxin to high CK ratio

(4) High auxin to low CK ratio

124. Which is anti-GA hormone?

(1) Benzyl aminopurine (BAP)

(2) Dichlorophenoxy acetic acid

(3) Ethylene

(4) Abscisic acid

125. Pyruvate dehydrogenase complex is used in converting

(1) Pyruvate to glucose

(2) Glucose to pyruvate

(3) Pyruvic acid to lactic acid

(4) Pyruvate to acetyl Co-A

126. End product of glycolysis is

(1) Citric acid

(2) Glyceraldehyde

(3) Phosphoglyceraldehyde

(4) Pyruvic acid

127. The first member of TCA cycle is

(1) Oxalosuccinic acid

(2) Oxaloacetic acid

(3) Citric acid

(4) C is aconitic acid

128. Excess of ATP inhibits the enzyme :-

(1) Phosphofructokinase

(2) Hexokinase

(3) Aldolase (Lyases)

(4) Pyruvate decarboxylase

129. The net gain of ATP molecules by glycolysis in aerobic condition is

(1) Zero (2) Two

(3) Four (4) Eight

130. Respiration occurs in

(1) All living cells both in day and night

(2) Non green cells only in day

(3) Non green cells in both day and night

(4) All living cells in day only

131. Which enzyme breaks the fructose-1, 6-Bisphosphate?

(1) Hexokinase

(2) Phosphatase

(3) Aldolase

(4) Phosphofructokinase

132. In amphibolic pathway product formed by breaking of fats into

(1) Fatty acids

(2) Malic acid

(3) Glycerol

(4) Both (1) and (3)

133. What causes R.Q. to vary?

(1) Respiratory Substrate

(2) Light & O_2

(3) Respiratory Product

(4) Temperature

134. When the evolution of CO_2 is more than the intake of O_2, the respired substrate should be:

(1) Fatty acid (2) Organic acid

(3) Glucose (4) Polysaccharides

135. **Assertion (A):** Breaking down processes within the living organism is anabolism and synthesis is catabolism.

Reason (R): The proteins would be degraded by proteases and the individual amino acids (after deamination) depending on their structure would enter the pathway at some stage within the Krebs cycle or even as pyruvate or acetyl CoA.

(1) A and R both are correct.

(2) A and R both are incorrect.

(3) A is correct, R is incorrect.

(4) A is incorrect, R is correct.

136. Identify X, Y and Z in the table given below:

Cyclostomata	Scales and paired fins absent	X	Vertebral column cartilaginous
Chondrichthyes	Scales and paired fins present	Y	Cartilaginous endoskeleton
Osteichthyes	Scales and paired fins present	Circulation closed type	Z

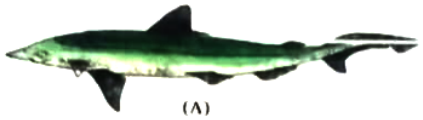
(1) X = Circulation closed type, Y = Circulation closed type, Z = Bony endoskeleton

(2) X = Circulation open type, Y = Circulation closed type, Z = Bony endoskeleton

(3) X = Circulation open type, Y = Circulation open type, Z = Cartilaginous endoskeleton

(4) X = Circulation closed type, Y = Circulation closed type, Z = Cartilaginous endoskeleton

137. Identify the organism and their respective classes correctly



(A)

(B)

(C)

	A	B	C
(1)	Scoliodon, Chondrichthyes	Pristis, Cyclostomata	Petromyzon, Osteichthyes
(2)	Pristis, Osteichthyes	Scoliodon, Chondrichthyes	Petromyzon, Cyclostomata
(3)	Hippocampus, Osteichthyes	Pristis, Chondrichthyes	Scoliodon, Chondrichthyes
(4)	Scoliodon, Chondrichthyes	Pristis, Chondrichthyes	Petromyzon, Cyclostomata

138. Given below are four matchings of an animal and its kind of respiratory organ:

A. Silver fish – Trachea

B. Scorpion - Book lung

C. Sea squirt - Pharyngeal gills

D. Dolphin - Skin

The correct matchings are

(1) A and D (2) A, B and C

(3) B and D (4) C and D

139. Chordates possess :

(1) Dorsal nerve cord placed below gut

(2) Single hollow nerve cord placed dorsal to gut

(3) Double ventral nerve cord

(4) Single, solid and ventral nerve cord

140. Which of the following groups includes Endothermic animals (Homothermal):

(1) Crocodile, alligator, turtle

(2) Whale, pigeon, bat

(3) Sea-horse, dog fish, cat fish

(4) Toad, frog, salamander

141. The primitive characters of Duck billed platypus suggest that it

(1) Is a degenerated mammals

(2) Shows the stage between aves and mammals

(3) Shows the stage between reptiles and birds

(4) Shows the stage between reptiles and mammals

142. Match the following genera with their respective phylum:

(a) *Ophiura* (i) Mollusca

(b) *Physalia* (ii) Platyhelminthes

(c) *Pinctada* (iii) Echinodermata

(d) *Planaria* (iv) Coelenterata

Select the correct option:

(1) a - (iv), b - (i), c - (iii), d - (ii)

(2) a - (iii), b - (iv), c - (i), d - (ii)

(3) a - (i), b - (iii), c - (iv), d - (ii)

(4) a - (iii), b - (iv), c - (ii), d - (i)

143. Some important features are mentioned in the box below:

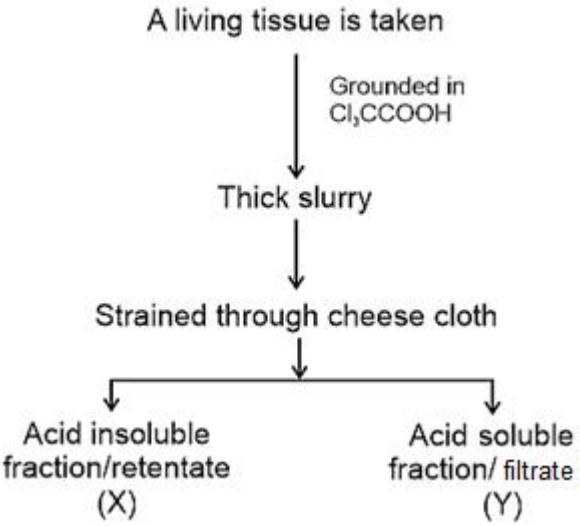
Oviparous only, Internal fertilization only, cold-blooded, placoid scales, streamlined body

How many of the features are common both to chondrichthyes and osteichthyes?

(1) Four (2) Three

(3) Two (4) Five

144. Study the flow chart given below and identify X and Y according to the statements (i-v) provided.



(i) Monomers are present

(ii) Polymers are abundant

(iii) Molecular weight more than 800 Daltons

(iv) Molecular weight between 18-800 Daltons

(v) Amino acids, nucleotides monosaccharides

	X	Y
(1)	(ii), (iii)	(i), (iv), (v)
(2)	(i), (ii)	(iii), (iv), (v)
(3)	(ii), (iii), (iv)	(i), (v)
(4)	(i), (iv), (v)	(ii), (vi)

145. Find out the molecular formula of a small polypeptide chain made of ten glycine molecules only when the molecular formula of glycine is $C_2H_5O_2N$?

(1) $C_{20}H_{32}O_{11}N_{10}$ (2) $C_{25}H_{16}O_5N_5$

(3) $C_{20}H_{50}O_{20}N_{10}$ (4) $C_{40}H_{32}O_2N_5$

146. How many of compounds given below represent nucleosides (X) and nucleotides (Y).

Adenylic acid, cytidine, AMP, dCTP, Guanosine, dAMP

(1) X = 4, Y = 2 (2) X = 3, Y = 3

(3) X = 2, Y = 4 (4) X = 1, Y = 5

147. You and your study partner want to draw the pathway that controls the reabsorption of sodium ion when blood pressure falls. Which of the following is the correct sequence of events?

(a) Aldosterone is released

(b) Kidney tubules reabsorb Na^+

(c) Renin is released

(d) Juxtaglomerular apparatus (JGA) recognizes a drop in blood pressure.

(e) Angiotensin II is produced

(1) a, c, e, b, d (2) d, b, c, a, e

(3) d, c, e, a, b (4) b, d, c, a, e

148. Which of the following features is used to identify a male cockroach from a female cockroach?

(1) Presence of a boat shaped sternum on the 9th abdominal segment

(2) Presence of caudal styles or anal styles

(3) Forewings with darker tegmina

(4) Presence of anal cerci

149. If the head of cockroach is removed, it may live for few days because: -

(1) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.

(2) the cockroach does not have nervous system.

(3) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.

(4) the head holds a $1/3^{rd}$ of a nervous system while the rest is situated along the dorsal part of its body.

150. Given below are two statements:

Statement I : In cockroach, the forewings are transparent and prothoracic in origin.

Statement II: In cockroach, the hind wings are opaque, leathery and mesothoracic in origin.

In the light of the above statements, choose the correct answer from the options given below:

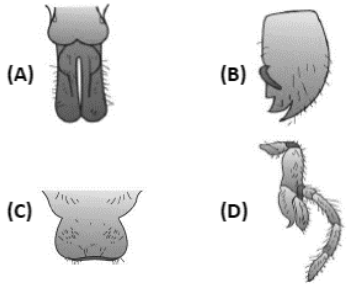
(1) Statement I is correct but Statement II is false.

(2) Statement I is incorrect but Statement II is true.

(3) Both Statement I and Statement II are true.

(4) Both Statement I and Statement II are false.

151. Identify the A, B, C and D in the given diagram and choose the correct option:



	A	B	C	D
1	Hypopharynx	Mandible	Labrum	Maxilla
2	Labrum	Maxilla	Mandible	Hypopharynx
3	Hypopharynx	Labrum	Maxilla	Mandible
4	Mandible	Hypopharynx	Labrum	Maxilla

152. Read the following points :-

(i) Increases GFR

(ii) Increases B.P.

(iii) Decreases blood volume

(iv) Increases aldosterone secretion

(v) Vasoconstrictor

(vi) Increases Na^+ excretion

How many points are correct about Angiotensin II?

(1) Two (2) Three

(3) Four (4) Five

153. Select the incorrect statement w.r.t. Rana tigrina

(1) The urinary bladder is present ventral to the rectum

(2) The medulla oblongata passes through the foramen magnum and continues into spinal cord

(3) Hepatic portal system is absent but renal portal system is present

(4) Vasa efferentia are 10-12 in number

154. Assertion (A) : Frog shows sexual dimorphism

Reason (R) : Male frog can be distinguished from female by presence of vocal sacs.

(1) Both Assertion and Reason are true and Reason is a correct explanation of Assertion.

(2) Both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

(3) Assertion is true but Reason is false.

(4) Both Assertion and Reason are false.

155. Which one of the following sets of monosaccharides forms sucrose?

(1) β-D-Glucopyranose and α-D-fructofuranose

(2) α-D-Glucopyranose and B-D-fructopyranose

(3) α-D-Galactopyranose and α-D-Glucopyranose

(4) α-D-Glucopyranose and B-D-fructofuranose

156. Macro molecule chitin is:

(1) Simple polysaccharide

(2) Nitrogen containing polysaccharide

(3) Phosphorus containing polysaccharide

(4) Sulphur containing polysaccharide

157. A dehydration reaction links two glucose molecules to produce maltose. If the formula for glucose is $C_6H_{12}O_6$ then what is the formula for maltose?

(1) $C_{12}H_{24}O_{12}$ (2) $C_{12}H_{22}O_{11}$

(3) $C_{12}H_{24}O_{11}$ (4) $C_{12}H_{20}O_{10}$

158. Given below are two statements:

Statement – I : A protein is imagined as a line, the left end represented by first amino acid (C-terminal) and the right end represented by last amino acid (N-terminal).

Statement – II : Adult human hemoglobin, consists of 4 subunits (two subunits of α type and two subunits β type.)

In the light of the above statements, choose the correct answer from the options given below:

(1) Both Statement I and Statement II are false.

(2) Statement I is true but Statement II is false.

(3) Statement I is false but Statement II is true.

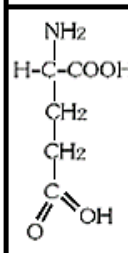
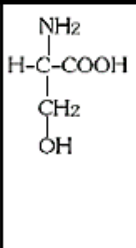
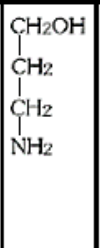
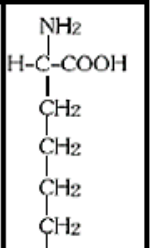
(4) Both Statement I and Statement II are true.

159. Inulin is a polymer of

(1) Fructose (2) Galactose

(3) Amino acids (4) Glucose

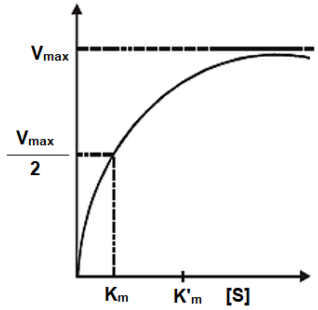
160. Which one out of A-D given below correctly represents the structural formula of the basic amino acid ?

A	B	C	D
			

(1) A (2) B

(3) C (4) D

161. The given graph is showing the effect of substrate concentration (S) on enzymatic activity. If due to change in enzymatic activity K_m value changes to K'_m then which of the following can be conclude on the basis of this change?



(1) There is a significant increase in enzymatic activity

(2) Entry of positive allosteric modulator in enzymatic activity

(3) Entry of non-competitive inhibitor in enzymatic activity

(4) In enzymatic activity, entry of inhibitor which closely resembles the substrate in its molecular structure

162. Which of the following statements are correct with respect to vital capacity?

(a) It includes ERV, TV and IRV

(b) Total volume of air a person can inspire after a normal expiration

(c) The maximum volume of air a person can breathe in after forced expiration

(d) It includes ERV, RV and IRV.

(e) The maximum volume of air a person can breath out after a forced inspiration.

Choose the **most appropriate answer** from the options given below:

(1) (b), (d) and (e) (2) (a), (c) and (d)

(3) (a), (c) and (e) (4) (a) and (e)

163. Assertion (A): A person goes to high altitude and experiences 'Altitude Sickness' with symptoms like breathing difficulty and heart palpitations.

Reason (R) : Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen. In the light of the above statements, choose the correct answer from the options given below :-

(1) (A) is true but (R) is false.

(2) (A) is false but (R) is true.

(3) Both (A) and (R) are true and (R) is the correct explanation of (A).

(4) Both (A) and (R) are true but (R) is not the correct explanation of (A).

164. Which of the following statement is incorrect?

(1) A healthy man can inspire or expire approximately 6000 to 8000 ml of air per second.

(2) Total volume of air that can accommodated in the lungs at the end of forced inspiration is called total lung capacity.

(3) Total volume of air a person can expire after a normal inspiration is called expiratory capacity.

(4) Amount of air remain in lungs even after deep and forceful expiration is called residual volume of air.

165. The amount of CO_2 that can diffuse through the diffusion membrane per unit difference in partial pressure is much higher compared to that of O_2. Why?

(1) Because diffusion of gases takes place only at alveoli

(2) Because the solubility of CO_2 is 20-25 times lesser than that of O_2

(3) Because the solubility of CO_2 is 20-25 times higher than that of O_2

(4) Because alveoli are very large in number

166. Consider the following four statements (a-d) and select the option which includes all the correct option only

(a) At the time of inspiration, contraction in diaphragm and external intercostal muscles take place.

(b) Normal breathing is also called as abdominal breathing.

(c) Expiration during sneezing, coughing, yoga is normal expiration during which IICM and abdominal muscles relax.

(d) Inspiration can occur if the pressure within lungs (intra pulmonary pressure) is more then the atmospheric pressure.

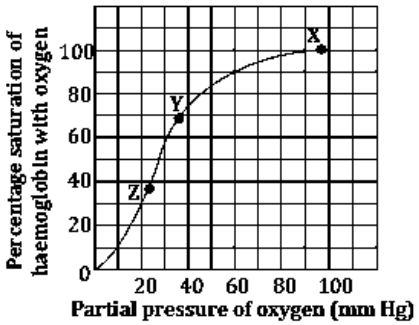
(1) Statements (a), (b), (c), (d)

(2) Statements (a) only

(3) Statements (a), (b), (c)

(4) Statements (a) and (b)

167. Given below graph shows an oxygen dissociation curve :-



Where in the body will hemoglobin be saturated at the percentage shown at points X, Y and Z.

(1) X-Pulmonary artery, Y-Pulmonary vein, Z-Carotid artery

(2) X-Systemic artery, Y-Pulmonary artery, Z-Pulmonary vein

(3) X-Pulmonary vein, Y-Systemic vein, Z-Systemic vein during exercise

(4) X-Left ventricle, Y-Right ventricle, Z-Systemic artery

168. Which one of the following is the correct statement for respiration in humans?

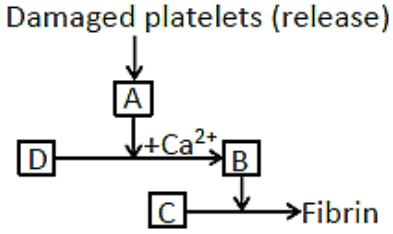
(1) Workers in grinding and stone-breaking industries may suffer from lung fibrosis

(2) Abut 90% of carbon dioxide (CO_2) is carried by hemoglobin as carbamino hemoglobin

(3) Cigarette smoking may lead to inflammation of bronchi

(4) Neural signals from pneumotaxic centre in pons region of brain can increase the duration of inspiration

169. Identify A, B and C in the given below blood clotting process.



	A	B	C
(1)	Thromoplastin	Prothrombin	Fibrinogen
(2)	Thrombin	Fibrinogen	Thrombo- Kinase
(3)	Thromboplastin	Thrombin	Fibrinogen
(4)	Prothrombin	Thrombin	Fibrinogen

170. Read the following statements (A-D) :-

A. RBCs are the most abundant of all the cells in blood

B. A healthy adult man has on an average 5 billions to 5.5 billions of RBCs mm^{-3} of blood

C. RBCs are formed in liver in the adults

D. RBCs are devoid of nucleus in mammals and are biconcave in shape

How many of the above statements are incorrect

(1) Four (2) Three

(3) Two (4) One

171. In which the following can increase the rate of heart beat?

(A) Sympathetic neural signals.

(B) Parasympathetic neural signals.

(C) Adrenal medullary hormones.

(D) Vagus nerve.

(E) Thyroxine hormone

(F) Acetylcholine

(1) A, C, E (2) D, E, F

(3) A, C, D (4) B, D, F

172. During ventricular systole :-

(1) Semilunar valves are closed

(2) About 30 percent blood is pumped into aorta from ventricles.

(3) Tricuspid and Bicuspid valves are closed

(4) Ventricular pressure declines

173. Which among the following is correct during each cardiac cycle?

(1) The volume of blood pumped out by the Rt and Lt ventricles is same.

(2) The volume of blood pumped out by the Rt and Lt ventricles is different

(3) The volume of blood received by each atrium is different

(4) The volume of blood received by the aorta and pulmonary artery is different

174. Read the following statements and choose the correct option -

(a) Plasma consists of nearly 45% part of blood

(b) Fibrinogen, albumin & globulin are major proteins of plasma

(c) Albumin helps in osmotic balance & retention of water in plasma

(d) Plasma without the clotting factors is called serum

(1) only b and c correct (2) b, c & d correct

(3) a, b & c correct (4) only c & d correct

175. Choose the option which has all correct statements related to ECG -

(a) QRS complex represents polarisation of ventricles

(b) ECG is graphical representation of electrical activity of heart

(c) T-wave represent end of diastole & repolarisation

(d) Number of QRS complexes is equal to number of heart beat of an individual.

(1) a, b and d (2) b, c and d

(3) b and c (4) b and d

176. Given below are two statements:

Statement – I : Cardiac output is blood volume pumped by each ventricle per minute.

Statement – II : Body has the ability to alter heart rate but not stroke volume.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Both Statement-I and II both are incorrect.

(2) Statement-I is correct but statement-II is incorrect.

(3) Statement-I is incorrect and Statement-II is correct.

(4) Both Statement-I and Statement-II are correct.

177. How many of the following chordates have flame cells as excretory organ.

Planaria, Ascaris, Amphioxus, Tapeworm, Nereis, Scoliodon.

(1) One (2) Two

(3) Three (4) Four

178. Read statements A-D :-

(A) When some one drinks lot of water, ADH release is decreased.

(B) Exposure to cold temperature suppress ADH release

(C) Caffeine in Tea and coffee increase sodium absorption from DCT and collecting ducts

(D) ADH also cause vasodilation

Which statements are correct?

(1) A and C (2) A and B

(3) C and D (4) B and D

179. Large amount of water is ....A... from collecting duct to produce ...B... urine. This segment allows passage of small amounts of ...C... into interstitium of medulla to keep up the osmolarity. Here, A, B and C refers to

(1) A- secreted, B-dilute, C-sugar

(2) A- secreted, B-dilute, C-NH_3

(3) A- secreted, B-dilute, C-urea

(4) A- reabsorbed, B-concentrated, C-urea

180. Suppose you are developing a new drug, and have found that when it is administered in humans there is a substantial increase in the volume of urine produced. When you administer antidiuretic hormone (ADH or vasopressin) at the same time, the volume of urine returns to normal. Which hypothesis best fits these observations?

The new drug?

(1) Blocks the receptors for ADH on the collecting duct of the kidney.

(2) Blocks the release of ADH from the pituitary

(3) Mimics the action of ADH

(4) Decreases blood pressure