## NEET SAMPLE PAPER - 4

Topics Covered:

| Physics | :Full Syllabus |
| :--- | :--- |
| Chemistry | :Full Syllabus |
| Biology | : Full Syllabus |

## Important Instruction:

1. Attempting all the questions are compulsory.
2. Use Blue / Black Ball point pen only.
3. There are three sections of equal weightage in the question paper $A, B, C$ (Physics, Chemistry having 45 questionsand Biology having $\mathbf{9 0}$ questions.
4. For marking scheme, +4 marks for each correct answer and -1 marks for each incorrect answer.
5. Use of calculator and other electronic devices is not allowed during the exam.
6. No extra sheets will be provided for any kind of work.
Name of the Student : ....................................................................................................Class:
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Father's Name:.............................................................................................................Signature :
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Branch Name : ...................................................................................................Contact No :
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## PART - A (PHYSICS)

1. In which of the following instrument used in the lab there exists an error of random category known as back
lash error; (i) Screw gauge
(ii) Micrometer
(iii) Searle's apparatus
(iv) Vernier calipers
(a) (i) and (ii) only
(b)(i) ,(ii) and (iii) only
(c) (i) only
(d) All four
2. A particle is executing S.H.M between two points $P$ and $Q$ with zero velocity at these two points which are the distances ' $a$ ' and ' $b$ ' from a fixed point ' $O$ ' in the same line OPQ. The velocity of particle midway between the points P and Q is V . The time period of oscillation of the particle is
(a) $\frac{\pi(a+b)}{V}$
(b) $\frac{\pi(b-a)}{V}$
(c) $\frac{\pi(a+b)}{2 V}$
(d) $\frac{\pi(b-a)}{2 V}$
3. In the figure below, PQRS denotes the path followed by a ray of light as it travels through three media in succession. The absolute refractive indices of the media are $\mu_{1}, \mu_{2}$ and $\mu_{3}$ respectively. (The line segment $\mathrm{RS}^{1}$, in the figure is parallel to PQ ). Then
(a) $\mu_{1}>\mu_{2}>\mu_{3}$
(b) $\mu_{1}<\mu_{2}<\mu_{3}$
(c) $\mu_{1}=\mu_{3}<\mu_{2}$
(d) $\mu_{1}<\mu_{2}<\mu_{3}$

4. A boat crossing a river moves with a velocity v relative to still water. The river is flowing with a velocity $\mathrm{v} / 2$ with respect to the bank. The angle with respect to the flow direction with which the boat should move to minimize the drift is:
(a) $30^{\circ}$
(b) $60^{\circ}$
(c) $150^{\circ}$
(d) $120^{\circ}$
5. Following figure show different combinations of identical bulb(s)
connected to identical battery(ies). Which option is correct regarding the total power dissipated in the circuit?

(a) P $<$ Q $<$ R $<$ S
(b) R $<$ Q $<$ P $<$ S
(c) P $<$ Q $<$ R $=$ S
(d) P $<$ R $<$ Q $<$ S
6. Two long conductors separated by a distance d carry currents $i_{1}$ and $i_{2}$ in the same direction. They exert a force F on each other. Now the current in one of them is increased to two times and its direction is reversed. The distance is also increased to 3d. The new value of the force between them is
(a) $-2 \mathrm{~F} / 3$
(b) $\mathrm{F} / 3$
(c) $-2 F$
(d) $-\mathrm{F} / 3$
7. Figure shows seven identical blocks kept equidistant on a frictionless floor. Initially, blocks a and bare moving right ward and block $g$ is moving leftward, each with speed $v=3 \mathrm{~m} / \mathrm{s}$. The other blocks are stationary. A series of perfectly elastic collisions occur. After the last collision the speed and direction of motion of

(a) A will be at rest
(b) D will be $1.5 \mathrm{~m} / \mathrm{s}$ towards left
(c) F will be at rest
(d) G will be $3 \mathrm{~m} / \mathrm{s}$ towards right.
8. In photoelectric effect when photons of energy hv fall on a photosensitive surface (work function $=\phi$ ) electrons are emitted from the metallic surface with a kinetic energy. It is possible to say that
(a) All ejected electrons have same kinetic energy equal to $h v-\phi$
(b) The ejected electrons have a distribution of kinetic energy from zero to $h \nu-\phi$
(c) The most energetic electrons have kinetic energy equal to $\phi$
(d) All ejected electrons have kinetic energy hv
9. A galvanometer ( G ) is shunted such that only $1 / 11$ th of the main current flows through it. If $\mathrm{G}=150 \Omega$ the shunt resistance is
(a) $15 \Omega$
(b) $20 \Omega$
(c) $10 \Omega$
(d) $25 \Omega$
10. In the figure two conducting concentric charged spherical shells are shown. If the electric potential at the center is 20 V and the electric potential of the outer shell is 5 V , then the potential of the inner shell is
(a) 5 V
(b) 15 V
(c) 20 V
(d) 25 V

11. A wave with a frequency of 30 Hz travels along a string at speed of $36 \mathrm{~m} / \mathrm{s}$ and reflects off a free end. The distance of the first node from the end of the string
(a) 0.2 m
(b) 0.3 m
(c) 0.4 m
(d) 0.6 m
12. Three rings, each having equal radius $R$, are placed mutually perpendicular to each other and each having its center at the origin of coordinate system. If current I is flowing through each ring, then the magnitude of the magnetic filed at the common center is
(a) $\sqrt{3} \frac{\mu_{0} I}{2 R}$
(b) Zero
(c) $(\sqrt{2}-1) \frac{\mu_{0} I}{2 R}$
(d) $(\sqrt{3}-\sqrt{2}) \frac{\mu_{0} I}{2 R}$

13. An infinite number of capacitors of capacitances $C, 2 C, 4 C, 8 C, 16 C, 32 C, \ldots .$. are connected in series. The equivalent capacitance of arrangement between $A$ and $B$ is

(a) C
(b) $\mathrm{C} / 2$
(c) 2 C
(d) Infinite
14. Inside a long straight uniform wire of circular cross - section there is a long cylindrical cavity (bore) of radius $r$ whose axis is parallel to the axis of the wire. Axis of cavity is displaced from the axis of wire by a distance ' L ' as shown in figure. A direct current J flows through the wire. Then
I) Magnetic field inside the cavity is non-uniform
II) Magnetic field inside the cavity is uniform
III) Field inside the cavity is directly proportional to L
IV) Magnetic field inside the cavity is independent of $L$
(a) I and IV
(b) I and III
(c) II and IV
(d) II and III

15. In the circuit shown, the galvanometer shows zero deflections. The batteries have negligible internal resistance. The value of the resistor $R$ is

(a) $200 \Omega$
(b) $100 \Omega$
(c) $500 \Omega$
(d) $1000 \Omega$
16. In YDSE, the width of one slit is different from other, so that the amplitude of light from one slit is double that from the other. If $\mathrm{I}_{\mathrm{m}}$ is the maximum intensity, the intensity when they interfere with a phase difference of $\phi$ is
(a) $\frac{I_{m}}{9}(4+5 \cos \phi)$
(b) $\frac{I_{m}}{3}\left(1+2 \cos ^{2} \frac{\phi}{2}\right)$
(c) $\frac{I_{m}}{5}\left(1+4 \cos ^{2} \frac{\phi}{2}\right)$
(d) $\frac{I_{m}}{9}\left(1+8 \cos ^{2} \frac{\phi}{2}\right)$
17. If $I_{0}$ is the intensity of principal maximum in the single slit diffraction experiment, the intensity of the principal maximum when the slit width is doubled is
(a) $2 I_{0}$
(b) $4 I_{0}$
(c) $I_{0}$
(d) $\mathrm{I}_{0} / 2$
18. The maximum work done in rotating a bar magnet of magnetic moment $M$ when placed in a uniform magnetic field $B$ is
(a) MB
(b) -MB
(c) 2 MB
(d) Zero
19. Three waves $A, B$ and $C$ of frequencies $1600 \mathrm{kHz}, 5 \mathrm{MHz}$ and 60 MHz are to be transmitted from one place to another. Which of the following mode of communication is most appropriate?
(a) A is transmitted via space wave while B and C are transmitted via sky wave
(b) A is transmitted via ground wave, B is transmitted via sky wave while C is transmitted via space wave
(c) B and C are transmitted via ground wave, while A is transmitted via sky wave
(d) B is transmitted via ground wave while A and C are transmitted via space wave
20. Two positive charges $q_{2}$ and $q_{3}$ are placed along the $y$-axis as shown. They exert a net force on $q_{1}$ in the positive $x$ - direction. If a third positive charge $Q$ is placed on the $x$-axis at $(X, 0)$ then the net force on $q_{1}$

(a) Shall increase in the positive $x$-direction.
(b) Shall decrease in the negative $x$-direction.
(c) Shall be in the negative $y$-direction.
(d) Cannot be predicted
21. A fish looking up through the water sees the outside world contained in a circular horizon. If the refractive index of water is $4 / 3$ and the fish is 12 cm below the surface. The radius of this circle is
(a) $36 \sqrt{7} \mathrm{~cm}$
(b) $36 / \sqrt{7}$
(c) $36 \sqrt{5}$
(d) $4 \sqrt{5}$
22. An electro-magnetic wave in vacuum has the electric and magnetic fields as $\overline{\mathrm{E}}$ and $\overline{\mathrm{B}}$, which are always perpendicular to each other. The direction of polarization is given by $\bar{X}$ and that of the wave propagation as $\overline{\mathrm{k}}$. Then
(a) $\bar{X} \perp \bar{B}$ and $\overline{\mathbf{k}} \perp \bar{B} \mathbf{X} \bar{E}$
(b) $\bar{X} \perp \bar{E}$ and $\overline{\mathbf{k}} \perp \bar{E} \times \bar{B}$
(c) $\bar{X} \perp \bar{B}$ and $\overline{\mathbf{k}} \perp \bar{E} X \bar{B}$
(d) $\bar{X} \perp \bar{E}$ and $\overline{\mathbf{k}} \perp \bar{B} X \bar{E}$
23. A fully charged capacitor $C$ with initial charge $q_{0}$ is connected to a coil of inductance $L$ at time $t=0$. The time after which the energy is stored equally between electric and magnetic fields is
(a) $\frac{\pi}{4} \sqrt{\mathrm{LC}}$
(b) $2 \pi \sqrt{\mathrm{LC}}$
(c) $\sqrt{\mathrm{LC}}$
(d) $\pi \sqrt{\mathrm{LC}}$
24. A thin glass lens (refractive index $=1.5$ ) has an optical power of 5D in air. Its optical power in a liquid of refractive index 1.6 is
(a) 1 D
(b) -1 D
(c) $-5 / 8 \mathrm{D}$
(d) $5 / 8 \mathrm{D}$
25. Truth table of the four NAND gates shown in the figure is

(a)

| A | B | Y |
| :--- | :--- | :--- |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

(b)

| A | B | Y |
| :--- | :--- | :--- |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

(c)

| A | B | Y |
| :--- | :--- | :--- |
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 0 |
| 1 | 1 | 0 |

(d)

| A | B | Y |
| :---: | :---: | :---: |
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

26. The figure shows a part of a complete circuit. The potential difference $V_{B}-V_{A}$ when the current $I$ is $5 A$ and is decreasing at a rate of $10^{3} \mathrm{As}^{-1}$ is given by

(a) 15 V
(b) 10 V
(c) -15 V
(d) 20 V
27. Two conducting rings $P$ and $Q$ of radii $r$ and $2 r$ rotate uniformly in opposite directions with centre of mass velocities $2 v$ and $v$ respectively on a conducting surface $S$. There is a uniform magnetic field of magnitude $B$ perpendicular to the plane of the rings. The potential difference between the highest points of the two rings is

(c) 8 Bvr
(d) 16 Bvr
(a) zero
(b) 4 Bvr
28. Let $u_{1}$ be the frequency of the series limit of the Lyman series, $u_{2}$ be the frequency of the first line of the Lyman series, and $u_{3}$ be the frequency of the series limit of the Balmer series.
(a) $\mathrm{u}_{1}-\mathrm{u}_{2}=\mathrm{u}_{3}$
(b) $\mathrm{u}_{2}-\mathrm{u}_{1}=\mathrm{u}_{3}$
(c) $\mathrm{u}_{3}=\frac{1}{2}\left(\mathrm{u}_{2}+\mathrm{u}_{1}\right)$
(d) $\mathrm{u}_{3}=\left(\mathrm{u}_{2}+\mathrm{u}_{1}\right)$
29. In a series CR circuit shown in figure, the applied voltage is 10 V and the voltage across capacitor is found to be 8 V . Then the voltage across R , and the phase difference between current and the applied voltage will respectively be

(a) $6 \mathrm{~V}, \tan ^{-1}\left(\frac{4}{3}\right)$
(b) $3 V, \tan ^{-1}\left(\frac{3}{4}\right)$
(c) $6 \mathrm{~V}, \tan ^{-1}\left(\frac{5}{3}\right)$
(d) Zero, Zero
30. For a transistor amplifier, the voltage gain
(a) Remains constant for all frequencies
(b) Is high at high and low frequencies and constant in the mid frequency range
(c) Is low at high and low frequencies and constant in the mid frequency range
(d) Is highly irregular.
31. The rate of decay of a radioactive element at $t=0$ instant $10^{3}$ disintegrations/s. If the half- life of the elements is 1 s , then the rate of decay after 1 s will be
(a) 500 disintegrations / s
(b) 1000 disintegrations/s
(c) 250 disintegrations/s
(d) 2000 disintegrations/s
32. In the case of geostationary satellite, the
(a) Rotation of the earth and the revolution of the satellite need not be about common axis
(b) Rotation of the earth and revolution of the satellite will be in opposite directions
(c) Angular velocity of the earth's rotation and angular velocity of revolution of the satellite will be equal and be in the same direction
(d) Angular velocity of the earth's rotation and angular velocity of revolution of the satellite will not be equal
33. A sphere of brass released in a long liquid column attains a terminal speed $v_{0}$. If the terminal speed attained by the sphere of marble of the same radius and released in the same liquid is $n v_{0}$, then the value of $n$ will be. [ Given: The specific gravities of brass, marble and the liquid are $8.5,2.5$ and 0.8 respectively.]
(a) $\frac{5}{17}$
(b) $\frac{17}{77}$
(c) $\frac{11}{31}$
(d) $\frac{17}{5}$
34. The maximum load a wire of length $L$ and cross sectional area A can withstand without breaking is $W$. The maximum load that another wire of same material, length $\frac{L}{2}$ and area of cross section A can withstand without breaking is
(a) 2 W
(b) $\frac{W}{2}$
(c) 4 W
(d) W
35. Two springs of force constant $100 \mathrm{~N} / \mathrm{m}$ and $150 \mathrm{~N} / \mathrm{m}$ are in series as shown. The block is pulled by a distance of 2.5 cm to the right from equilibrium position. What is the ratio of work done by the spring at left to the work done by the spring at right?
(a) $\frac{3}{2}$
(b) $\frac{2}{3}$

(c) 0.2
(d) 0.5
36. A stationary body of mass $m$ is slowly lowered onto a massive long platform of mass $M(\gg m)$ moving at a speed $4 \mathrm{~m} / \mathrm{s}$ as shown in the figure. How far the body slides along the platform?
[Take $\mu=0.2$ and $g=10 \mathrm{~m} / \mathrm{s}^{2}$ ].

(a) 8 m
(b) 12 m
(c) 6 m
(d) 4 m
37. The potential energy of a particle of mass 5 kg moving in the $x-y$ plane is given by $U=(-7 x+24 y) J ; x$ and $y$ being measured in m . If the particle starts from origin from rest, the magnitude of the conservative force acting on the particle is
(a) 25 units
(b) 24 units
(c) 7 units
(d) 84 units
38. In figure particle is shown travelling counterclockwise in circle of radius 10 m . The acceleration vector is indicated at a specific time. The value of ' $v$ ' at this time is

(a) $10 \mathrm{~m} / \mathrm{s}$
(b) $15 \mathrm{~m} / \mathrm{s}$
(c) $20 \mathrm{~m} / \mathrm{s}$
(d) $7 \mathrm{~m} / \mathrm{s}$
39. A thin rod of mass $M$ and length $l$ stands along $z$-axis. Its lower end is hinged at the center of a disc of same mass $M$ and radius $R$. The disc is on $X Y$ plane with its center at the origin. The whole arrangement is rotating freely about z-axis with an angular velocity $\omega_{0}$. If the rod falls on disc and rotates with the disc. The angular speed of the arrangement is
(a) $\frac{\omega_{0} R^{2}}{l^{2}+R^{2}}$
(b) $\frac{3 \omega_{0} R^{2}}{2 l^{2}+3 R^{2}}$
(c) $\frac{6 \omega_{0} R^{2}}{l^{2}+6 R^{2}}$
(d) $\frac{6 \omega_{0} R}{l+6 R}$
40. A piece of ice is floating in water. The fraction of volume of the piece of ice outside the water is $\left[\rho_{\text {ice }}=900 \mathrm{~kg} / \mathrm{m}^{3}\right.$ and $\rho_{\text {water }}=1000 \mathrm{~kg} / \mathrm{m}^{3}$ ]
(a) 0.21
(b) 0.01
(c) 0.1
(d) 0.9
41. The water equivalent of a copper colorimeter is 4.5 g . If specific heat of copper is $0.09 \mathrm{cal} / \mathrm{g} /{ }^{\circ} \mathrm{C}$, then
1) Mass of the calorimeter is 0.5 kg
2) Thermal capacity of the calorimeter is $4.5 \mathrm{cal} / \mathrm{C}$
3)The heat required to raise the temperature of the calorimeter by $8^{\circ} \mathrm{C}$ will be 36 cal .
3) Heat required to melt 15 gm of ice placed in the calorimeter will be 1200 cal

Choose the correct option from below
(a) 1 is correct
(b) 2, 3 only are correct
(c) 2, 3, 4 are correct
(d) 3, 4 only are correct
42. On a T-P diagram, two moles of ideal gas perform process $A B$ and CD. If the work done by the gas in the process AB is two times the work done in the process CD then what is the value of $T_{1} / T_{2}$
(a) 3
(b) $5 / 2$
(c) 2
(d) 4

43. A cubic vessel (with faces horizontal + vertical) contains an ideal gas at NTP. The vessel is being carried by a rocket which is moving at a speed of $500 \mathrm{~ms}^{-1}$ in vertical direction. The pressure of the gas inside the vessel as observed by us on the ground
(a) Remains the same because $500 \mathrm{~m} / \mathrm{s}$ is very much smaller than $\mathrm{V}_{\mathrm{rms}}$ of the gas
(b) Remains the same because motion of the vessel as a whole does not affect the relative motion of the gas molecules and the walls
(c) Will increase by a factor equal to $\left(\mathrm{v}^{2}{ }_{\mathrm{rms}}+(500)^{2}\right) / \mathrm{v}^{2}{ }_{\mathrm{rms}}$ where $\mathrm{V}_{\mathrm{rms}}$ was the original mean square velocity of the gas
(d) Will be different on the top wall and bottom wall of the vessel
44. A steel tape gives correct measurement at $20^{\circ} \mathrm{C}$. A piece of wood is being measured with the steel tape at $0^{\circ} \mathrm{C}$. The reading is 25 cm on the tape, the real length of the given piece of wood must be
(a) 25 cm
(b) $<25 \mathrm{~cm}$
(c) $>25 \mathrm{~cm}$
(d) cannot say
45. Two equal forces act a point. The square of their resultant is three times their product of magnitudes. The angle between them is
(a) $30^{\circ}$
(b) $60^{\circ}$
(c) $90^{\circ}$
(d) $120^{\circ}$

## PART - B (CHEMISTRY)

46. At a certain temperature, for the reaction $N_{2}+\mathrm{O}_{2} \rightleftharpoons 2 \mathrm{NO}$; if $\mathrm{K}=0.09$ the equilibrium constant for $\mathrm{NO} \rightleftharpoons \frac{1}{2} \mathrm{~N}_{2}+\frac{1}{2} \mathrm{O}_{2}$ is
(a) 0.03
(b) 3.3
(c) 81
(d) 27
47. $20 \mathrm{~cm}^{3}$ of $0.25 \mathrm{~N} \mathrm{HCl}, 20 \mathrm{~cm}^{3} 0.5 \mathrm{~N} \mathrm{HCl} \& 90 \mathrm{~cm}^{3}$ of $0.1 \mathrm{~N} \mathrm{HNO}_{3}$ were mixed and diluted to a litre. The normality of the resulting solution is.
(a) 0.8 N
(b) 1.05 N
(c) 0.105 N
(d) 0.16 N
48. The oxidation number of sulphur $\operatorname{in} S_{8}, S_{2} F_{2}, H_{2} S$ respectively are.
(a) $0,1,-2$
(b) $2,+4,-2$
(c) $0,+1,2$
(d) $-2,+1,-2$
49. The electronic configuration of N in $\mathrm{HNO}_{2}$ is
(a) $1 \mathrm{~S}^{2} 2 \mathrm{~S}^{2}$
(b) $1 \mathrm{~S}^{2} 2 \mathrm{~S}^{2} 2 \mathrm{P}^{3}$
(c) $1 \mathrm{~S}^{2} 2 \mathrm{~S}^{2} 2 \mathrm{P}^{1}$
(d) $1 \mathrm{~S}^{2} 2 \mathrm{~S}^{2} 2 \mathrm{P}^{5}$
50. What is formed when calcium carbide reacts with heavy water?
(a) $\mathrm{C}_{2} \mathrm{D}_{2}$
(b) $\mathrm{CaD}_{2}$
(c) $\mathrm{Ca}_{2} \mathrm{D}_{2} \mathrm{O}$
(d) $\mathrm{CD}_{2}$
51. Which of the following property is applicable to $\mathrm{e}^{-}$whether it is considered as a wave or as a particle.
(a) Diffraction
(b) Interference
(c) $\mathrm{E}=m c^{2}$
(d) $m c^{2}=h v$
52. Identify the correct statement regarding sodium?
(a) is the smallest atom in the period
(b) has low IE
(c) has high electronegativity
(d) has a general electronic configuration of $n s^{2} n p^{2}$
53. The $3^{\text {rd }}$ IE of an element is found to be very high compared to the first and the second IE. The valency of the element may be
(a) 1
(b) 2
(c) 3
(d) 4
54. Alums are used as mordant in dyeing because
(a) dye is absorbed on $\mathrm{Al}(\mathrm{OH})_{3}$ which is deposited on fibre in the hydrolysis process
(b) dye is adsorbed on KOH formed due to hydrolysis
(c) Both (a) \& (b)
(d) None
55. The number of nodal planes present in a $\sigma^{*} \mathrm{~S}$ anti bonding orbital is
(a) 1
(b) 2
(c) 0
(d) 3
56. $\mathrm{CO}_{2}$ in water behaves as
(a) weak dibasic acid $\mathrm{H}_{2} \mathrm{CO}_{3}$
(b) Weak monobasic acid $\mathrm{HOCO}_{2} \mathrm{H}$
(c) weak diacid base $\mathrm{CO}(\mathrm{OH})_{2}$
(d) weak monoacid base $\mathrm{HO}-\mathrm{CO}_{2} \mathrm{H}$
57. At low pressures, the van der waals equation is written as
$\left[p+\frac{a}{v^{2}}\right] V=R T$ The compressibility factor is then equal to
(a) $\left[1+\frac{a}{R T V}\right]$
(b) $\left[1-\frac{R T V}{a}\right]$
(c) $\left[1-\frac{a}{R T V}\right]$
(d) $\left[1+\frac{R T V}{a}\right]$
58. The explosive TNT is obtained when
(a) toluene reacts with concHNO $\mathrm{H}_{3}$ conc $\mathrm{H}_{2} \mathrm{SO}_{4}$
(b) toluene reacts with conc $\mathrm{HNO}_{3}$
(d) toluene reacts with fuming $\mathrm{HNO}_{3}$
(c) toluene reacts with concH $\mathrm{H}_{2} \mathrm{SO}_{4}$
59. Two bubbles of different radii are connected by a hollow tube, then
(a) Smaller bubble gets smaller, larger gets larger
(b) Smaller bubble gets larger and larger gets smaller
(c) both get smaller
(d) both get larger and ultimately burst
60. An alkane has $\mathrm{C} / \mathrm{H}$ ratio (by mass) of 5.1428 . its molecular formula is
(a) $\mathrm{C}_{8} \mathrm{H}_{18}$
(b) $\mathrm{C}_{7} \mathrm{H}_{16}$
(c) $\mathrm{C}_{5} \mathrm{H}_{12}$
(d) $\mathrm{C}_{6} \mathrm{H}_{14}$
61. Which has the maximum vapour pressure at a given temperature?
(a) $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CH}_{2} \mathrm{OH}$
(b)

(c) $\mathrm{CH}_{3}-\mathrm{O}-\mathrm{CH}_{3}$
(d) $\mathrm{CH}_{3} \mathrm{COOH}$
62. Which of the following statement is of false?
(a) Photo chemical smog causes irritation in eyes?
(b) London smog is a mixture of smoke \& fog
(c) Photo chemical smog results in the formation of PAN
(d) London smog is oxidizing in the nature
63. Latent heat of fusion of ice is $333 \mathrm{~J} / \mathrm{g}$ at $0^{\circ} \mathrm{C}$. Entropy change in entropy units when one mole of ice melts is nearly
(a) 22
(b) 6
(c) -6
(d) -22
64. In a fcc lattice atom $A$ form the corner points and atoms $B$ form the face centered point. If one atom $B$ is missing from the face centered point the formula of the ionic compound is
(a) does not change
(b) $A B_{2}$
(c) $A_{2} B_{5}$
(d) $A_{2} B$
65. 


\&

(a) neutral $\mathrm{FeCl}_{3}$ solution
(b) iodoform test
(c) both (a) and (b)
(d) none of these
66. The VP of a solution of 5 g of non - electrolyte in 100 g of $\mathrm{H}_{2} \mathrm{O}$ at a particular temp is $2985 \mathrm{Nm}^{-2}$. The VP of
pure water at that temperature is $3000 \mathrm{Nm}^{-2}$ The molecular weight of the solute is
(a) 180
(b) 90
(c) 270
(d) 200
67. Consider the following reaction,

Phenol $\xrightarrow{\mathrm{Zn} \text { dust }} \mathrm{X} \xrightarrow[\text { Anhyd } \mathrm{AlCl}_{3}]{\mathrm{CH}_{3} \mathrm{Cl}} \mathrm{Y} \xrightarrow{\mathrm{Alk}_{\mathrm{KMnO}}^{4}} \mathrm{C}$
(a) toluene
(b) benzaldehyde
(c) benzoic acid
(d) benzene
68. A current electricity is passed through a copper voltmeter and water voltmeter connected in series. If the copper anode of the copper voltmeter now weighs 16 mg less, hydrogen liberated at the cathode of the water voltmeter measured at STP is about.
(a) 4 ml
(b) 5.6 ml
(c) 6.4 ml
(d) 8 ml
69. In the following reaction which bonds are cleaved?

(a) bond p \& s
(b) bond q \& r
(c) bond p \& q
(d) bond q \& s
70. The velocity of a chemical reaction doubles for every $10^{\circ} \mathrm{C}$ rise of temperature. If the temperature is raised by $50^{\circ} \mathrm{C}$, the velocity of the reaction increases by about
(a) 10 times
(b) 20 times
(c) 30 times
(d) 50 times
71. Which is Raschig's method?
(a)

(b)
 $\mathrm{N}_{2} \mathrm{Cl} \xrightarrow{\mathrm{CuCl} / \mathrm{HCl}}$
(c)

(d)

72. Which type of polymer is represented by the following segment?

(a) Polyamide
(b) Polyester
(c) Polyolefin
(d) Polyethylene
73. What is the decreasing order of stability of the following carbocations





(a) $1>2>3>4>5$
(b) $1 \approx 4>2 \approx 5>3$
(c) $3>2 \approx 5>1 \approx 4$
(d) $3>1 \approx 4>2 \approx 5$
74. Alizarin belongs to the class of
(a) Vatdyes
(b) Mordant dyes
(c) Reactive dyes
(d) Substantive dyes
75. Which of the following compounds can exhibit linkage isomerism?
(a) $\left[\mathrm{Co}(\mathrm{en})_{3}\right] \mathrm{Cl}_{3}$
(b) $\left[\mathrm{CoCl}_{2}(\mathrm{en})_{2}\right] \mathrm{Cl}$
(c) $\left[\mathrm{CoCl}\left(\mathrm{NO}_{2}\right)(\mathrm{en})_{2}\right] \mathrm{Br}$
(d) $\left[\mathrm{CoCl}\left(\mathrm{NH}_{3}\right)_{5}\right] \mathrm{Br}_{2}$
76. Starting with 3 different amino acid molecules how many different tripeptide molecules could be formed?
(a) 3
(b) 6
(c) 12
(d) 9
77. The IUPAC name for the complex $\left[\mathrm{Co}\left(\mathrm{NO}_{2}\right)\left(\mathrm{NH}_{3}\right)_{5}\right] \mathrm{Cl} 2$ is
(a) nitro - N - pentammine cobalt (II) chloride
(b) pentaaminenitrito -N - Cobalt (II) chloride
(c) pentaamminenitrito -N - cobalt (III) chloride
(d) nitro - N - Pentaammine cobalt (III) chloride
78. End product due to hydrolysis of $(\mathrm{A})$ and subsequent heating is

(b)

(c)

(d)

79. Enzymes are class of substances belonging to
(a) Lipids
(b) Monosaccharides
(c) Nucleic acids
(d) Proteins
80. Compare the 2 methods shown for the preparation of carboxylic acids

Method $1: \mathrm{RBr} \xrightarrow[\text { diethyl ether }]{\mathrm{Mg}} \mathrm{RMgBr} \xrightarrow\left[\left(\text { ii) } \mathrm{H}_{3} \mathrm{O}^{+}\right]{\stackrel{(i) \mathrm{CO}_{2}}{ }} \mathrm{RCOOH}\right.$
Method $2: \mathrm{RBr} \xrightarrow{\mathrm{NaCN}} \mathrm{RCN} \xrightarrow[\Delta]{\mathrm{H}_{2} \mathrm{O}, \mathrm{HCl}} \mathrm{RCOOH}$
$\Delta$
Which one of the following statements correctly describes this conversion?

(a) Both method 1 and 2 are appropriate for carrying out this conversion
(b) Neither method 1 and 2 is appropriate for carrying out this conversion
(c) Method 1 will work well, but method 2 is not appropriate
(d) Method 2 will work well, but method 1 is not appropriate
81. $\mathrm{Ag}_{2} \mathrm{~S}+\mathrm{NaCN}+\mathrm{Zn} \rightarrow \mathrm{Ag}$

This method of extraction of Ag by complex formation and then displacement is called
(a) Parke's method
(b) Mc Arthur forest method
(c) Serpeck method
(d) Hall's method
82. $A$ and $B$ in the following reactions are


Identify A and B ?
(a) $\mathrm{RR}^{\prime} \mathrm{CH}_{2} \mathrm{CN} \quad \mathrm{NaOH}$
(b) RR' C
 $\mathrm{CH}_{3} \mathrm{NH}_{2}$
(c)

$\mathrm{CH}_{3} \mathrm{NH}_{2}$
(d)

$\mathrm{LiAlH}_{4}$
83. Which one of the following contains $\mathrm{P}-\mathrm{O}-\mathrm{P}$ bond?
(a) Hypophosphorus acid
(b) Phosphorus acid
(c) Pyrophosphoric acid
(d) Ortho phosphoric acid
84. $\mathrm{B}($ mix $) \stackrel{\text { conc. } \mathrm{HI}}{\longleftrightarrow}\left(\mathrm{CH}_{3}\right)_{3} \mathrm{C}-\mathrm{O}-\mathrm{CH}_{3} \xrightarrow{\text { anhyd } \mathrm{HI}} \mathrm{A}$ (mix)
(a) $\mathrm{A} \& \mathrm{~B}$ are identical mixture of $\mathrm{CH}_{3} \mathrm{I}$ and $\left(\mathrm{CH}_{3}\right)_{3} \mathrm{COH}$
(b) $\mathrm{A} \& \mathrm{~B}$ are identical mixture of $\left(\mathrm{CH}_{3}\right)_{3} \mathrm{Cl}$ and $\mathrm{CH}_{3} \mathrm{OH}$
(c) A is a mixture of $\mathrm{CH}_{3}$ I and $\left(\mathrm{CH}_{3}\right)_{3} \mathrm{COH}$ and B is a mixture of $\mathrm{CH}_{3} \mathrm{OH}$ and $\left(\mathrm{CH}_{3}\right)_{3} \mathrm{Cl}$
(d) Opposite of (c)
85. $\mathrm{FeS}+\mathrm{HCl} \rightarrow \mathrm{A}+\mathrm{B}(\mathrm{g})$

Gas $B$ is passed into aq. solution of $C$ to form $A$ select correct statements based on the above.
(a) Color of C changes from yellow to very light green
(b) gas B turns lead acetate paper black
(c) A form deep blue color with $\mathrm{K}_{3}\left[\mathrm{Fe}(\mathrm{CN})_{6}\right]$
(d) All the above are true.
86. In which case number of C atoms is retained
(a) $\mathrm{CH}_{3} \mathrm{CH}=\mathrm{CHCH}_{3} \xrightarrow{\mathrm{O}_{3} / \mathrm{H}_{2} \mathrm{O} / \mathrm{Zn}}$
(b) $\mathrm{CH}_{3} \mathrm{CH}=\mathrm{CHCH}_{3} \xrightarrow[\Delta]{\mathrm{KMnO}_{4} / \mathrm{OH}^{-}}$
(c)

(d) $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CH}=\mathrm{CH}_{2} \xrightarrow{\mathrm{O}_{3} / \mathrm{H}_{2} \mathrm{O}}$
87. $\mathrm{Cl}_{2} \mathrm{O}, \mathrm{Br}_{2} \mathrm{O}, \mathrm{I}_{2} \mathrm{O}$ have positive value of $\Delta \mathrm{G}$ indicating that
(a) these oxides are stable
(b) these oxides are unstable and changes to $\mathrm{X}_{2} \& \mathrm{O}_{2}$
(c) these disproportionates into $\mathrm{X}^{\ominus} \& \mathrm{XO}^{\ominus}$
(d) these oxides can form inter halogen compounds
88. Urotropine is obtained when
(b) Urea reacts with ammonia
(a) Urea reacts with formalin
(c) formaldehyde with ammonia
(d) acetone with ammonia
89. Argon possess
(a) translational motion only
(b) translational + rotational motion
(c) translational + vibrational
(d) translational + rotational + vibrational
90. Which of the following oxides of chromium is amphoteric in nature.
(a) CrO
(b) $\mathrm{Cr}_{2} \mathrm{O}_{3}$
(c) $\mathrm{CrO}_{3}$
(d) none

## PART - C (BIOLOGY)

91. Undifferentiated totipotent cells of sponges are
(a) Archaeocytes
(b) porocytes
(c) myocytes
(d) trophocytes
92. Which one of the following plasma protein is involved in the coagulation of blood?
(a) Serum amylase
(b) A globulin
(c) Fibrinogen
(d) An albumin
93. When oxygen supply is inadequate to the tissue, the condition is known as
(a) hypoxia
(b) asphyxia
(c) pleuracy
(d) anoxia
94. Uricotelic mode of passing nitrogenous wastes is found in
(a) Birds and annelids
(b) amphibians and reptiles
(c) insects and amphibians
(d) reptiles and birds
95. Kupffer's cells are present in
(a) Liver
(b) Pancreas
(c) small intestine
(d) Oesophagus
96. Which part of the human brain is concerned with the regulation of body temperature?
(a) Medulla oblongata
(b) cerebellum
(c) hypothalamus
(d)Pons
97. A four chambered heart is not found in
(a) Birds
(b) mammals
(c) snake
(d) Crocodile
98. Ichthyophis belongs to class
(a) Amphibia
(b) Mammalia
(c) Arthropoda
(d) Reptilia
99. Tube feet is locomotory organ in
(a) Star fish
(b) jelly fish
(c) silver fish
(d) Scoliodon
100. Radial symmetry is found in
(a) Aurelia
(b) frog
(c) earthworm
(d) humans
101. The "lock and key" model of enzyme action illustrates that a particular enzyme molecule
(a) May be destroyed and resynthesised several times
(b) Interacts with a specific type of substrate molecule
(c) Reacts at identical rates under all conditions
(d) Forms a permanent enzyme-substrate complex
102. The "Repeating Unit" of glycogen is
(a) Fructose
(b) Mannose
(c) Glucose
(c) Galactose
103. Cholesterol is a/an
(a) Saturated fat
(b) unsaturated fat
(c) steroid
(d) essential oil
104. Which of the following hydrolyses internal phosphodiester bonds in a polynucleotide chain?
(a) Lipase
(b) Ligase
(c) Exonuclease
(d) Endonuclease
105. In Plant biotechnology, PEG is used in
(a) Protoplast isolation
(b) cell culture preparation
(c) protoplast fusion
(d) hardening
106. There is a restriction endonuclease called Eco.RI. What does 'co' part in it stand for?
(a) Coelom
(b) coenzyme
(c) Coli
(d) Colon
107. The problem of blindness in poor countries can be taken care of by using which of the following?
(a) Golden rice
(b) Transgenic tomato
(c) Transgenic maize
(d) Bt Brinjal
108. All the terminator codons begin with the nucleotide
(a) Adenine
(b) Guanine
(c) Uracil
(d) Thymine
109. The one aspect which is not a salient feature of genetic code is its being
(a) Degenerate
(b) Ambiguous
(c) Universal
(d) Specific
110. In the Lac operon system, $\beta$ - Galactosidase is coded by
(a) Lac $A$
(b) Lac B
(c) Lac Z
(d) Lac $Y$
111. The central dogma of protein synthesis is
(a) DNA $\rightarrow$ DNA $\rightarrow$ Protein
(b) RNA $\rightarrow$ DNA $\rightarrow$ Protein
(c) Protein $\rightarrow$ RNA $\rightarrow$ DNA
(d) DNA $\rightarrow$ RNA $\rightarrow$ Protein
112. LH and FSH are collectively called
(a) Oxytocin
(b) Somatotropin
(c) Gonadotrophins
(d)Luteotropin
113. Which of the following was absent in the atmosphere at the time of origin of life?
(a) $\mathrm{NH}_{3}$
(b) $\mathrm{N}_{2}$
(b) $\mathrm{O}_{2}$
(b) $\mathrm{H}_{2}$
114. Thorns of Bougainvillea and tendrils of Cucurbita are examples of
(a) Homologous organs
(b) Analogous organs
(b) Vestigial organs
(d) Retrogressive evolution
115. Which one of the following in birds indicates their reptilian ancestry?
(a) Scales on their hind limbs
(b) Four chambered heart
(c) Presence of jaw
(d) Egg with a calcareous shell
116. Which of the following defines Hardy - Weinberg law?
(a) $p^{2}+2 p q+q^{2}=1$
(b) $p^{2}+2 p q-q^{2}=1$
(c) $p^{2}-2 p q+q^{2}=0$
(d) $p^{2}+2 p q+q^{2}=0$
117. Carcinoma refers to
(a) malignant tumour of the colon
(b) benign tumour of the connective tissue
(c) malignant tumour of the connective tissue
(d) malignant tumour of the skin or mucous membrane
118. The interferons are
(a) Antibacterial drugs
(b) Antiviral drugs
(c) Antibiotic drugs
(d) Immunosuppressive drugs
119. Connection between axon and dendrite is
(a) Synapse
(b) Synapsis
(c) Desmosome
(d) Tight junction
120. The sequence of ear ossicles from outside to inside is
(a) malleus $\rightarrow$ incus $\rightarrow$ stapes
(b) incus $\rightarrow$ stapes $\rightarrow$ malleus
(c) stapes $\rightarrow$ incus $\rightarrow$ malleus
(d) malleus $\rightarrow$ stapes $\rightarrow$ incus
121. Outer covering of virus made up of protein is called
(a)Capsid
(b) Prion
(c) Virion
(d) Viroid
122. An organism used as a biofertilizer for raising soyabean crop production is
(a) Azospirillum
(b) Rhizobium
(c) Nostoc
(d) Azotobacter
123. The number of autosomes in human primary spermatocyte is
(a) 46
(b) 44
(c) 43
(d) 42
124. Corpus luteum produces
(a) Progesterone
(b) Oestrogen
(c) Leutotropin
(d) Corpotropin
125. Saheli is a
(a) oral contraceptive for females
(b) surgical sterilization method for females
(c) diaphragm for females
(d) surgical sterilization method for males
126. The part of the fallopian tube closest to the ovary is
(a) Isthmus
(b) Ampulla
(c) Cervix
(d) Infundibulum
127. The Leydig's cells secrete
(a) Estrogen
(b) Testosterone
(c) Progesterone
(d) Corticosterone
128. Hormone responsible for uterine contraction is
(a) Oxytocin
(b) Vasopressin
(c) Thyrotropin
(d) Gonadotropin
129. Wall of the alimentary canal contains
(a) Striated muscles
(b) Striped muscles
(c) Smooth Muscle
(d) Cardiac muscle
130. Which stages of cell division do the following figures $A$ and $B$ represent respectively?
a. Late anaphase - Prophase
b. Prophase - Anaphase
c. Metaphase - Telophase
d. Telophase - Metaphase


Fig. A


Fig. $B$
131. The transition between Meiosis I and Meiosis II is
(a) Interkinesis
(b) Cytokinesis
(c) Diakinesis
(d) Karyokinesis
132. Which is not true about prokaryotes?
(a) DNA is complexed with histones
(b) Well developed nucleus absent
(c) Mesosome present
(d) Mitochondria absent
133. Which one of the following has its own DNA?
(a) Mitochondria
(b) Dictyosome
(c) Lysosome
(d) Peroxisome
134. Which of the following is the site of lipid synthesis?
(a) Golgi bodies
(b) Rough ER
(c) Smooth ER
(d) Ribosome
135. The epithelial tissue present on the inner surface of bronchioles
(a) Cuboidal
(b) Glandular
(c) Ciliated
(d) squamous
136. 'Systema Naturae' refers to
(a) plant name proposed by Linnaeus
(b) book name published by Linnaeus
(c) a publication by Darwin
(d) a natural system of classification.
137. Which of the following 'suffixes' used for units of a taxonomic category classification in plants indicates of order?
(a) -ales
(b) -aceae
(c) -oideae
(d)-ae
138. During unfavourable conditions certain bacteria produce
(a) exospores
(b) endospores
(c)heterocyst
(d) conidia
139. Cyanobacterial cells which are specialized for nitrogen fixation are
(a) homogenes
(b) heterocysts
(c) endospores
(d) akinetes
140. Which among the following is applicable to the members of Phaeophyceae?
(a) Pigments of chlorophyll $a$ and $b$; stored food starch, cell wall of cellulose and pectin.
(b) Pigments chlorophyll a and c; stored food mannitol and laminarin, cell wall of cellulose and algin.
(c) Pigments chlorophyll a and d, stored food floridean starch, cell wall of cellulose, pectin and polysulphate esters.
(d) Pigments chlorophyll a and c; stored food floridean starch, cell wall of cellulose and chitin.
141. Water is not required for fertilization in
(a) pteridophytes.
(b) bryophytes.
(c) algae.
(d) gymnosperms.
142. Which among the following are found in gymnosperms?

1. Ovary, style and stigma
2. Haploid endosperm
3. Triploid endosperm
4. Double fertilization.
5. Anemophily.
(a) 1 and 2.
(b) 2, 4 and 5 .
(c) 2 and 5 .
(d) 1, 3 and 5.
6. Select the correct statements:
(A) From the region of elongation, some of the epidermal cells form root hair.
(B) Pneumatophores are seen in Rhizophora.
(C) Adventitious roots are seen in banyan tree.
(D) Maize and sugarcane have prop roots.
(a) A, B and D
(b) A, C and D
(c) B and C
(d) A and D
7. Tetradyanamous conditions occur in -
(a) Cruciferae
(b) Malvaceae
(c) Solanaceae
(d) Lilliaceae
8. Photosynthetic or assimilatory roots are observed in
(a) Banyan
(b) Cuscuta
(c) Tinospora
(d) Vanda
9. Ground tissues includes
(a) all tissues except epidermis and vascular bundles
(b) epidermis and cortex
(c)all tissues internal to endodermis
(d) all tissues external to endodermis
10. Vascular tissues in flowering plants develop from
(a) phellogen
(b) plerome
(c) periblem
(d) dermatogen
11. Which one of the following is not a lateral meristem?
(a) Intrafascicular cambium
(b) Interfascicular cambium
(c) Phellogen
(d)Intercalary meristem
12. Which one of the statements regarding asexual reproduction is false
(a) offspring are similar to their parents
(b)reduction division takes place during asexual reproduction
(c) offspring do not show variation
(d) zygote formation does not take place
13. In majority of sexually reproducing organisms, the gametes produced are of two morphologically distinct types. These gametes are called
(a) Heterogametes
(b) Isogametes
(c)Homogametes
(d) Antherozoids
14. When the pollen tube enters through the funiculus or the integument it is called
(a) Porogamy
(b) Chalazogamy
(c) Mesogamy
(d) Isogamy
15. Which of the following is a post fertilisation event in flowering plants?
(a) transfer of pollen grain
(b) endosperm development
(c) formation of flower
(d) formation of pollen grains
16. A recessive trait in Garden pea is
(a) Tall stem
(b) Colored flower
(c) Wrinkled seed
(d) Inflated pod
17. A woman with two genes, one for haemophilia and one for colour blindness on one of its X-chromosomes marries a normal man. The progeny will be
(a) All sons haemophilic and colour blind
(b) 50\% haemophilic and colour blind sons and 50\% normal sons
(c) All daughters haemophilic and colour blind
(d) 50\% haemophilic daughters and 50\% colour blind daughters
18. Female heterogamety is present in
(a) Birds
(b) Human beings
(c) Insects
(d) Cockroach
19. Which of the following is not a result of nondisjunction of the sex chromosomes?
(a) Down's syndrome
(b) Turner syndrome
(c) Klinefelter syndrome
(d) none of these
20. A local variation of climate is called
(a) Niche
(b) Microclimate
(c) Habitat
(d) Microhabitat
21. The occurrence of the vertical layers in a forest is
(a) Pattern
(b) Stratification
(c) Zonation
(c) Ecotone
22. Gause's principle of competitive exclusion is, essentially,
(a) the more abundant species will exclude the less abundant species through competition
(b) competition for the same resources excludes species having different life styles
(c) no two species can occupy the same niche indefinitely when resources are limited
(d) larger organisms exclude smaller ones through competition as in the case of large trees controlling underbrush
23. An inverted pyramid of biomass can be found in which ecosystem?
(a) Forest
(b) Marine
(c) Grass land
(d) Tundra
24. The following graph depicts changes in two populations ( $A$ and $B$ ) of herbivores in a grassy field. A possible reason for these changes is that:

a. Population A consumed the members of population B
b. Both plant populations in this habitat decreased
c. Population B competed more successfully for food than population A
d. Population A produced more offspring than population B
25. The sequence of communities of primary succession in water is:
(a) phytoplankton, sedges, free-floating hydrophytes, rootedhydrophytes, grasses and trees.
(b) phytoplankton, free-floating hydrophytes, rooted hydrophytes,sedges, grasses and trees.
(c) free-floating hydrophytes, sedges, phytoplankton, rootedhydrophytes, grasses and trees.
(d) phytoplankton, rooted submerged hydrophytes, floating hydrophytes, reed swamp, meadow and trees.
26. The key criteria for determining a hot spot are
(a) Biological augmentation
(b) Disruption of interaction networks
(c) Number of endemic species and degree of threat
(d) Habitat destruction
27. Which one of the following is not in-situ method of conservation of flora?
(a) Biosphere Reserve
(b) Botanical Garden
(c) National Park
(d) Wildlife Sanctuary
28. Western Ghats have a greater number of amphibian species than the Eastern Ghats. What kind of diversity does it represent?
(a) Species diversity
(b) Genetic diversity
(c) Ecological diversity
(d)None
29. Fluoride pollution initially affects
(a) kidneys
(b) teeth
(c) heart
(d) brain
30. In the breakdown of the ozone layer, ozone directly reacts with
(a) ultraviolet light
(b)chlorine atoms
(c) oxygen atoms
(d) CFC molecules
31. Which air pollutant could cause rains to be acidic?
(a) Dust particles from cement factories
(b) Insecticides from crop sprays
(c) Smoke from wood fires
(d) $\mathrm{SO}_{2}$ from coal-fired power stations
32. Guttation is due to
(a) Root pressure
(b) Diffusion
(c) Imbibition
(d) Osmosis
33. Intercellular cytoplasmic connections between plant cells is called
(a) Plasmodesmata
(b) desmosomes
(c) mesosomes
(d) pits
34. Light is required for the light dependent reactions because
(a) It is the source for electrons
(b) it splits ATP molecules
(c) it energizes electrons in the reaction centre
(d) all of the above
35. In sugarcane, CO2 is fixed in malic acid with the help of enzyme
(a) RuBP carboxylase
(b) PEP carboxylase
(c) Ribulose phosphate kinase
(d) Fructose phosphatase
36. Which of the following is not essential for plant growth
(a) zinc
(b) iodine
(c) potassium
(d) iron
37. Dark reaction of photosynthesis occurs in
(a) Outer membrane
(b) Inner membrane
(c) periplastidal space
(d) Stroma
38. The water potential of pure water is
(a) Zero
(b) Less than one
(c) More than one
(d) 10
39. Spraying plant surface with phenyl mercuric acetate will result in
(a) Increased photosynthesis
(b) Increased transpiration
(c) Decreased transpiration
(d) Exosmosis
40. Endosmosis takes place when plant cell is immersed in
(a) Isotonic solution
(b) Hypotonic solution
(c) Hypertonic solution
(d) Sugar solution
41. Granal and Agranal chloroplast are found in
(a) C3 plants
(b) C4 plants
(c) CAM plants
(d) Bacteria
42. Phototropic curvature is the result of uneven distribution of
(a) Gibberellin
(b) phytochrome
(c) cytokinins
(d) auxins
43. Photoperiodism was first characterised in
(a) Tobacco
(b) tomato
(c) potato
(d) cotton
