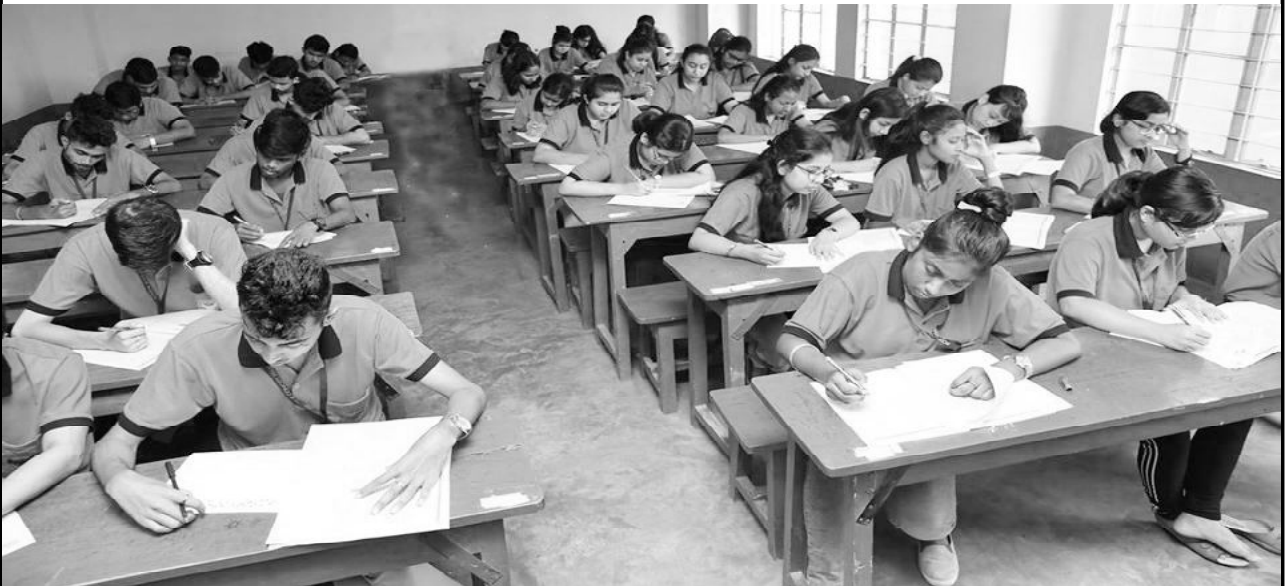


Academic Session : 2019 - 20

ANTS FULL TEST (TEST CODE : FT # 13)
(NEET PATTERN)
Target : NEET - 2020

Date : 28th June 2020 | Duration : 3 Hours | Max. Marks : 720

COURSE : Dropper, Target, DLP., ANTS



Please read the last page of this booklet for the instructions.

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1. A simple pendulum with a bob of mass m is suspended from the roof of a car moving with a horizontal acceleration a .
 - (A) The string makes an angle of $\tan^{-1}\left(1 + \frac{a}{g}\right)$ with the vertical
 - (B) The string makes an angle of $\tan^{-1}\left(1 - \frac{a}{g}\right)$ with the vertical.
 - (C) The tension in the string is $m\sqrt{a^2 + g^2}$
 - (D) The tension in the string is $m\sqrt{g^2 - a^2}$
2. A uniform rod of mass m , length L , area of cross-section A and Young's modulus Y hangs from a rigid support. Its elongation under its own weight will be
 - (A) zero
 - (B) $\frac{mgL}{2YA}$
 - (C) $\frac{mgL}{YA}$
 - (D) $\frac{2mgL}{YA}$
3. A large open tank has two holes in the wall. One is a square hole of side L at a depth y from the top and the other is a circular hole of radius R at a depth $4y$ from the top. When the tank is completely filled with water, the quantity of water flowing out per second from both holes are the same. Then, R is equal to
 - (A) $\frac{L}{\sqrt{2\pi}}$
 - (B) $2\pi L$
 - (C) L
 - (D) $\frac{L}{2\pi}$
4. The angular speed of an electron in the n th orbit of a H-atom is
 - (A) inversely proportional to n^2
 - (B) inversely proportional to n^4
 - (C) directly proportional to n^3
 - (D) inversely proportional to n^3
5. Two waveforms having intensities in the ratio 9 : 1 produce interference. The ratio of the maximum to the minimum intensity is
 - (A) 10 : 8
 - (B) 2 : 1
 - (C) 4 : 1
 - (D) 10 : 1
6. In pure inductor, the power consumption is
 - (A) VI
 - (B) zero
 - (C) $\frac{VI}{2}$
 - (D) $\frac{VI}{\sqrt{2}}$
7. In a wavefront, all the particle have
 - (A) Same amplitude
 - (B) Different phase
 - (C) Different frequency
 - (D) Same phase
8. A man slides down a light rope whose breaking strength is η times his weight ($\eta < 1$). The maximum acceleration so that the rope just breaks should be
 - (A) ηg
 - (B) $g(1 - \eta)$
 - (C) $\frac{g}{1 - \eta}$
 - (D) $\frac{g}{2 - \eta}$

9. Let T be the mean life of a radioactive sample. 75% of the active nuclei present in the sample initially will decay in time
- (A) $2T$ (B) $\frac{1}{2}(\log 2)T$
 (C) $4T$ (D) $2(\log 2)T$
10. A sphere rolls without sliding on a rough inclined plane (only mg and constant forces are acting on the body). The angular momentum of the body
- (A) about centre is conserved
 (B) is conserved about the point of contact
 (C) is conserved about a point whose distance from the inclined plane is greater than the radius of the sphere
 (D) is not conserved about any point
11. A wire of length ℓ having tension T and radius r vibrates with fundamental frequency f . Another wire of the same metal with length 2ℓ having tension $2T$ and radius $2r$ will vibrate with fundamental frequency
- (A) f (B) $2f$
 (C) $\frac{f}{2\sqrt{2}}$ (D) $\frac{f}{2}\sqrt{2}$
12. A horizontal tube, open at both ends, contains a column of liquid. The length of this liquid column does not change with temperature. Let γ be the coefficient of volume expansion of the liquid and that of α coefficient of linear expansion of the material of the tube, then
- (A) $\gamma = \alpha$ (B) $\gamma = 2\alpha$
 (C) $\gamma = 3\alpha$ (D) $\gamma = 0$
13. A metal wire of length ℓ and area of cross-section A is fixed between rigid supports at negligible tension. If this is cooled, the tension in the wire will be
- (A) proportional to ℓ
 (B) inversely proportional ℓ
 (C) independent of ℓ
 (D) independent of A
14. When an ideal diatomic gas is heated at constant pressure, the fraction of the heat energy supplied which increases the internal energy of the gas is
- (A) $\frac{2}{5}$ (B) $\frac{3}{5}$
 (C) $\frac{3}{7}$ (D) $\frac{5}{7}$
15. A pipe of length 1 m is closed at one end. The velocity of sound in air is 300 m/s. The air column in the pipe will not resonate for sound of frequency
- (A) 75 Hz (B) 225 Hz
 (C) 300 Hz (D) 375 Hz
16. A photon of energy 10.2 eV corresponds to light of wavelength λ_0 . Due to an electron transition from $n = 2$ to $n = 1$ in a hydrogen atom, light of wavelength λ is emitted. If we take into account the recoil of the atom when the photon is emitted,
- (A) $\lambda = \lambda_0$
 (B) $\lambda < \lambda_0$
 (C) $\lambda > \lambda_0$
 (D) the data is not sufficient to reach a conclusion

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17. In a radioactive series, ${}_{92}^{238}\text{U}$ changes to ${}_{82}^{206}\text{Pb}$ through n_1 α - decay processes and n_2 β - decay processes. Hence

- (A) $n_1 = 8, n_2 = 8$ (B) $n_1 = 6, n_2 = 6$
 (C) $n_1 = 8, n_2 = 6$ (D) $n_1 = 6, n_2 = 8$

18. Two particles are projected simultaneously in the same vertical plane, from the same point, but with different speeds and at different angles to the horizontal. The path followed by one, as seen by the other, is

- (A) a vertical straight line
 (B) a straight line making a constant angle (90°) with the horizontal
 (C) a parabola
 (D) a hyperbola

19. The gate circuit shown below represents



- (A) AND (B) NOR
 (C) OR (D) NAND

20. The displacement y of a particle executing a certain periodic motion is given by $y = 4\cos^2\left(\frac{1}{2}t\right)\sin(1000t)$. This expression may be considered to be the superposition of n independent harmonic motions. Then, n is equal to

- (A) 2 (B) 3
 (C) 4 (D) 5

21. A spring block system is made of a spring of spring's constant k and a block of mass M . The system is present in a tank. When the tank is empty the period of oscillation is T_1 and when tank is filled completely with liquid of density ρ the period of oscillation becomes T_2 . If density of material of block is σ ($\sigma > \rho$), the value of T_1/T_2 is

- (A) $\sqrt{\frac{\sigma - \rho}{\rho}}$ (B) $\sqrt{\frac{\sigma - \rho}{\sigma}}$
 (C) $\sqrt{\frac{\rho}{\sigma - \rho}}$ (D) 1

22. A charged particle of specific charge α moves with a velocity $\vec{v} = v_0\hat{i}$ in a magnetic field $\vec{B} = \frac{B_0}{\sqrt{2}}(\hat{j} + \hat{k})$. Which of the following option is correct ?

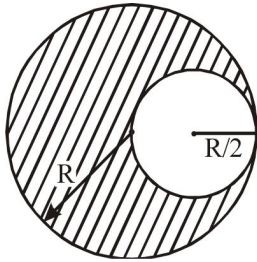
- (A) path of the particle is a helix
 (B) path of the particle is elliptical
 (C) distance moved by particle in time $t = \frac{\pi}{B_0\alpha}$ is $\frac{\pi v_0}{B_0\alpha}$
 (D) velocity of particle after time $t = \frac{\pi}{B_0\alpha}$ is

$$\left(\frac{V_0}{2}\hat{i} + \frac{V_0}{2}\hat{j}\right)$$

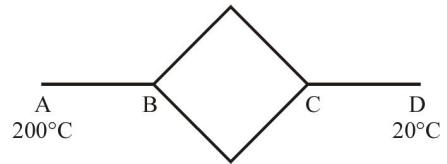
23. A force $\vec{F} = -k(y\hat{i} + x\hat{j})$, where k is a positive constant, acts on a particle moving in the x - y plane. Starting from the origin, the particle is taken along the positive x -axis to the point $(a,0)$ and then parallel to the y -axis to the point (a,a) . The total work done by the force on the particle is

- (A) $-2ka^2$ (B) $2ka^2$
 (C) $-ka^2$ (D) ka^2

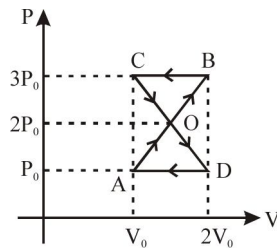
24. A man of mass m stands on a long flat car of mass M , moving with velocity V . If he now begins to run with velocity u , with respect to the car, in the same direction as V , the velocity of the car will be
 (A) $V - \frac{mu}{M}$ (B) $V - \frac{mu}{(m+M)}$
 (C) $V + \frac{mu}{(m+M)}$ (D) $V - \frac{u(M-m)}{(M+m)}$
25. A heavy uniform rope hangs vertically from the ceiling, with its lower end free. A disturbance on the rope travelling upward from the lower end has a velocity v at a distance x from the lower end
 (A) $v \propto 1/x$ (B) $v \propto x$
 (C) $v \propto \sqrt{x}$ (D) $v \propto 1/\sqrt{x}$
26. A spherical hole is made in a solid sphere of radius R . The mass of the sphere before hollowing was M . The gravitational field at the centre of the hole due to the remaining mass is



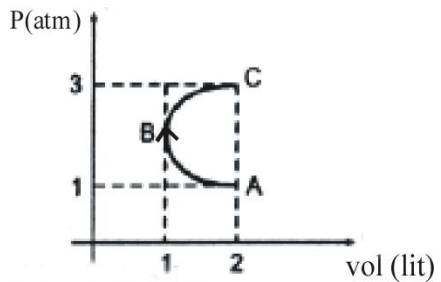
- (A) Zero (B) $\frac{GM}{8R^2}$
 (C) $\frac{GM}{2R^2}$ (D) $\frac{GM}{R^2}$
27. Six identical conducting rods are joined as shown in figure. Points A and D are maintained at temperatures 200°C and 20°C respectively. The temperature of junction B will be



- (A) 120°C (B) 100°C
 (C) 140°C (D) 80°C
28. A thermodynamic system undergoes cyclic process ABCDA as shown in figure. The work done by the system is

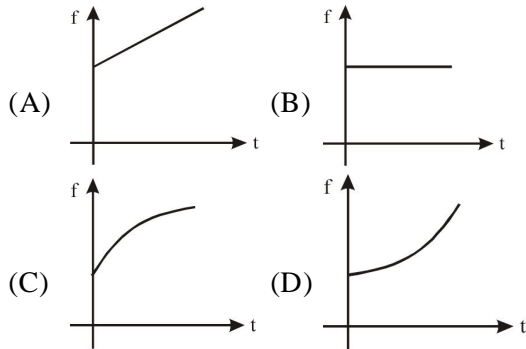


- (A) $P_0 V_0$ (B) $2P_0 V_0$
 (C) $\frac{P_0 V_0}{2}$ (D) Zero
29. In the P-V diagram shown in figure ABC is a semicircle. The work done in the process ABC is



- (A) Zero (B) $\frac{\pi}{2}$ atm-lit
 (C) $-\frac{\pi}{2}$ atm-lit (D) 4 atm-lit

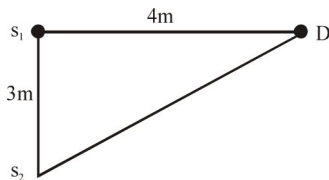
30. An observer starts moving with uniform acceleration 'a' towards a stationary sound source of frequency f_0 . As the observer approaches the source, the apparent frequency f heard by the observer varies with time t as



31. A string is under tension so that its length is increased by $\frac{1}{n}$ times its original length. The ratio of fundamental frequency of longitudinal vibrations and transverse vibrations will be

- (A) 1 : n (B) $n^2 : 1$
 (C) $\sqrt{n} : 1$ (D) $n : 1$

32. In the figure the intensity of each of the waves arriving at D from two coherent sources s_1 and s_2 is I_0 . The wavelength of the wave is $\lambda = 4$ m. The resultant intensity at D will be

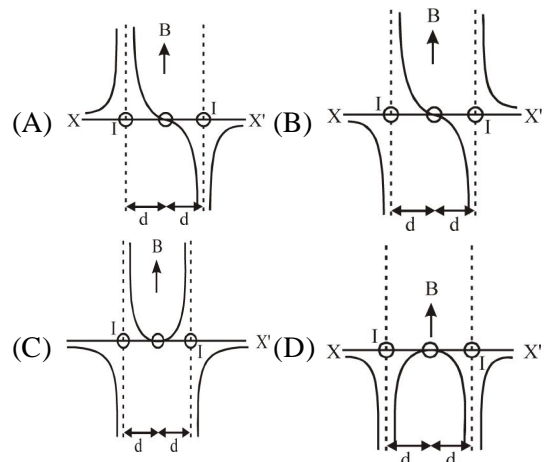


- (A) $4 I_0$ (B) I_0
 (C) $2 I_0$ (D) Zero

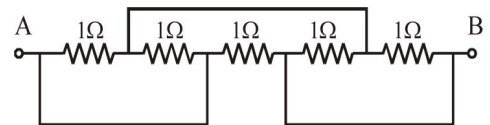
33. Two straight long conductors AOB and COD are perpendicular to each other and carry currents I_1 and I_2 . The magnitude of the magnetic induction at a point P at a distance a from the point O in a direction perpendicular to the plane ABCD is

- (A) $\frac{\mu_0}{2\pi a}(I_1 + I_2)$ (B) $\frac{\mu_0}{2\pi a}(I_1 - I_2)$
 (C) $\frac{\mu_0}{2\pi a}(I_1^2 + I_2^2)^{\frac{1}{2}}$ (D) $\frac{\mu_0}{2\pi a} \frac{I_1 I_2}{I_1 + I_2}$

34. Two long parallel wires are at a distance $2d$ apart. They carry steady equal currents flowing out of the plane of the paper as shown in Fig. The variation of magnetic field B along the line XX' is given by

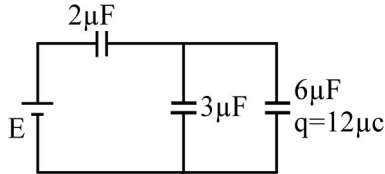


35. Resistors, each of value 1Ω are arranged as shown in fig. The equivalent resistance between points A and B is



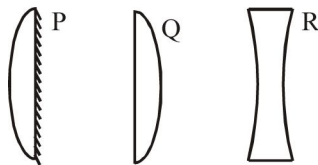
- (A) $\frac{1}{2}\Omega$ (B) $\frac{1}{5}\Omega$
 (C) $\frac{5}{4}\Omega$ (D) None of the above

36. In the given circuit, the charge on $6\mu\text{F}$ is $12\mu\text{c}$. The value of E is



- (A) 3 V (B) 10 V
 (C) 6 V (D) 4 V

37. Figure shows three lenses of equal radii of curvature of the curved surfaces. The ratio of focal lengths of P, Q and R is

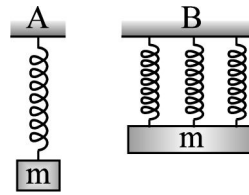


- (A) 1 : 1 : 1 (B) 1 : 1 : - 1
 (C) - 1 : 2 : 1 (D) - 1 : 2 : - 1

38. A particle is moving in a force field given by potential $U = -\lambda(x + y + z)$ from the point (1, 1, 1) to (2, 3, 4). The work done in the process is

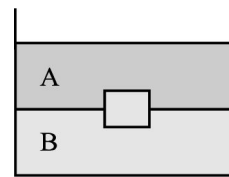
- (A) 3λ (B) 1.5λ
 (C) 6λ (D) 12λ

39. The springs in fig. A and B are similar but length in A is three times each of that in B. The ratio of period T_A/T_B is



- (A) $\sqrt{3}$ (B) $1/3$
 (C) 3 (D) $1/\sqrt{3}$

40. A cube of density ρ floats in liquid A of density ρ_1 and partly in liquid B of density ρ_2 , as shown in figure. The volume of cube immersed in liquid A is less than the volume immersed in liquid B. Then



- (A) $\rho_1 < \rho < \rho_2$ and $\rho > \frac{\rho_1 + \rho_2}{2}$
 (B) $\rho_1 < \rho < \rho_2$ and $\rho < \frac{\rho_1 + \rho_2}{2}$
 (C) $\rho < \rho_1 < \rho_2$ and $\rho > \frac{\rho_1 + \rho_2}{2}$
 (D) $\rho < \rho_1 < \rho_2$ and $\rho < \frac{\rho_1 + \rho_2}{2}$

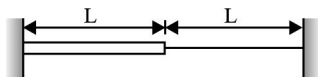
41. Three liquids of equal volumes are thoroughly mixed. If their specific heats are s_1, s_2, s_3 and their temperatures $\theta_1, \theta_2, \theta_3$ and their densities d_1, d_2, d_3 respectively, then the final temperature of the mixture is

- (A) $\frac{s_1\theta_1 + s_2\theta_2 + s_3\theta_3}{d_1s_1 + d_2s_2 + d_3s_3}$
 (B) $\frac{d_1s_1\theta_1 + d_2s_2\theta_2 + d_3s_3\theta_3}{d_1s_1 + d_2s_2 + d_3s_3}$

(C) $\frac{d_1 s_1 \theta_1 + d_2 s_2 \theta_2 + d_3 s_3 \theta_3}{d_1 \theta_1 + d_2 \theta_2 + d_3 \theta_3}$

(D) $\frac{d_1 \theta_1 + d_2 \theta_2 + d_3 \theta_3}{s_1 \theta_1 + s_2 \theta_2 + s_3 \theta_3}$

42. Two wires of cross-sectional area a and $2a$ having densities 2ρ and ρ respectively are subjected to same tension. Length of both wires is L and value of tension is F . If both wires are excited with the same tuning fork with junction as node. Minimum possible frequency of tuning fork is

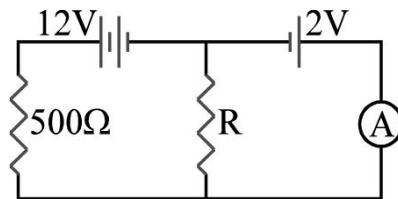


- (A) $\frac{\sqrt{F/ap}}{2L}$ (B) $\frac{\sqrt{F/2ap}}{2L}$
 (C) $\frac{2\sqrt{F/ap}}{L}$ (D) None of these

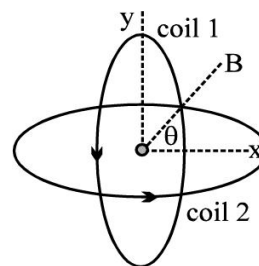
43. Electric field produced by electromagnetic induction is

- (A) Non conservative
 (B) Conservative
 (C) Both (A) & (B)
 (D) Can't say

44. In the given circuit the ammeter reading is zero. What is the value of resistance R



- (A) $R = 100\Omega$ (B) $R = 10\Omega$
 (C) $R = 0.1\Omega$ (D) None of these
45. For the arrangement of fig the magnetic field at the centre O will be

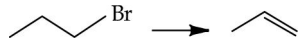


- (A) $\sqrt{2} \left(\frac{\mu_0 NI}{2a} \right)$ (B) $\frac{\mu_0 NI}{2\sqrt{2}a}$
 (C) $\frac{\mu_0 NI}{2}$ (D) $\frac{\mu_0 NI}{2a}$

46. Which intermolecular force is most responsible in allowing xenon gas to liquefy ?
 (A) Dipole - dipole
 (B) Ion - dipole
 (C) Instantaneous dipole - induced dipole
 (D) Ionic
47. For the reaction, $A(g) + B(g) \rightarrow C(g) + D(g)$, ΔH° and ΔS° are, respectively, $-29.8 \text{ kJ mol}^{-1}$ and $-0.100 \text{ kJ K}^{-1} \text{ mol}^{-1}$ at 298 K. The equilibrium constant for the reaction at 298 K is
 (A) 1.0×10^{-10} (B) 1.0×10^{10}
 (C) 10 (D) 1
48. What will occur if a block of copper metal is dropped into a beaker containing a solution of 1M $ZnSO_4$?
 (A) The copper metal will dissolve and zinc metal will be deposited.
 (B) The copper metal will dissolve with evolution of hydrogen gas.
 (C) The copper metal will dissolve with evolution of oxygen gas.
 (D) No reaction will occur
49. The correct order of the solubility of alkaline-earth metal sulphates in water is :
 (A) $Mg < Ca < Sr < Ba$
 (B) $Mg < Sr < Ca < Ba$
 (C) $Mg > Sr > Ca > Ba$
 (D) $Mg > Ca > Sr > Ba$
50. Match the items in Column I with its main use listed in Column II :
- | Column I | Column II |
|----------------|--------------------|
| (A) Silica gel | (i) Transistor |
| (B) Silicon | (ii) Ion-exchanger |
| (C) Silicone | (iii) Drying agent |
| (D) Silicate | (iv) Sealant |
- (A) (A)-(iii), (B)-(i), (C)-(iv), (D)-(ii)
 (B) (A)-(iv), (B)-(i), (C)-(ii), (D)-(iii)
 (C) (A)-(ii), (B)-(iv), (C)-(i), (D)-(iii)
 (D) (A)-(ii), (B)-(i), (C)-(iv), (D)-(iii)
51. The group of molecules having identical shape is
 (A) SF_4 , XeF_4 , CCl_4
 (B) ClF_3 , $XeOF_2$, XeF_3^+
 (C) BF_3 , PCl_3 , XeO_3
 (D) PCl_5 , IF_5 , XeO_2F_2
52. An organic compound contains C, H and S. The minimum molecular weight of the compound containing 8% sulphur is : (atomic weight of S=32 amu)
 (A) 200 g mole⁻¹ (B) 400 g mole⁻¹
 (C) 600 g mole⁻¹ (D) 300 g mole⁻¹
53. The gas evolved on heating CH_3MgBr in methanol is
 (A) HBr (B) Methane
 (C) Ethane (D) Propane
54. Bouveault-Blanc reduction reaction involves
 (A) Reduction of an acyl halide with H_2/Pd .

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- (B) Reduction of an ester with $\text{Na/C}_2\text{H}_5\text{OH}$.
(C) Reduction of a carbonyl compound with Na/Hg and HCl .
(D) Reduction of an anhydride with LiAlH_4 .
55. The test to distinguish primary, secondary and tertiary amines is
(A) Carbylamine reaction
(B) $\text{C}_6\text{H}_5\text{SO}_2\text{Cl}$
(C) Sandmeyer's reaction
(D) None
56. The artificial sweetener that has the highest sweetness value in comparison to cane sugar is
(A) Aspartane (B) Saccharin
(C) Sucralose (D) Alitame
57. Initially, the root mean square (rms) velocity of N_2 molecules at certain temperature is u . If this temperature is doubled and all the nitrogen molecules dissociate into nitrogen atoms, then the new rms velocity will be
(A) $u/2$ (B) $2u$
(C) $4u$ (D) $14u$
58. An aqueous solution of a salt MX_2 at certain temperature has a van't Hoff factor of 2. The degree of dissociation for this solution of the salt is
(A) 0.33 (B) 0.50
(C) 0.67 (D) 0.80
59. A solid XY kept in an evacuated sealed container undergoes decomposition to form a mixture of gases X and Y at temperature T . The equilibrium pressure is 10 bar in this vessel. K_p for this reaction is
(A) 5 (B) 10
(C) 25 (D) 100
60. Oxidation of succinate ion produces ethylene and carbon dioxide gases. On passing 0.2 Faraday electricity through an aqueous solution of potassium succinate, the total volume of gases (at both cathode and anode) at STP (1 atm and 273 K) is
(A) 2.24 L (B) 4.48 L
(C) 6.72 L (D) 8.96 L
61. The rate law for the reaction below is given by the expression $k[\text{A}][\text{B}]$
 $\text{A} + \text{B} \rightarrow \text{Product}$
If the concentration of B is increased from 0.1 to 0.3 mole, keeping the value of A at 0.1 mole, the rate constant will be
(A) k (B) $k/3$
(C) $3k$ (D) $9k$
62. The following statements concern elements in the periodic table. Which of the following is true?
(A) All the elements in Group 17 are gases
(B) The Group 13 elements are all metals
(C) Elements of Group 16 have lower ionization enthalpy values compared to those of Group 15 in the corresponding periods
(D) For Group 15 elements, the stability of +5 oxidation state increases down the group
63. Extraction of copper by smelting uses silica as an additive to remove
(A) Cu_2S (B) FeO
(C) FeS (D) Cu_2O

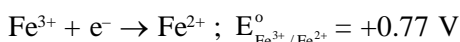
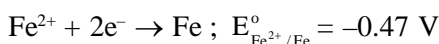
64. Identify the reaction which does not liberate hydrogen
- (A) Reaction of zinc with aqueous alkali.
 (B) Electrolysis of acidified water using Pt electrodes.
 (C) Allowing a solution of sodium in liquid ammonia to stand.
 (D) Reaction of lithium hydride with B_2H_6 .
65. Identify the incorrect statement
- (A) S_2 is paramagnetic like oxygen.
 (B) Rhombic and monoclinic sulphur have S8 molecules.
 (C) S_8 ring has a crown shape.
 (D) The S-S-S bond angles in the S_8 and S_6 rings are the same.
66. Which one of the following substances used in dry cleaning is a better strategy to control environmental pollution?
- (A) Tetrachloroethylene
 (B) Carbon dioxide
 (C) Sulphur dioxide (D) Nitrogen dioxide
67. Sodium extract is heated with concentrated HNO_3 before testing for halogens because
- (A) Silver halides are totally insoluble in nitric acid.
 (B) Ag_2S and $AgCN$ are soluble in acidic medium.
 (C) S^{2-} and CN^- , if present, are decomposed by conc. HNO_3 and hence do not interfere in the test.
 (D) Ag reacts faster with halides in acidic medium.
68. Which one of the following reagents is not suitable for the elimination reaction?
- 
- (A) $NaOH/H_2O$ (B) $NaOEt/EtOH$
 (C) $NaOH/H_2O-EtOH$ (D) NaI
69. Fluorination of an aromatic ring is easily accomplished by treating a diazonium salt with BF_4^- . Which of the following conditions is correct about this reaction?
- (A) Only heat (B) $NaNO_2/Cu$
 (C) Cu_2O/H_2O (D) NaF/Cu
70. Which of the following polymers is synthesized using a free radical polymerization technique?
- (A) Teflon (B) Terylene
 (C) Melamine polymer
 (D) Nylon 6,6
71. Among the following, correct statement is
- (A) Brownian movement is more pronounced for smaller particles than for bigger-particles.
 (B) Sols of metal sulphides are lyophilic.
 (C) Hardy Schulze law states that bigger the size of the ions, the greater is its coagulating power.
 (D) One would expect charcoal to adsorb chlorine more than hydrogen sulphide
72. Among the following, the incorrect statement is
- (A) At low pressure, real gases show ideal behaviour.

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- (B) At very low temperature, real gases show ideal behaviour.
- (C) At very large volume, real gases show ideal behaviour.
- (D) At Boyle's temperature, real gases show ideal behaviour.

73. What is the standard reduction potential (E°) for $\text{Fe}^{3+} \rightarrow \text{Fe}$?

Given that :



- (A) -0.057 V (B) $+0.057 \text{ V}$
 (C) $+0.30 \text{ V}$ (D) -0.30 V

74. If the shortest wavelength in Lyman series of hydrogen atom is A, then the longest wavelength in Paschen series of He^+ is :

- (A) $\frac{5A}{9}$ (B) $\frac{9A}{5}$
 (C) $\frac{36A}{5}$ (D) $\frac{36A}{7}$

75. Addition of sodium hydroxide solution to a weak acid (HA) results in a buffer of pH 6. If ionisation constant of HA is 10^{-5} , the ratio of salt to acid concentration in the buffer solution will be

- (A) 4 : 5 (B) 1 : 10
 (C) 10 : 1 (D) 5 : 4

76. The rate of a reaction A doubles on increasing the temperature from 300 to 310 K. By how much, the temperature of reaction B should be increased from 300 K so that rate doubles if activation energy of the reaction B is twice to that of reaction A.

- (A) 9.84 K (B) 4.92 K
 (C) 2.45 K (D) 19.67 K

77. Consider the following ionization enthalpies of two elements 'A' and 'B'.

Element	Ionization enthalpy (kJ/mol)		
	1 st	2 nd	3 rd
A	899	1757	14847
B	737	1450	7731

Which of the following statements is correct ?

- (A) Both 'A' and 'B' belong to group-1 where 'B' comes below 'A'.
- (B) Both 'A' and 'B' belong to group-1 where 'A' comes below 'B'.
- (C) Both 'A' and 'B' belong to group-2 where 'B' comes below 'A'.
- (D) Both 'A' and 'B' belong to group-2 where 'A' comes below 'B'.

78. A metal 'M' reacts with nitrogen gas to afford ' M_3N '. ' M_3N ' on heating at high temperature gives back 'M' and on reaction with water produces a gas 'B'. Gas 'B' reacts with aqueous solution of CuSO_4 to form a deep blue compound. 'M' and 'B' respectively are

- (A) Li and NH_3 (B) Ba and N_2
 (C) Na and NH_3 (D) Al and N_2

79. The number of S = O and S – OH bonds present in peroxodisulphuric acid and pyrosulphuric acid respectively are

- (A) (2 and 2) and (2 and 2)
 (B) (2 and 4) and (2 and 4)

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(C) (4 and 2) and (2 and 4)

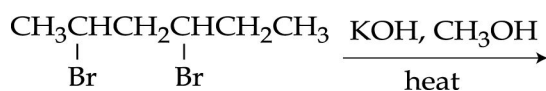
(D) (4 and 2) and (4 and 2)

80. Among the following, the essential amino acid is

(A) Alanine (B) Valine

(C) Aspartic acid (D) Serine

81. The major product of the following reaction is :



(A) $\text{CH}_2=\text{CHCH}_2\text{CH}=\text{CHCH}_3$

(B) $\text{CH}_2=\text{CHCH}=\text{CHCH}_2\text{CH}_3$

(C) $\text{CH}_3\text{CH}=\text{C}=\text{CHCH}_2\text{CH}_3$

(D) $\text{CH}_3\text{CH}=\text{CH}-\text{CH}=\text{CHCH}_3$

82. Which of the following statements is not true about partition chromatography ?

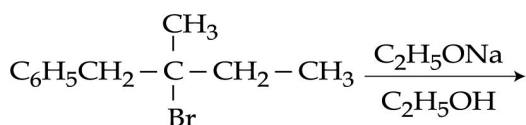
(A) Mobile phase can be a gas

(B) Stationary phase is a finely divided solid adsorbent

(C) Separation depends upon equilibration of solute between a mobile and a stationary phase

(D) Paper chromatography is an example of partition chromatography

83. The major product of the following reaction is



(A) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{C}_6\text{H}_5\text{CH}_2-\text{C}-\text{CH}_2\text{CH}_3 \\ | \\ \text{OC}_2\text{H}_5 \end{array}$

(B) $\begin{array}{c} \text{C}_6\text{H}_5\text{CH}=\text{C}-\text{CH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$

(C) $\begin{array}{c} \text{C}_6\text{H}_5\text{CH}_2-\text{C}=\text{CHCH}_3 \\ | \\ \text{CH}_3 \end{array}$

(D) $\begin{array}{c} \text{C}_6\text{H}_5\text{CH}_2-\text{C}=\text{CH}_2 \\ | \\ \text{CH}_2\text{CH}_3 \end{array}$

84. Adsorption of a gas on a surface follows

Freundlich adsorption isotherm. Plot of $\log \frac{x}{m}$

versus $\log p$ gives a straight line with slope equal

to 0.5, then : ($\frac{x}{m}$ is the mass of the gas adsorbed

per gram of adsorbent)

(A) Adsorption is independent of pressure.

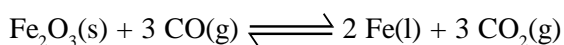
(B) Adsorption is proportional to the pressure.

(C) Adsorption is proportional to the square root of pressure.

(D) Adsorption is proportional to the square of pressure.

85. The following reaction occurs in the Blast

Furnace where iron ore is reduced to iron metal



Using the Le Chatelier's principle, predict which one of the following will not disturb the equilibrium ?

(A) Removal of CO

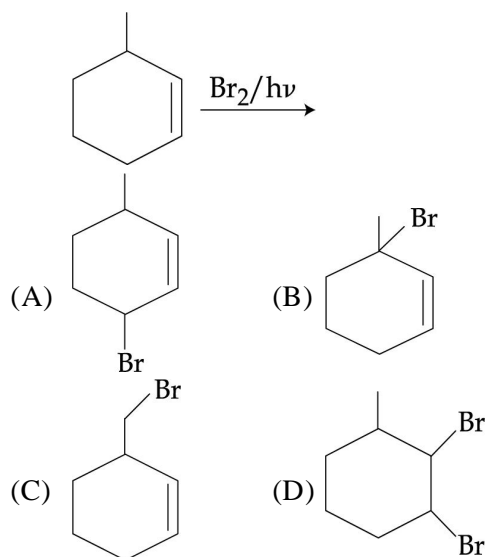
(B) Removal of CO_2

(C) Addition of CO_2

(D) Addition of Fe_2O_3

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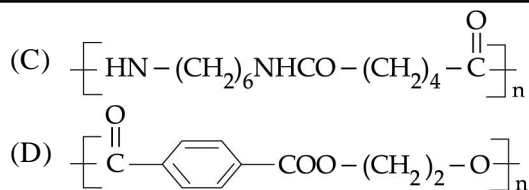
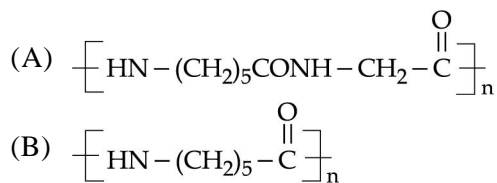
86. The major product of the following reaction is



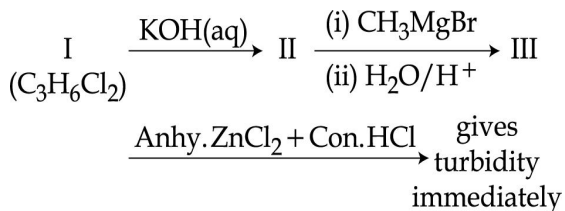
87. The incorrect statement among the following is

- (A) α -D-glucose and β -D-glucose are anomers.
- (B) α -D-glucose and β -D-glucose are enantiomers.
- (C) Cellulose is a straight chain polysaccharide made up of only β -D-glucose units.
- (D) The penta acetate of glucose does not react with hydroxyl amine.

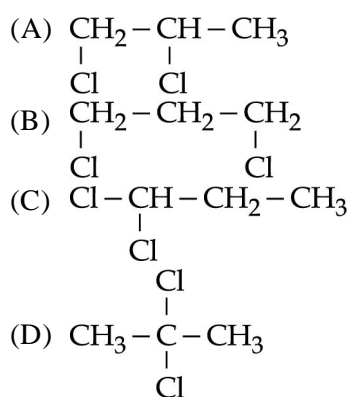
88. Which of the following is a biodegradable polymer ?



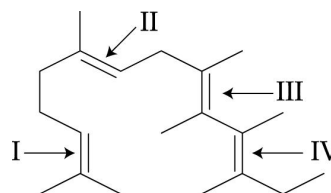
89. In the following reaction sequence



The compound I is



90. In the following structure, the double bonds are marked as I, II, III and IV



Geometrical isomerism is not possible at site (s)

- (A) III
- (B) I
- (C) I and III
- (D) III and IV

91. Which of the following is/are correct w.r.t. six kingdom classification
- (A) It was put forward by Carl Woese
 (B) The important criteria for the classification was sequence of 16s rRNA genes
 (C) Three major domains mentioned were archaea, bacteria and eukarya
 (D) All the above
92. Bacteria apart from binary fission also reproduce by a sort of sexual reproduction by adopting a primitive type of DNA transfer from one bacterium to the other. This differs from eukaryotic sexual reproduction since
- (A) Nuclei are involved
 (B) There is no gamete formation
 (C) There is formation of gamete
 (D) Two bacteria never come in contact with each other
93. Photosynthetic protists are
- (A) diatoms, euglenoids and slime moulds
 (B) sarcodines, dinoflagellates and diatoms
 (C) euglenoids, diatoms and dinoflagellates
 (D) ciliates, zooflagellates and dinoflagellates
94. Find out the correct statements
- (i) classification systems of organisms have undergone several changes over time
- (ii) all prokaryotic organisms are grouped together under monera
- (iii) though the bacterial structure is very simple, they exhibit diverse modes of nutrition
- (iv) heterotrophic bacteria are most abundant in nature
- (A) (i) and (iii) (B) (iii) and (ii)
 (C) (i) and (iv) (D) All the above
95. Refer the statement and answer the question
 "Once sexual stage of members of deuteromycetes is discovered they are often moved to X and Y." Identify X and Y.
- (A) X - Monera :Y - Protista
 (B) X - Basidiomycetes :Y - Phycomycetes
 (C) X - Ascomycetes :Y - Basidiomycetes
 (D) X - Phycomycetes :Y - Archaeobacteria
96. In some viruses, RNA is present instead of DNA indicating that
- (A) their nucleic acid must combine with host DNA before replication
 (B) they cannot replicate
 (C) there is no hereditary information
 (D) RNA can be genetic material

97. Which of the following statements with respect to algae are correct ?

- (i) Fusion between one large, non-motile female gamete and a smaller, motile male gamete is termed as oogamous
- (ii) Fusion of two gametes dissimilar in size is termed as oogamous
- (iii) Fusion of two gametes similar in size is called as anisogamous
- (iv) In chlorophyceae, the major pigments are chlorophyll *a* and *b* and the food is stored as starch
- (v) In rhodophyceae, the major pigments are chlorophyll *a* and *d*, and the food is stored as mannitol

- (A) (i) and (v) (B) (iii) and (v)
 (C) (i) and (ii) (D) (i) and (iv)

98. Select the correct match between the features in column I and the respective plant groups in column II.

Column-I (features)	Column-II (term)
A. Presence of tap roots and coralloid roots	(i) Bryophyte
B. The synergids and antipodal cells degenerate after fertilization	(ii) Pteridophytes
C. The food is stored as floridean starch which is very similar to amylopectin and glycogen in structure	(iii) Red algae

D. Presence of sporophyte (iv) Angiosperms which is not free living but attached to the photosynthetic gametophytes and derives nourishment from it

E. Members of this group (v) Gymnosperms are used for medicinal purposes, as soil binders and frequently grown as ornamentals

	A	B	C	D	E
(A)	i	ii	iii	iv	v
(B)	iii	v	ii	iv	i
(C)	iii	i	v	ii	iv
(D)	v	iv	iii	i	ii

99. What is common in all three, *Funaria*, *Dryopteris* and *Ginkgo* ?

- (A) Independent sporophyte
- (B) Presence of archegonia
- (C) Well developed vascular tissues
- (D) Independent gametophyte

100. Chemotaxonomy is related with

- (A) classification of chemicals found in plants
- (B) use of phytochemical data in systematic botany
- (C) application of chemicals on herbarium sheets
- (D) use of statistical methods in chemical yielding plants

101. Refer to the statement and answer the question.

“They usually reproduce vegetatively by fragmentation and asexually by non-motile spore and sexually by non-motile gametes.”

Identify the group of plants and its example.

- (A) Mosses, *Funaria*
- (B) Red algae, *Polysiphonia*
- (C) Brown algae, *Laminaria*
- (D) Pteridophytes, *Selaginella*

102. Which of the following groups of plants have underground stems ?

- (A) Potato, ginger, turmeric, *Euphorbia*, zaminkand
- (B) Potato, ginger, turmeric, zaminkand, *Colocasia*
- (C) Potato, *Citrus*, *Opuntia*, zaminkand, *Colocasia*
- (D) Potato, cucumber, watermelon, zaminkand, *Colocasia*

103. A scar on the seed coat through which the developing seeds remain is attached to the fruit is called as _____

- (A) testa (B) tegmen
- (C) hilum (D) micropyle

104. Read the following statements and answer the question.

- (i) Gynoecium is situated at the centre and the other parts of the flower are located on the rim of the thalamus almost at the same level.
- (ii) Ovary is half-inferior.

(iii) Examples are plum, rose and peach.

Which condition of flowers is being described by the above statements ?

- (A) hypogyny (B) perigyny
- (C) epigyny (D) none of these

105. Which one of the following is the correct explanation for the given floral formula ?

$$\% \overset{\uparrow}{\text{♀}} K_{(5)} C_{1+2+(2)} A_{(9)+1} \underline{G}_1$$

- (A) Zygomorphic, bisexual, sepals five and gamosepalous, petals five and papilionaceous, anthers ten and monadelphous, ovary superior and monocarpellary
- (B) Zygomorphic, unisexual, sepals five and gamosepalous, petals five and polypetalous, anthers nine united and one free, ovary superior and monocarpellary.
- (C) Zygomorphic, bisexual, sepals five and gamosepalous, petals five and papilionaceous, anthers ten and diadelphous, ovary superior and monocarpellary.
- (D) Zygomorphic, bisexual, sepals five and united, petals five and united, anthers ten and diadelphous, ovary superior and monocarpellary.

106. In dicot stems, the protoxylem lies towards the _____ and the metaxylem lies towards the _____ of the organ.

- (A) centre, periphery
- (B) periphery, centre
- (C) periphery, periphery
- (D) centre, centre

107. Read the following statements and answer the question.

- (i) It has a sclerenchymatous hypodermis, a large number of scattered vascular bundles and a large parenchymatous ground tissue.
- (ii) Vascular bundles are conjoint and closed.
- (iii) peripheral vascular bundles are generally smaller than the centrally located ones.
- (iv) Phloem parenchyma is absent, and water-containing cavities are present within the vascular bundles.

Which plant anatomy is being described by the above statements ?

- (A) Dicotyledonous root
- (B) Monocotyledonous root
- (C) Dicotyledonous stem
- (D) Monocotyledonous stem

108. As secondary growth proceeds, in a dicot stem, the thickness of

- (A) sapwood increases
- (B) heartwood increases
- (C) both sapwood and heartwood increases
- (D) both sapwood and heartwood remains the same

109. Active ribosomal RNA is synthesised in

- (A) Cytoplasm (B) Endoplasmic Reticulum
- (C) Ribosome (D) Nucleoplasm

110. Chromatin consists of

- (A) DNA, some basic proteins called histones, some non-histone proteins and also RNA.

(B) Euchromatin and heterochromatin.

(C) DNA and histones only.

(D) Both (A) and (B)

111. Plastids differ from Mitochondria on the basis of which of the following features ?

(A) Presence of two layers of membrane

(B) Presence of Ribosome

(C) Presence of Thylakoids

(D) Presence of DNA

112. Which of the following statements are correct ?

(A) Na^+/K^+ pump is an example of active transport

(B) In plant cells steroidal hormones are synthesized in SER

(C) In plant cells, the vacuoles can occupy up to 10% of the volume of the cell

(D) Chlorophyll and leucoplast are responsible for trapping light energy essential for photosynthesis

113. The cell theory was given in year 1839 by Schleiden and Schwann. According to this theory all organisms are composed of cells and cells are the basic unit of life. How did this theory help in the field of science ?

(A) It helped to study the working of cells.

(B) It helped in curing diseases caused by cells.

(C) It helped in restating the earlier theories on cells.

(D) It helped in introducing the use of microscopes to study cells.

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114. Read the following statements

- (i) Highly condensed chromatin
- (ii) Histone protein synthesis
- (iii) Disappearance of ER & Golgi complex
- (iv) Growth of cytoplasm
- (v) Spindle fibre gets polymerised

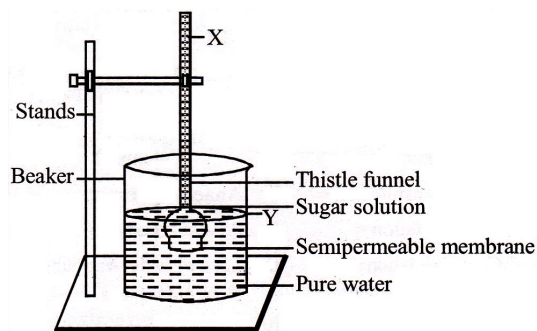
How many of the above statements are correct w.r.t events occurring during interphase ?

- (A) Five
- (B) Four
- (C) Three
- (D) Two

115. During which stages of meiosis do you expect to find the bivalents and DNA replication respectively ?

- (A) pachytene and interphase (between two meiotic divisions)
- (B) Leptotene and interphase (just prior to prophase I)
- (C) Leptotene and S phase (of interphase just prior to prophase I)
- (D) Zygotene and S phase (of interphase just prior to prophase I)

116. Study the experiment shown below



After a few days, which of the following will have occurred ?

- (A) A rise in level X and Y
- (B) A drop in level X and Y
- (C) A rise in level X and a drop in level Y
- (D) A drop in level X and a rise in level Y

117. A Botanist discovered a mutant plant that was unable to produce materials that form casparian strip. This plant would

- (A) unable to transport water or solutes to the leaves
- (B) unable to use its roots as a sugar sink
- (C) able to exert greater root pressure than the normal plant
- (D) unable to control amounts of water and solutes it absorbs

118. Which of the following statements is not correct about macro-nutrients ?

- (A) They are present in the tissues in excess of 100 m mole per kg of dry matter
- (B) They include C, H, O, N, P, S, K, Ca, Mg
- (C) Some elements are attained from CO₂ and H₂O while the others are absorbed from the soil
- (D) C, H & O are mainly obtained from CO₂ and H₂O

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119. Which among the following sentence is incorrect about light reaction ?

- (A) It is also known as 'photochemical' phase
- (B) It includes light absorption, water splitting, oxygen release, and the formation of high-energy chemical intermediates
- (C) Reaction centre consist of single molecule of chl *a* but 2 molecules of chl *b*
- (D) The pigments are organised into two discrete photosynthetic units called PS-I and PS-II

120. ADP is phosphorylated and NADP is reduced, this happens during

- (A) dark phase of photosynthesis
- (B) light phase of photosynthesis
- (C) photorespiration
- (D) Calvin cycle

121. In the given columns, column-I contain complexes and column-II contain respiratory enzyme names. Select the correct match from the option given below.

	Column - I		Column - II
A.	Complex I	I.	Cytochrome <i>bc</i> ₁ complex
B.	Complex II	II.	NADH dehydrogenase
C.	Complex III	III.	ATP synthase
D.	Complex IV	IV.	Succinate dehydrogenase
E.	Complex V	V.	Cytochrome <i>c</i> oxidase

	A	B	C	D	E
(A)	III	V	I	IV	II
(B)	II	V	I	IV	III
(C)	II	IV	I	V	III
(D)	IV	I	II	V	III

122. Initial step of TCA cycle to yield citric acid starts with the condensation of

- (A) acetyl group with OAA & H₂O & is catalyzed by the enzyme citrate synthase
- (B) acetyl group with pyruvate & H₂O & is catalyzed by the enzyme citrate synthase
- (C) acetyl group with OAA & H₂O & is independent of the enzyme
- (D) none of the above

123. Read the following statements and select the correct ones.

- (i) Conidia are the asexual propagules found in kingdom Fungi.
 - (ii) A piece of potato tuber having at least one eye (or node) is capable of giving rise to a new plant.
 - (iii) Ginger propagates vegetatively with the help of its underground roots.
 - (iv) Fleshy buds which takes part in vegetative propagation are called bulbils, present in *Dioscorea*, *Agave*, etc.
- (A) (ii) and (iii) (B) (i) and (iv)
 (C) (i), (ii) and (iv) (D) (i), (ii) and (iii)

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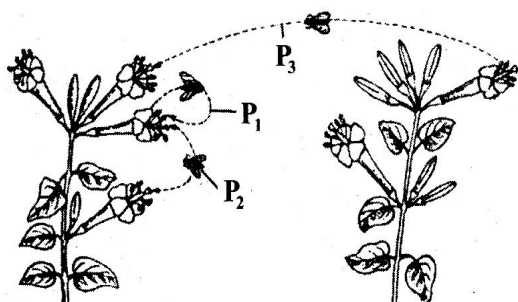
124. Which one of the following statement is correct ?

- (A) Sporogenous tissue is haploid
- (B) Endothecium produces the microspores
- (C) Tapetum nourishes the developing pollen
- (D) Hard outer layer of pollen is called intine

125. Match the items given in column-I with those given in column-II and choose the correct option given below.

- | Column-I | Column-II |
|------------------|-----------------------|
| A. Parthenocarpy | I. Inactive state |
| B. Polyembryony | II. Syngamy is absent |
| C. Apomixis | III. Extra embryos |
| D. Dormancy | IV. Seedless fruit |
- (A) A-I, B-II, C-II, D-IV
 (B) A-IV, B-III, C-II, D-I
 (C) A-IV, B-I, C-II, D-III
 (D) A-III, B-II, C-I, D-IV

126. The given diagram shows 2 plants of the same species. Identify the type of pollination indicated as P₁, P₂ and P₃.



	P ₁	P ₂	P ₃
(A)	Allogamy	Chasmogamy	Cleistogamy
(B)	Autogamy	Xenogamy	Geitonogamy
(C)	Autogamy	Geitonogamy	Xenogamy
(D)	Geitonogamy	Allogamy	Autogamy

127. Find out the pairs which are correctly matched.

- | Column-I | Column-II |
|----------------------------------|---------------------------------|
| A. Cyanobacteria | I. Biopesticides |
| B. <i>Mycorrhiza</i> | II. Solubilization of phosphate |
| C. <i>Bacillus thuringiensis</i> | III. Cry protein |
| D. Single cell protein | IV. Rhizobia |
- (A) A and I (B) C and III
 (C) D and IV (D) B and II

128. Choose the option showing the crop plants with its correct variety name.

- | | |
|---------------------|---------------------|
| A. Semi Dwarf Wheat | I. Sonalika |
| B. Semi Swarf Rice | II. Kalyan sona |
| | III. IR-8 |
| | IV. Jaya |
| | V. TaichungNative-1 |
| | VI. Ratna |
- (A) A-I, III, V; B-II, IV, VI
 (B) A-III, IV, V, VI; B-I, II
 (C) A-I, II, IV; B-III, V, VI
 (D) A-I, II; B-III, IV, V, VI

129. Microbes present in hydrothermal vents where the temperature exceeds 100°C are

- (A) cyanobacteria (B) archaeobacteria
- (C) eubacteria (D) none of these

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130. Read the following statements (A) - (D).

- A. Lichens represent an intimate (i) relationship between a fungus and (ii).
- B. The (iii) are associations between fungi and the roots of higher plants.
- C. Plants need the help of (iv) for pollinating their flowers and dispersing their seeds.
- D. The (v) pollinates the fig inflorescence while searching for suitable egg - laying sites.

Which one of the following options gives the correct fill ups for the respective blank numbers from (i) - (v) in the above statements ?

- (A) (i) Parasitic; (ii) - Cyanobacteria; (iii) - *Mycorrhiza*; (iv) - Wind; (v) - Bee
- (B) (i) mutualistic; (ii) - Cyanobacteria; (iii) - *Mycorrhiza*; (iv) - Animals; (v) - Wasp
- (C) (i) Parasitic; (ii) - Cyanobacteria; (iii) - *Mycorrhiza*; (iv) - Insect; (v) - Bumblebees
- (D) (i) Mutualistic; (ii) - Cyanobacteria; (iii) - Lichen; (iv) - Water; (v) - Wasp

131. Match Column-I with Column-II and choose the correct option

	Column I		Column II
A.	Pacific salmon fish	I	Verhulst - pearl logistic growth
B.	$N_t = N_0 e^{rt}$	II	Breed only once in life time
C.	Oyster	III	Exponential growth
D.	$dN/dt = rN \left[\frac{K-N}{K} \right]$	IV	A large number of small sized offsprings

- (A) A-IV; B-III; C-I; D-II
- (B) A-IV; B-III; C-II; D-I
- (C) A-IV; B-I; C-II; D-III
- (D) A-II; B-III; C-IV; D-I

132. Match the following and choose the correct option.

Column-I	Column-II
A. Standing state	I. Nitrogen, Carbon
B. Gaseous cycles	II. Amount of nutrients in soil
C. Standing crop	III. Sulphur, Phosphorus
D. Sedimentary cycles	IV. Dry biomass at different trophic levels

- (A) A - II, B - I, C - IV, D - III
- (B) A - I, B - II, C - III, D - IV
- (C) A - III, B - II, C - IV, D - I
- (D) A - I, B - IV, C - III, D - II

133. Grasslands can support greater grazing rates by herbivores than forests because

- (A) net production of grassland is greater.
- (B) more of the grassland is above the ground.
- (C) grasslands receive more sunlight.
- (D) grasslands produce less woody plant tissue.

134. Species diversity increase as one proceeds from

- (A) high altitude to low altitude and high latitude to low latitude
- (B) low altitude to high altitude and high latitude to low latitude
- (C) low altitude to high altitude and low latitude to high latitude
- (D) high altitude to low altitude and low latitude to high latitude

135. Match the items of column-I with column-II and choose the correct option.

- | Column-I | Column-II |
|---------------------------------|---------------------|
| A. UV | I. Biomagnification |
| B. Biodegradable organic matter | II. Eutrophication |
| C. DDT | III. Snow blindness |
| D. Phosphates | IV. BOD |
- (A) A - I, B - II, C - IV, D - III
 - (B) A - III, B - II, C - IV, D - I
 - (C) A - III, B - IV, C - I, D - II
 - (D) A - III, B - I, C - II, D - IV

136. What is true about thrombocytes ?

- (a) Produced from megakaryocytes
 - (b) Amount is 1,50,000 - 3,50,000 platelets per mm³
 - (c) Release various clotting factors
 - (d) Reduction do not leads to any type of disorder
 - (e) Form coagulation during injury
- (A) (a), (b), (c) and (e) are correct
 - (B) All are correct
 - (C) Only (d) is correct
 - (D) Both (a) and (d)

137. Human tongue is attached to the floor of oral cavity by

- (A) Oropharynx
- (B) Epiglottis
- (C) Frenulum
- (D) Uvula

138. Which of the following is correct regarding *Bt* crops

- (A) Resistant towards *Melodogyne incognita*
- (B) Resistant towards *A.tumefecians*
- (C) Resistant towards *Lepidopterans*
- (D) Resistant towards *Babesia*

139. Which one is appropriate for proliferative phase of menstrual cycle

- (A) FSH level is low
- (B) Estrogen level continuously decreases
- (C) Progesterone level increases
- (D) GnRH level is high

- 140.** Which one is incorrect regarding immunodeficient diseases
- (A) SCID is a secondary immunodeficient disease
 - (B) ADA deficiency leads primary immunodeficient disease
 - (C) CD4 receptor bearing cells act as host for HIV
 - (D) HIV produces secondary immunodeficient disease
- 141.** Erythropoietin, Gastrin, CCK-PZ, Epinephrine and estradiol is secreted by
- (A) Intestine, Intestine, Liver, Adrenal medulla and follicular cells respectively
 - (B) Liver, Intestinal mucosa, Intestinal mucosa, Adrenal cortex and ovary respectively
 - (C) Liver, Intestinal mucosa, Intestinal mucosa, Adrenal medulla and ovary respectively
 - (D) Kidney, Stomach, Intestine, Adrenal medulla and ovary respectively
- 142.** Respiration in tadpole larva is by
- (A) Gills
 - (B) Lungs
 - (C) Skin
 - (D) All
- 143.** Recombinant DNA technology has allowed the production of antigenic polypeptides of antigen in bacteria or yeast. Vaccines produced using this approach is :
- (A) BCG
 - (B) MMR
 - (C) Hepatitis-B
 - (D) DPT

- 144.** Which one is correct regarding Recombinant DNA technology :
- (A) Spooling is isolation of DNA from gel
 - (B) Large DNA travel more distance in agarose gel electrophoresis
 - (C) Down streaming process is isolation of recombinant protein
 - (D) Elution is isolation of white entangled mass of DNA
- 145.** Match the Column A & Column B based on their function
- | Column A | Column B |
|--------------------|---|
| A. PCT | (i) Reabsorption in this segment is minimum |
| B. Loop of Henle's | (ii) Conditional reabsorption of Na ⁺ and water takes place in this segment |
| C. DCT | (iii) Nearly all of the essential nutrients and 70-80% of electrolytes and water are reabsorbed by this segment |
| D. Collecting duct | (iv) Large amounts of water could be reabsorbed from this region to produce a concentrated urine |
- (A) A-(i), B-(iii), C-(iv), D-(ii)
 (B) A-(i), B-(iii), C-(ii), D-(iv)

(C) A-(iii), B-(i), C-(ii), D-(iv)

(D) A-(i), B-(iv), C-(iii), D-(ii)

146. Following features belong to which of the following phylum ?

(i) Triploblastic (ii) Bilateral symmetry

(iii) Eucoelomate (iv) Metamerism

(A) Mollusca (B) Aschelminthes

(C) Platyhelminthes (D) Annelida

147. The sheath enclosing several bundles of muscle fibres is _____ tissue.

(A) Epithelial (B) Connective

(C) Both (D) Neural

148. Which one is the correct order of mammalian evolution

(A) Sauropsids → Thecodonts → Therapsids → mammals

(B) Synapsids → pelycosaurs → Dinosaurs → mammals

(C) Synapsids → Pelycosaurs → Therapsids → Mammals

(D) Saurapsids → Pelycosaurs → Therapsids → Mammals

149. Which of the following is incorrect regarding antibodies

(A) Play role in AMI

(B) Have epitopes which bind with antigens

(C) Are globular proteins

(D) Have usually 2 types of protein chains

150. Mosaic vision means

(A) More sensitivity and less resolution

(B) More sensitivity and more resolution

(C) Less sensitivity and less resolution

(D) Less sensitivity and more resolution

151. A patient is hooked up to a monitoring machine that shows voltage trace on a screen and makes the sound “.....Pip.....pip.....pip.....peeeeeeee” and the patient goes into

(A) Complete heart block

(B) Heart attack

(C) Cardiac arrest

(D) Stroke

152. Inspiration and expiration occurs when

A. contraction of diaphragm and external inter-costal muscles and relaxation of diaphragm and external inter-costal muscles respectively

B. there is a negative pressure in the lungs with respect to atmospheric pressure and there is positive pressure in lungs with respect to atmospheric pressure respectively

C. increase in pulmonary volume and decrease in pulmonary volume respectively

D. increase in intra-pulmonary pressure and decrease in intra pulmonary pressure respectively

(A) A, B, C, D (B) A, B & C only

(C) A, B and D only (D) A and B only

ANTS-Full Test Series # 13 (Dropper Medical) - 2019-20

- 153.** Heart contains which of the following kind of Tissue?
(A) Epithelial Tissue
(B) Cardiac muscular tissue
(C) Connective tissue
(D) All
- 154.** Select total number of bony fishes from the following : *Exocoetus*, *Hippocampus*, Testudo, Cuttle fish, *Betta*
(A) 3 (B) 7
(C) 8 (D) 12
- 155.** Which portion of cartilage provide it with solidity, pliability and resistance to compression ?
(A) Collagen fibres
(B) Calcium salts
(C) Intercellular matrix
(D) Chondrocytes
- 156.** In a late night party, after dinner you are feeling full and having symptoms of nausea. Your friend suggested that you will/are suffering from
(A) Vomiting (B) Constipation
(C) Indigestion (D) Both (A) and (C)
- 157.** Heart is originated from
(A) Mesoderm (B) Ectoderm
(C) Endoderm (D) Mesoectoderm
- 158.** In each segment exoskeleton has hardened plates in cockroach known as
(A) Sclerites (B) Sternum
(C) Carapace (D) All
- 159.** Otolith organ is related to
(A) Central nervous system
(B) Organ of Bowman's capsule
(C) Organ of equilibrium
(D) Cranial bone
- 160.** Which one is incorrect regarding cleavage
(A) DNA synthesis occurs
(B) O₂ utilization is more
(C) Cytoplasmic nucleus ratio increases
(D) 1st cleavage produces equal sized blastomeres
- 161.** The electrical disturbance generated in neurons travels through _____
(A) Neuroglia (B) Cytoplasm
(C) Plasma membrane (D) All
- 162.** The mean of population shifts in one direction in case of
(A) Balancing selection
(B) Directional selection
(C) Stabilizing selection
(D) Diversifying selection
- 163.** Which set of evolutionary stages of human were discovered before ape man ?
(A) *Dryopithecus*, *Ramapithecus*
(B) Java man, *Australopithecus*
(C) *Australopithecus*, Handy man
(D) *Kenyapithecus*, Heidelberg man

- 164.** Hyper-glycemic hormone is
(A) Insulin (B) Glucagon
(C) Serotonin (D) Thyrocalcitonin
- 165.** Pic the odd one out
(A) Multipolar, Bipolar and Unipolar
(B) Myelinated and Non-myelinated
(C) Nissl's granules, cell, neurofibrils and synaptic vesicles
(D) Polarizaion, Depolarization, Polymerization and Repolarization
- 166.** Which of the following set of organisms shows dioecious conditions ?
(A) *Ancylostoma*, *Aedes*, *Limulus*
(B) *Ancylostoma*, *Periplaneta*, *Pheretima*
(C) *Aedes*, *Limulus*, *Hirudinaria*
(D) *Fasciola*, *Ascaris*, *Ophiura*
- 167.** In which of the following immune disorder tachycardia occurs
(A) Addison's Disease
(B) Hashimoto's Thyroiditis
(C) Grave's Disease
(D) Multiple Sclerosis
- 168.** Which one is the correct sequence in ascending order
(A) Eras → Periods → Epochs
(B) Periods → Eras → Epochs
(C) Periods → Eras → Epochs
(D) Epochs → Periods → Eras
- 169.** Most primitive chordate and are ectoparasite of fishes belong to class :
(A) Agnatha (B) Cyclostomate
(C) Both (A) & (B) (D) Lamprey
- 170.** Following features are of
(i) Exoskeleton of chitin
(ii) Malphigian tubules are excretory organ
(iii) Tracheal system for respiration
(iv) 3 pair of legs in thoracic region
(A) *Limulus* & Prawn (B) Spider
(C) Cockroach (D) All
- 171.** Which of the following pair shows convergent evolution
(A) Mole – Mouse
(B) Lemur – Spotted cuscus
(C) Wolf – Tasmanian cat
(D) Bobcat – Numbat
- 172.** In which of type of ART *in-vivo* fertilization occurs
(A) IUI (B) ZIFT
(C) ICSI (D) IUT
- 173.** Whose receptors are present in CNS and GI tract
(A) Opiates (B) Tranquilizers
(C) Stimulants (D) Hallucinogens

174. Pick the correct matching pair in the following

- (A) Muscular dystrophy - progressive degeneration of skeletal muscle mostly due to genetic disorder
- (B) Arthritis - Inflammation of Bones
- (C) Renal calculi - Inflammation of glomeruli of kidney
- (D) Agina - Feeling nausea after heavy exercise

175. Relaxin produced by ovary at the end of pregnancy shows effect on

- (A) Hyaline cartilage (B) White fibrocartilage
- (C) Elastic cartilage (D) Calcified cartilage

176. Majority of Mollusca are

- (A) aquatic (B) Terrestrial
- (C) aerial (D) any of the above

177. The aves have additional chamber in digestive tract and of which _____ is for food storage _____ for food grinding.

- (A) Crop, Gizzard (B) Crop, Pharynx
- (C) Gizzard, Crop (D) Pharynx, Gizzard

178. Match the column A with Column B

- | A | B |
|---|--------------------------|
| (i) Parotids | (a) Breakdown of food |
| (ii) Sphincter of oddi | (b) Located at lower jaw |
| (iii) Duodenum | (c) Near ear |
| (iv) Sub-mandibular | (d) C shaped |
| (v) Mastication | (e) Muscular guard |
| (A) (i) - c, (ii) - e, (iii) - d, (iv) - a, (v) - b | |
| (B) (i) - c, (ii) - b, (iii) - d, (iv) - a, (v) - e | |
| (C) (i) - c, (ii) - e, (iii) - d, (iv) - b, (v) - a | |
| (D) (i) - b, (ii) - d, (iii) - a, (iv) - c, (v) - e | |

179. If a radiolabel is used to tag a DNA molecule, the technique used to

- (A) X-ray crystallography
- (B) Autoradiography
- (C) Fluorescence microscopy
- (D) Electron microscopy

180. Which of the following sites contain squamous epithelium as its lining ?

- (A) Blood vessels (B) Alveoli
- (C) Nasal cavity (D) Both (A) & (B)

Date : 28 - 06 - 2020

ANTS FULL TEST : FT # 13

(NEET PATTERN)

Target : NEET - 2020

IMPORTANT INSTRUCTIONS

1. Immediately fill the particulars on this page of the Test Booklet with Blue/Black Point Pen. Use of Pencil is strictly prohibited.
2. When you are directed, fill in the particulars of the Answer Sheet carefully.
3. The test is 3 hours duration.
4. The Test Booklet consists of **180** questions. The maximum marks are **720**.
5. There are three parts in the question paper **Biology** having **90** questions and **Physics** and **Chemistry** having **45** questions each.
6. For each question, you will be awarded **4** marks if you darken all the bubble(s) corresponding to the correct answer(s) and **zero** mark if no bubbles are darkened. In all other cases, **1 (one)** marks will be deducted.
7. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instructions 6 above.

Filling the ORS (Optical Response Sheet) :

Use only Black ball point pen only for filling the ORS. Do not use Gel/Ink pen as it might smudge the ORS.

8. Write your Roll no. in the books given. Also darken the corresponding bubbles with Black ball point pen only. Also fill your roll no in the space provided.
9. **Fill your Paper Code as mentioned on the Test Paper.**
10. If student does not fill his/her roll no. and paper code correctly and properly, then his/her marks will not be displayed and 5 marks will be deducted (paper wise) from the total.
11. Since it is not possible to erase and correct pen filled bubble, you are advised to be extremely careful while darkening the bubble corresponding to your answer.
12. Neither try to erase/rub/scratch the option nor make the Cross(X) mark on the option once filled. Do not scribble, smudge, cut, tear, or wrinkle the ORS. Do not put any stray marks or whitener anywhere on the ORS.
13. If there is any discrepancy between the written data and the bubbled data in your ORS the bubbled data will be taken as final.

Name of the candidate

Roll Number :

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I have read all the instructions and shall abide by them

.....

Signature of the Candidate

I have read all the instructions and shall abide by them

.....

Signature of the Candidate