MedicNEET

NEET 2016 Phase 2 — Previous Year Question Paper

159 in-syllabus PYQs from NEET 2016 Phase 2, reproduced by MedicNEET for practice.

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Physics · 42 Qs

1. An electric dipole is placed at an angle of 30° with an electric field of intensity 2×10^5 N/C. It experiences a torque equal to 4 N·m. The charge on the dipole, if the dipole length is 2 cm, is

(1) 8 mC **(2)** 2 mC

(3) 5 mC **(4)** 7 μC

2. An electric dipole is placed at an angle of 30° with an electric field of intensity 2×10^5 N C^{-1}. It experiences a torque equal to 4 N m. Calculate the magnitude of charge on the dipole, if the dipole length is 2 cm.

(1) 8 mC **(2)** 6 mC

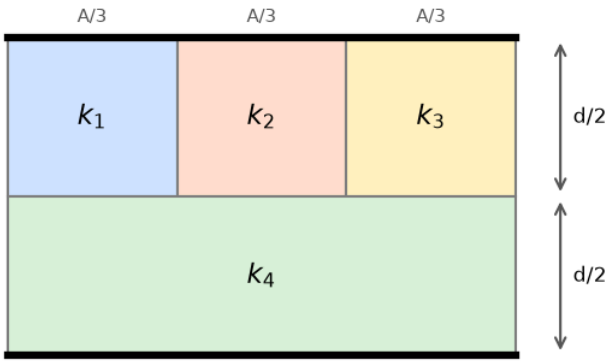
(3) 4 mC **(4)** 2 mC

3. Planck's constant (h), speed of light in vacuum (c) and Newton's gravitational constant (G) are three fundamental constants. Which of the following combinations of these has the dimension of length?

(1) $\sqrt{(hG/c^3)}$ **(2)** $\sqrt{(hG/c^5)}$

(3) $\sqrt{(hc/G)}$ **(4)** $\sqrt{(Gc/h^3)}$

4. A parallel-plate capacitor of area A, plate separation d and capacitance C is filled with four dielectric materials having dielectric constants k1, k2, k3 and k4 as shown in the figure below. If a single dielectric material is to be used to have the same capacitance C in this capacitor, then its dielectric constant k is given by



(1) k = k1 + k2 + k3 + 3k4

(2) k = (2/3)(k1 + k2 + k3) + 2k4

(3) 2/k = 3/(k1 + k2 + k3) + 1/k4

(4) 1/k = 1/k1 + 1/k2 + 1/k3 + 3/(2k4)

5. Two cars P and Q start from a point at the same time in a straight line and their positions are represented by $x_P = at + bt^2$ and $x_Q = ft - t^2$. At what time do the cars have the same velocity?

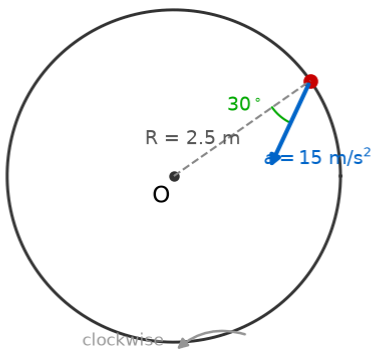
(1) $\frac{f-a}{2(1+b)}$

(2) $\frac{a+f}{2(b-1)}$

(3) $\frac{a-f}{1+b}$

(4) $\frac{a+f}{2(1+b)}$

6. In the figure, $a = 15\ \mathrm{m/s^2}$ represents the total acceleration of a particle moving in the clockwise direction in a circle of radius $R = 2.5$ m at a given instant of time. The speed of the particle is:



(1) $4.5\ \mathrm{m/s}$

(2) $5.0\ \mathrm{m/s}$

(3) $5.7\ \mathrm{m/s}$

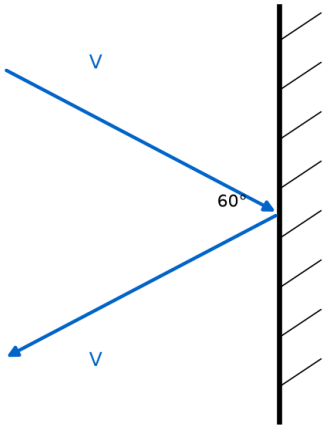
(4) $6.2\ \mathrm{m/s}$

7. A particle moves from a point $(-2\hat{i}+5\hat{j})$ to $(4\hat{j}+3\hat{k})$ when a force of $(4\hat{i}+3\hat{j})$ N is applied. How much work is done by the force?

(1) 8 J **(2)** 11 J

(3) 5 J **(4)** 2 J

8. A rigid ball of mass m strikes a rigid wall at 60° and gets reflected without loss of speed, as shown in the figure. The value of the impulse imparted by the wall on the ball is:



(1) mV **(2)** 2mV

(3) mV/2 **(4)** mV/3

9. Two identical balls A and B having velocities 0.5 m/s and –0.3 m/s respectively collide elastically in one dimension. The velocities of B and A after the collision, respectively, will be:

(1) –0.5 m/s and 0.3 m/s **(2)** 0.5 m/s and –0.3 m/s

(3) –0.3 m/s and 0.5 m/s **(4)** 0.3 m/s and 0.5 m/s

10. A bullet of mass 10 g moving horizontally at 400 m/s strikes a wooden block of mass 2 kg suspended by a light inextensible string of length 5 m. The centre of gravity of the block is found to rise a vertical distance of 10 cm. The speed of the bullet after it emerges horizontally from the block is:

(1) 100 m/s **(2)** 80 m/s

(3) 120 m/s **(4)** 160 m/s

11. An electron is moving in a circular path under the influence of a transverse magnetic field of 3.57×10^{-2} T. If the value of e/m is 1.76×10^{11} C/kg, the frequency of revolution of the electron is:

(1) 1 GHz **(2)** 100 MHz

(3) 62.8 MHz **(4)** 6.28 MHz

12. A long wire carrying a steady current is bent into a circular loop of one turn. The magnetic field at the centre of the loop is B. It is then bent into a circular coil of n turns. The magnetic field at the centre of this coil of n turns will be:

(1) nB **(2)** n^2B

(3) 2nB **(4)** $2n^2B$

13. A bar magnet is hung by a thin cotton thread in a uniform horizontal magnetic field and is in equilibrium. The energy required to rotate it by 60° is W. The torque required to keep the magnet in this new (60°) position is:

(1) W/√3 **(2)** √3 W

(3) √3 W/2 **(4)** 2W/√3

14. A bullet of mass 10 g moving horizontally with a velocity of 400 m/s strikes a wooden block of mass 2 kg suspended by a light inextensible string of length 5 m. As a result the centre of gravity of the block rises a vertical distance of 10 cm. The speed of the bullet after it emerges horizontally from the block is

(1) 100 m/s **(2)** 80 m/s

(3) 120 m/s **(4)** 160 m/s

15. Two identical balls A and B having velocities of 0.5 m/s and -0.3 m/s respectively collide elastically in one dimension. The velocities of B and A after the collision will respectively be

(1) -0.3 m/s and 0.5 m/s **(2)** 0.3 m/s and 0.5 m/s

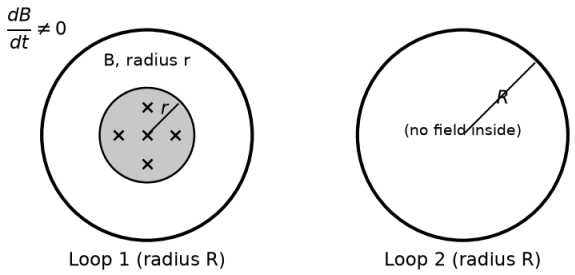
(3) -0.5 m/s and 0.3 m/s **(4)** 0.5 m/s and -0.3 m/s

16. A particle moves from a point $(-2\hat{i}+5\hat{j})$ to $(4\hat{j}+3\hat{k})$ when a force of $(4\hat{i}+3\hat{j})$ N is applied. How much work is done by the force?

(1) 2 J **(2)** 8 J

(3) 11 J **(4)** 5 J

17. A uniform magnetic field is restricted within a region of radius r. The magnetic field changes with time at a rate dB/dt. Loop 1 of radius R > r encloses the region r and loop 2 of radius R is outside the region of magnetic field as shown in the figure below. Then the e.m.f. generated is



(1) Zero in loop 1 and zero in loop 2 **(2)** $-(dB/dt)\pi r^2$ in loop 1 and $-(dB/dt)\pi r^2$ in loop 2

(3) $-(dB/dt)\pi R^2$ in loop 1 and zero in loop 2 **(4)** $-(dB/dt)\pi r^2$ in loop 1 and zero in loop 2

18. The potential differences across the resistance, capacitance and inductance are 80 V, 40 V and 100 V respectively in an L-C-R circuit. The power factor of this circuit is

(1) 0.4 **(2)** 0.5

(3) 0.8 **(4)** 1.0

19. A 100 Ω resistance and a capacitor of 100 Ω reactance are connected in series across a 220 V source. When the capacitor is 50% charged, the peak value of the displacement current is

(1) 2.2 A

(2) 11 A

(3) 4.4 A

(4) $11\sqrt{2}$ A

20. Which of the following combinations should be selected for better tuning of an L-C-R circuit used for communication?

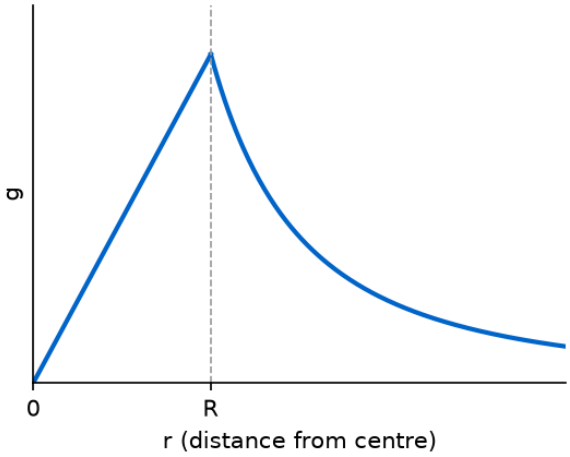
(1) R = 20 Ω, L = 1.5 H, C = 35 μF

(2) R = 25 Ω, L = 2.5 H, C = 45 μF

(3) R = 15 Ω, L = 3.5 H, C = 30 μF

(4) R = 25 Ω, L = 1.5 H, C = 45 μF

21. Starting from the centre of the earth (radius R), the variation of g (acceleration due to gravity) with distance r is best shown by which graph?



(1) g rises as $1/r^2$ inside, constant outside

(2) g rises linearly ($g \propto r$) up to the surface, then falls as $1/r^2$ outside

(3) g is constant inside, then falls linearly outside

(4) g falls as $1/r^2$ throughout

22. A satellite of mass m orbits the earth (radius R) at height h. In terms of g_0 (surface gravity), the total energy of the satellite is:

(1) $mg_0R^2/2(R+h)$

(2) $-mg_0R^2/2(R+h)$

(3) $2mg_0R^2/(R+h)$

(4) $-2mg_0R^2/(R+h)$

23. A rectangular film of liquid is extended from (4 cm × 2 cm) to (5 cm × 4 cm). If the work done is 3×10^{-4} J, the value of the surface tension of the liquid is:

(1) 0.250 N m^{-1}

(2) 0.125 N m^{-1}

(3) 0.2 N m^{-1}

(4) 8.0 N m^{-1}

24. Three liquids of densities ρ_1, ρ_2 and ρ_3 (with $\rho_1 > \rho_2 > \rho_3$), having the same value of surface tension T, rise to the same height in three identical capillaries. The angles of contact θ_1, θ_2 and θ_3 obey:

(1) $\pi/2 > \theta_1 > \theta_2 > \theta_3 \geq 0$

(2) $0 \leq \theta_1 < \theta_2 < \theta_3 < \pi/2$

(3) $\pi/2 < \theta_1 < \theta_2 < \theta_3 < \pi$

(4) $\pi > \theta_1 > \theta_2 > \theta_3 > \pi/2$

25. A person can see clearly objects only when they lie between 50 cm and 400 cm from his eyes. In order to increase the maximum distance of distinct vision to infinity, the type and power of the correcting lens the person has to use will be

(1) Convex, +2.25 diopter

(2) Concave, –0.25 diopter

(3) Concave, –0.2 diopter

(4) Convex, +0.15 diopter

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26. Two identical glass (μ_g = 3/2) equiconvex lenses of focal length f each are kept in contact. The space between the two lenses is filled with water (μ_w = 4/3). The focal length of the combination is

(1) f/3

(2) f

(3) 4f/3

(4) 3f/4

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27. An air bubble in a glass slab with refractive index 1.5 (near normal incidence) is 5 cm deep when viewed from one surface and 3 cm deep when viewed from the opposite face. The thickness (in cm) of the slab is

(1) 8

(2) 10

(3) 12

(4) 16

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28. Two bodies have different thermal (heat) capacities. One of them is at 100 °C and the other at 0 °C. If the two are brought into contact in an isolated system (no heat loss to surroundings), the final common temperature will be:

(1) 50 °C

(2) More than 50 °C

(3) Less than 50 °C but greater than 0 °C

(4) 0 °C

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29. A body cools from a temperature 3T to 2T in 10 minutes. The surroundings are at temperature T. Assuming Newton's law of cooling holds, the temperature of the body at the end of the next 10 minutes will be:

(1) 7T/4

(2) 3T/2

(3) 4T/3

(4) T

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30. A linear aperture whose width is 0.02 cm is placed immediately in front of a lens of focal length 60 cm. The aperture is illuminated normally by a parallel beam of wavelength 5×10^{-5} cm. The distance of the first dark band of the diffraction pattern from the centre of the screen is

(1) 0.10 cm

(2) 0.25 cm

(3) 0.20 cm

(4) 0.15 cm

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31. The interference pattern is obtained with two coherent light sources of intensity ratio n. In the interference pattern, the ratio (I_max – I_min)/(I_max + I_min) will be

(1) $\sqrt{n}/(n+1)$

(2) $2\sqrt{n}/(n+1)$

(3) $\sqrt{n}/(n+1)^2$

(4) $2\sqrt{n}/(n+1)^2$

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32. Electrons of mass m with de Broglie wavelength λ fall on the target in an X-ray tube. The cutoff wavelength (λ_0) of the emitted X-ray is:

(1) $\lambda_0 = 2mc\lambda^2/h$

(2) $\lambda_0 = 2h/mc$

(3) $\lambda_0 = 2m^2c^2\lambda^3/h^2$

(4) $\lambda_0 = \lambda$

33. Photons with energy 5 eV are incident on a cathode C in a photoelectric cell. The maximum energy of emitted photoelectrons is 2 eV. When photons of energy 6 eV are incident on C, no photoelectrons will reach the anode A if the stopping potential of A relative to C is:

(1) +3 V

(2) +4 V

(3) –1 V

(4) –3 V

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34. The temperature inside a refrigerator is t_2 °C and the room temperature is t_1 °C. The amount of heat delivered to the room for each joule of electrical energy consumed ideally will be

(1) $\frac{t_1}{t_1 - t_2}$

(2) $\frac{t_1 + 273}{t_1 - t_2}$

(3) $\frac{t_2 + 273}{t_1 - t_2}$

(4) $\frac{t_1 + t_2}{t_1 + 273}$

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35. If an electron in a hydrogen atom jumps from the 3rd orbit to the 2nd orbit, it emits a photon of wavelength λ. When it jumps from the 4th orbit to the 3rd orbit, the corresponding wavelength of the photon will be:

(1) 16/25 λ

(2) 9/16 λ

(3) 20/7 λ

(4) 20/13 λ

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36. A given sample of an ideal gas occupies a volume V at a pressure P and absolute temperature T. The mass of each molecule of the gas is m. Which of the following gives the density of the gas?

(1) P/(kT)

(2) Pm/(kT)

(3) P/(kTV)

(4) mkT

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37. The half-life of a radioactive substance is 30 minutes. The time (in minutes) taken between 40% decay and 85% decay of the same radioactive substance is: (Out of syllabus)

(1) 15

(2) 30

(3) 45

(4) 60

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38. A body of mass m is attached to the lower end of a spring whose upper end is fixed; the spring has negligible mass. When the mass m is slightly pulled down and released, it oscillates with a time period of 3 s. When the mass is increased by 1 kg, the time period becomes 5 s. The value of m (in kg) is

(1) 3/4

(2) 4/3

(3) 16/9

(4) 9/16

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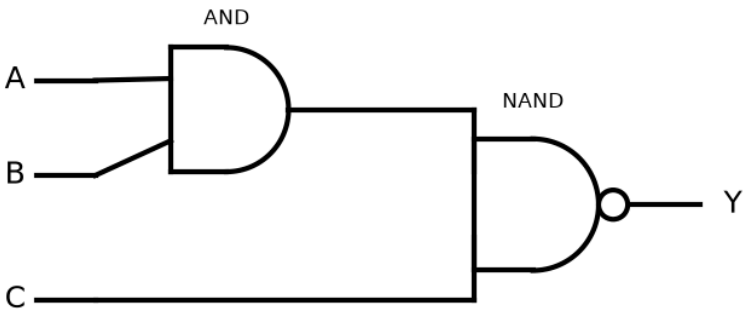
39. What is the output Y in the following circuit, when all the three inputs A, B, C are first 0 and then 1?



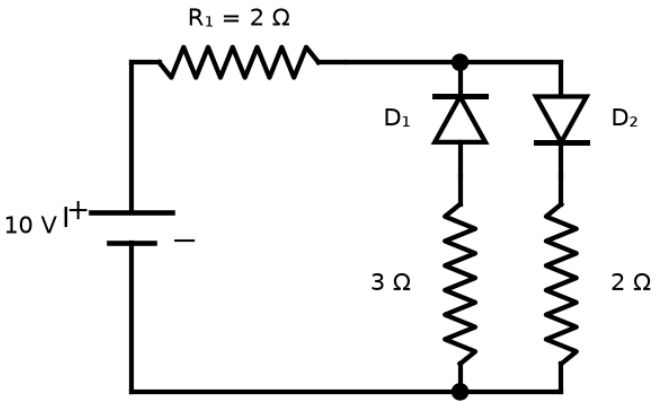
(1) 0, 1

(2) 0, 0

(3) 1, 0

(4) 1, 1

40. The given circuit has two ideal diodes connected as shown in the figure below. The current flowing through the resistance R_1 will be:



(1) 2.5 A

(2) 10.0 A

(3) 1.43 A

(4) 3.13 A

41. The second overtone of an open organ pipe has the same frequency as the first overtone of a closed pipe of length L. The length of the open pipe is:

(1) L

(2) 2L

(3) L/2

(4) 4L

42. Three sound waves of equal amplitude have frequencies (n−1), n and (n+1) Hz. They superimpose to give beats. The number of beats produced per second is:

(1) 1

(2) 4

(3) 3

(4) 2

43. The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is

(1) 0 **(2)** 1

(3) 2 **(4)** 3

44. Which one of the following is incorrect for an ideal solution?

(1) $\Delta H_{mix} = 0$ **(2)** $\Delta U_{mix} = 0$

(3) $\Delta P = P_{obs} - P_{calculated\ by\ Raoult's\ law} = 0$ **(4)** $\Delta G_{mix} = 0$

45. Suppose the elements X and Y combine to form two compounds XY_2 and X_3Y_2. When 0.1 mole of XY_2 weighs 10 g and 0.05 mole of X_3Y_2 weighs 9 g, the atomic weights of X and Y respectively are

(1) 40, 30 **(2)** 60, 40

(3) 20, 30 **(4)** 30, 20

46. The molar conductivity of a $0.5\ \text{mol dm}^{-3}$ solution of $AgNO_3$ with electrolytic conductivity of $5.76 \times 10^{-3}\ \text{S cm}^{-1}$ at $298\ \text{K}$ is

(1) $2.88\ \text{S cm}^2\ \text{mol}^{-1}$ **(2)** $11.52\ \text{S cm}^2\ \text{mol}^{-1}$

(3) $0.086\ \text{S cm}^2\ \text{mol}^{-1}$ **(4)** $28.8\ \text{S cm}^2\ \text{mol}^{-1}$

47. During the electrolysis of molten sodium chloride, the time required to produce 0.10 mol of chlorine gas using a current of 3 amperes is

(1) 55 minutes **(2)** 110 minutes

(3) 220 minutes **(4)** 330 minutes

48. If the E°_{cell} for a given reaction has a negative value, which of the following gives the correct relationships for the values of ΔG° and K_{eq}?

(1) $\Delta G^\circ > 0;\ K_{eq} < 1$ **(2)** $\Delta G^\circ > 0;\ K_{eq} > 1$

(3) $\Delta G^\circ < 0;\ K_{eq} > 1$ **(4)** $\Delta G^\circ < 0;\ K_{eq} < 1$

49. The number of electrons delivered at the cathode during electrolysis by a current of 1 ampere in 60 seconds is (charge on electron $= 1.60 \times 10^{-19}$ C)

(1) 6×10^{23} **(2)** 6×10^{20}

(3) 3.75×10^{20} **(4)** 7.48×10^{23}

50. Zinc can be coated on iron to produce galvanized iron but the reverse is not possible. It is because

(1) Zinc is lighter than iron **(2)** Zinc has lower melting point than iron

(3) Zinc has lower negative electrode potential than iron **(4)** Zinc has higher negative electrode potential than iron

51. How many electrons can fit in the orbital for which $n = 3$ and $l = 1$?

(1) 2 **(2)** 6

(3) 10 **(4)** 14

52. Which of the following pairs of d-orbitals will have electron density along the axes?

(1) d_{z^2}, d_{xz} **(2)** d_{xz}, d_{yz}

(3) d_{z^2}, $d_{x^2-y^2}$ **(4)** d_{xy}, $d_{x^2-y^2}$

53. The decomposition of phosphine PH_3 on tungsten at low pressure is a first-order reaction. It is because the

(1) rate is proportional to the surface coverage **(2)** rate is inversely proportional to the surface coverage

(3) rate is independent of the surface coverage **(4)** rate of decomposition is very slow

54. [NEET 2016 Phase 2 · NEET 2017 · NEET 2023 Phase 1] Which one of the following statements is \textbf{not} correct?

(1) Catalyst does not initiate any reaction **(2)** The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(3) Enzymes catalyse mainly bio-chemical reactions **(4)** Coenzymes increase the catalytic activity of enzyme

55. Which of the following is correctly matched?

(1) Acidic oxides – Mn_2O_7, SO_2, TeO_3 **(2)** Amphoteric oxides – BeO, Ga_2O_3, GeO

(3) Basic oxides – In_2O_3, K_2O, SnO_2 **(4)** Neutral oxides – CO, NO_2, N_2O

56. Which one of the following compounds shows the presence of intramolecular hydrogen bond?

(1) H_2O_2 **(2)** HCN

(3) Cellulose **(4)** Concentrated acetic acid

57. The hybridizations of the atomic orbitals of nitrogen in NO_2^+, NO_3^- and NH_4^+ respectively are

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

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

58. Which of the following pairs of ions is isoelectronic and isostructural?

(1) CO_3^{2-}, NO_3^- **(2)** ClO_3^-, CO_3^{2-}

(3) SO_3^{2-}, NO_3^- **(4)** ClO_3^-, SO_3^{2-}

59. The correct geometry and hybridization for XeF_4 are

(1) octahedral, sp^3d^2 **(2)** trigonal bipyramidal, sp^3d

(3) planar triangle, sp^3d^3 **(4)** square planar, sp^3d^2

60. Among the following, which one is a wrong statement?

(1) PH_5 and $BiCl_5$ do not exist **(2)** $p\pi$–$d\pi$ bonds are present in SO_2

(3) SeF_4 and CH_4 have the same shape **(4)** I_3^+ has bent geometry

61. Which of the following pairs of compounds is isoelectronic and isostructural?

(1) $BeCl_2$, XeF_2 **(2)** TeI_2, XeF_2

(3) IBr_2^-, XeF_2 **(4)** IF_3, XeF_2

62. Choose the correct statement:

(1) Diamond and graphite have a two-dimensional network.

(2) Diamond is covalent and graphite is ionic.

(3) Diamond is sp^3 hybridised and graphite is sp^2 hybridised.

(4) Both diamond and graphite are used as dry lubricants.

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63. Which one of the following statements related to lanthanons is incorrect?

(1) Europium shows $+2$ oxidation state.

(2) The basicity decreases as the ionic radius decreases from Pr to Lu.

(3) All the lanthanons are much more reactive than aluminium.

(4) Ce^{4+} solutions are widely used as oxidizing agent in volumetric analysis.

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64. The correct increasing order of trans-effect of the following species is:

(1) $NH_3 > CN^- > Br^- > C_6H_5{}^-$

(2) $CN^- > C_6H_5{}^- > Br^- > NH_3$

(3) $Br^- > CN^- > NH_3 > C_6H_5{}^-$

(4) $CN^- > Br^- > C_6H_5{}^- > NH_3$

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65. Jahn-Teller effect is not observed in high spin complexes of:

(1) d^7

(2) d^8

(3) d^4

(4) d^9

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66. Which of the following can be used as the halide component for a Friedel-Crafts (alkylation) reaction?

(1) Chlorobenzene

(2) Bromobenzene

(3) Chloroethene

(4) Isopropyl chloride

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67. Which of the following compounds shall NOT produce propene by reaction with HBr followed by elimination, or by direct elimination only?

(1) Cyclopropane

(2) $CH_3CH_2CH_2OH$ (propan-1-ol)

(3) $H_2C{=}C{=}O$ (ketene)

(4) $CH_3CH_2CH_2Br$ (1-bromopropane)

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68. For a sample of perfect gas when its pressure is changed isothermally from p_i to p_f, the entropy change is given by

(1) $\Delta S = nR\ln\left(\frac{p_f}{p_i}\right)$

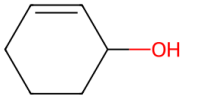
(2) $\Delta S = nR\ln\left(\frac{p_i}{p_f}\right)$

(3) $\Delta S = nRT\ln\left(\frac{p_f}{p_i}\right)$

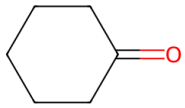
(4) $\Delta S = RT\ln\left(\frac{p_i}{p_f}\right)$

69. The correct structure of the product A formed in the following reaction is:
\ce{cyclohex-2-en-1-one ->[{H2 (1 atm)}][{Pd/C, EtOH}] A}

(A)



(B)



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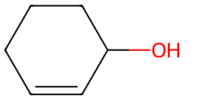
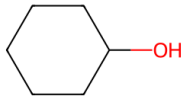


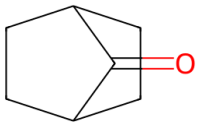
(D)



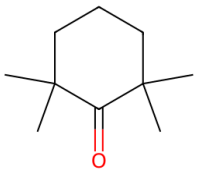
(1) (A) **(2)** (B)

(3) (C) **(4)** (D)

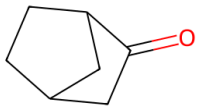
70. Which among the following molecules (I, II, III) can exhibit tautomerism?



I



II

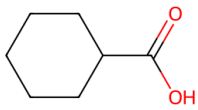


III

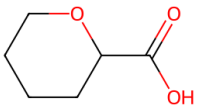
(1) III only **(2)** Both I and III

(3) Both I and II **(4)** Both II and III

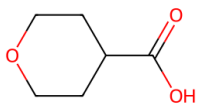
71. The correct order of strengths of the following carboxylic acids is: (I) cyclohexanecarboxylic acid; (II) a tetrahydropyran-carboxylic acid in which the ring oxygen lies close (beta) to the $-\mathrm{COOH}$-bearing carbon; (III) a tetrahydropyran-carboxylic acid in which the ring oxygen lies far (gamma, across the ring) from the $-\mathrm{COOH}$-bearing carbon.



I



II



III

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

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

72. Hot concentrated sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidizing behaviour?

(1) $Cu + 2\,H_2SO_4 \longrightarrow CuSO_4 + SO_2 + 2\,H_2O$

(2) $3\,S + 2\,H_2SO_4 \longrightarrow 3\,SO_2 + 2\,H_2O$

(3) $C + 2\,H_2SO_4 \longrightarrow CO_2 + 2\,SO_2 + 2\,H_2O$

(4) $CaF_2 + H_2SO_4 \longrightarrow CaSO_4 + 2\,HF$

---

73. A given nitrogen-containing aromatic compound A reacts with Sn/HCl, followed by HNO_2, to give an unstable compound B. B, on treatment with phenol, forms a beautiful coloured compound C with molecular formula $C_{12}H_{10}N_2O$. The structure of compound A is

(1) Aniline, $C_6H_5NH_2$

(2) Nitrobenzene, $C_6H_5NO_2$

(3) Benzonitrile, C_6H_5CN

(4) Benzamide, $C_6H_5CONH_2$

---

74. The central dogma of molecular genetics states that the genetic information flows from:

(1) Amino acids $\rightarrow$ Proteins $\rightarrow$ DNA

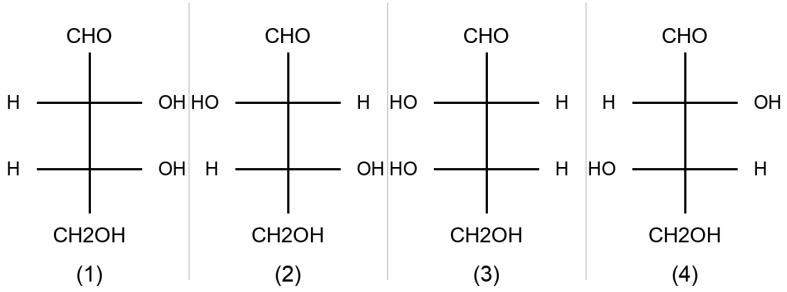
(2) DNA $\rightarrow$ Carbohydrates $\rightarrow$ Proteins

(3) DNA $\rightarrow$ RNA $\rightarrow$ Proteins

(4) DNA $\rightarrow$ RNA $\rightarrow$ Carbohydrates

---

75. The correct corresponding order of names of the four aldoses with the configurations (1)–(4) shown below, respectively, is:



(1) L–erythrose, L–threose, L–erythrose, D–threose

(2) D–threose, D–erythrose, L–threose, L–erythrose

(3) L–erythrose, L–threose, D–erythrose, D–threose

(4) D–erythrose, D–threose, L–erythrose, L–threose

---

76. [NEET 2016 Phase 2 · NEET 2017 · NEET 2023 Phase 1] Which one of the following statements is not correct?

(1) Catalyst does not initiate any reaction

(2) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(3) Enzymes catalyse mainly bio-chemical reactions

(4) Coenzymes increase the catalytic activity of enzyme

---

77. Which of the following can be used as the halide component for a Friedel-Crafts reaction?

(1) Chlorobenzene

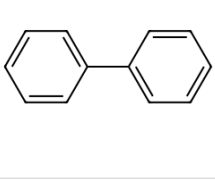
(2) Bromobenzene

(3) Chloroethene

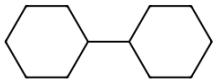
(4) Isopropyl chloride

78. In which of the following molecules are all atoms coplanar?

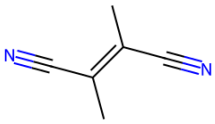
A



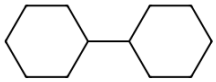
B



C



D

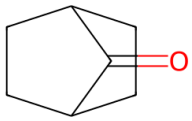


(1) (A) **(2)** (B)

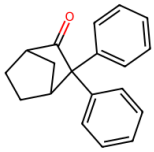
(3) (C) **(4)** (D)

79. Which among the given bicyclic ketone molecules (I), (II) and (III) can exhibit tautomerism?

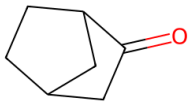
I



II



III

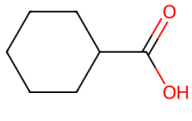


(1) III only **(2)** Both I and III

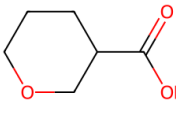
(3) Both I and II **(4)** Both II and III

80. The correct order of strengths of the carboxylic acids (I), (II) and (III) is:

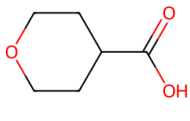
I



II



III



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

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

81. The compound that will react most readily with gaseous bromine has the formula

(1) C_3H_6 **(2)** C_2H_2

(3) C_4H_{10} **(4)** C_2H_4

82. The ovule of an angiosperm is technically equivalent to

(1) Megasporangium
(2) Megasporophyll
(3) Megaspore mother cell
(4) Megaspore

83. In majority of angiosperms

(1) Egg has a filiform apparatus
(2) There are numerous antipodal cells
(3) Reduction division occurs in the megaspore
(4) A small central cell is present in the embryo sac

84. Pollination in water hyacinth and water lily is brought about by the agency of

(1) Water
(2) Insects or wind
(3) Birds
(4) Bats

85. Match Column-I with Column-II for housefly classification and select the correct option using the codes given below:

Column - I
A. Family
B. Order
C. Class
D. Phylum

Column - II
(i) Diptera
(ii) Arthropoda
(iii) Muscidae
(iv) Insecta

Choose the correct option:

(1) A-(iii), B-(i), C-(iv), D-(ii)
(2) A-(iii), B-(ii), C-(iv), D-(i)
(3) A-(iv), B-(iii), C-(ii), D-(i)
(4) A-(iv), B-(ii), C-(i), D-(iii)

86. Study the four statements (A–D) given below and select the two correct ones out of them:

A. Definition of biological species was given by Ernst Mayr.
B. Photoperiod does not affect reproduction in plants.
C. Binomial nomenclature system was given by R.H. Whittaker.
D. In unicellular organisms, reproduction is synonymous with growth.

The two correct statements are:

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

87. The label of a herbarium sheet does not carry information on: (Out of syllabus, but asked in NEET earlier)

(1) Date of collection
(2) Name of collector
(3) Local names
(4) Height of the plant

88. Which one of the following statements is wrong?

(1) Cyanobacteria are also called blue - green algae

(2) Golden algae are also called desmids

(3) Eubacteria are also called false bacteria

(4) Phycomycetes are also called algal fungi

89. Select the wrong statement :

(1) Pseudopodia are locomotory and feeding structures in Sporozoans

(2) Mushrooms belong to Basidiomycetes

(3) Cell wall is present in members of Fungi and Plantae

(4) Mitochondria are the powerhouse of the cell in all kingdoms except Monera

90. Methanogens belong to

(1) Eubacteria

(2) Archaebacteria

(3) Dinoflagellates

(4) Slime moulds

91. Which one of the following is wrong for fungi?

(1) They are eukaryotic

(2) All fungi possess a purely cellulosic cell wall

(3) They are heterotrophic

(4) They are both unicellular and multicellular

92. Which of the following statements is wrong for viroids?

(1) They lack a protein coat

(2) They are smaller than viruses

(3) They cause infections

(4) Their RNA is of high molecular weight

93. Several hormones like hCG, hPL, estrogen, progesterone are produced by

(1) Ovary

(2) Placenta

(3) Fallopian tube

(4) Pituitary

94. Which of the following depicts the correct pathway of transport of sperms?

(1) Rete testis → Efferent ductules → Epididymis → Vas deferens

(2) Rete testis → Epididymis → Efferent ductules → Vas deferens

(3) Rete testis → Vas deferens → Efferent ductules → Epididymis

(4) Efferent ductules → Rete testis → Vas deferens → Epididymis

95. Match Column-I with Column-II and select the correct option using the codes given below:

Column - I

a. Mons pubis

b. Antrum

c. Trophectoderm

d. Nebenkern

Column - II

(i) Embryo formation

(ii) Antrum

(iii) Female external genitalia

(iv) Graafian follicle

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

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

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

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

96. Which of the following is incorrectly matched?

(1) Ectocarpus - Fucoxanthin

(2) Ulothrix - Mannitol

(3) Porphyra - Floridian Starch

(4) Volvox - Starch

97. Conifers are adapted to tolerate extreme environmental conditions because of

(1) Broad hardy leaves

(2) Superficial stomata

(3) Thick cuticle

(4) Presence of vessels

98. Embryo with more than 16 blastomeres formed due to in-vitro fertilization is transferred into

(1) Uterus

(2) Fallopian tube

(3) Fimbriae

(4) Cervix

99. Which of the following is hormone releasing IUD?

(1) LNG-20

(2) Multiload-375

(3) Lippes loop

(4) Cu7

100. Which of the following is incorrect regarding vasectomy?

(1) No sperm occurs in seminal fluid

(2) No sperm occurs in epididymis

(3) Vasa deferentia is cut and tied

(4) Irreversible sterility

101. Which of the following is correct regarding AIDS causative agent HIV?

(1) HIV is enveloped virus containing one molecule of single-stranded RNA and one molecule of reverse transcriptase

(2) HIV is enveloped virus that contains two identical molecules of single-stranded RNA and two molecules of reverse transcriptase

(3) HIV is unenveloped retrovirus

(4) HIV does not escape but attacks the acquired immune response

102. Choose the correct statement.

(a) All mammals are viviparous
(b) All cyclostomes do not possess jaws and paired fins
(c) All reptiles have a three-chambered heart
(d) All pisces have gills covered by an operculum

(1) All mammals are viviparous

(2) All cyclostomes do not possess jaws and paired fins

(3) All reptiles have a three-chambered heart

(4) All pisces have gills covered by an operculum

103. If a colour-blind man marries a woman who is homozygous for normal colour vision, the probability of their son being colour-blind is

(1) 0

(2) 0.5

(3) 0.75

(4) 1

104. A true breeding plant is

(1) One that is able to breed on its own

(2) Produced due to cross-pollination among unrelated plants

(3) Near homozygous and produces offspring of its own kind

(4) Always homozygous recessive in its genetic constitution

105. The mechanism that causes a gene to move from one linkage group to another is called

(1) Inversion

(2) Duplication

(3) Translocation

(4) Crossing-over

106. Which of the following rRNAs acts as structural RNA as well as ribozyme in bacteria?

(1) 5 S rRNA

(2) 18 S rRNA

(3) 23 S rRNA

(4) 5.8 S rRNA

107. A molecule that can act as a genetic material must fulfill the traits given below, except

(1) It should be able to express itself in the form of 'Mendelian characters'

(2) It should be able to generate its replica

(3) It should be unstable structurally and chemically

(4) It should provide the scope for slow changes that are required for evolution

108. Which one of the following statements about Histones is wrong?

(1) Histones are rich in amino acids - Lysine and Arginine

(2) Histones carry positive charge in the side chain.

(3) Histones are organized to form a unit of 8 molecules.

(4) The pH of histones is slightly acidic

109. The equivalent of a structural gene is

(1) Muton

(2) Cistron

(3) Operon

(4) Recon

110. DNA-dependent RNA polymerase catalyzes transcription on one strand of the DNA which is called the

(1) Template strand

(2) Coding strand

(3) Alpha strand

(4) Antistrand

111. Taylor conducted the experiments to prove semiconservative mode of chromosome replication on

(1) Vinca rosea

(2) Vicia faba

(3) Drosophila melanogaster

(4) E. coli

112. How many plants among Indigofera, Sesbania, Salvia, Allium, Aloe, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers? (NEET 2016 (Phase II))

(1) Three

(2) Four

(3) Five

(4) Six

113. Radial symmetry is found in the flowers of (NEET 2016 (Phase II))

(1) Brassica

(2) Trifolium

(3) Pisum

(4) Cassia

114. Free-central placentation is found in (NEET 2016 (Phase II))

(1) Dianthus
(2) Argemone
(3) Brassica
(4) Citrus

115. The term 'polyadelphous' is related to (NEET 2016 (Phase II))

(1) Gynoecium
(2) Androecium
(3) Corolla
(4) Calyx

116. Cortex is the region found between

(1) Epidermis and stele
(2) Pericycle and endodermis
(3) Endodermis and pith
(4) Endodermis and vascular bundle

117. (Out of syllabus but asked in last 3 years) The balloon – shaped structures called tyloses

(1) Originate in the lumen of vessels
(2) Characterize the sapwood
(3) Are extensions of xylem parenchyma cells into vessels
(4) Are linked to the ascent of sap through xylem vessels

118. Genetic drift operates in

(1) Small isolated population
(2) Large isolated population
(3) Non-reproductive population
(4) Slow reproductive population

119. Which of the following is the correct sequence of events in the origin of life?
(i) Formation of protobionts
(ii) Synthesis of organic monomers
(iii) Synthesis of organic polymers
(iv) Formation of DNA-based genetic systems

(1) (i), (ii), (iii), (iv)
(2) (i), (iii), (ii), (iv)
(3) (ii), (iii), (i), (iv)
(4) (ii), (iii), (iv), (i)

120. In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by

(1) p^2
(2) 2pq
(3) pq
(4) q^2

121. The chronological order of human evolution from early to the recent is

(1) Australopithecus → Ramapithecus → Homo habilis → Homo erectus
(2) Ramapithecus → Australopithecus → Homo habilis → Homo erectus
(3) Ramapithecus → Homo habilis → Australopithecus → Homo erectus
(4) Australopithecus → Homo habilis → Ramapithecus → Homo erectus

122. Which of the following sets of diseases is caused by bacteria?

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

123. In male cockroach, sperms are stored in which part of the reproductive system?

(Out of syllabus but asked in last 3 years)

(1) Seminal vesicles

(2) Mushroom glands

(3) Testes

(4) Vas deferens

124. Smooth muscles are

(1) Involuntary, fusiform, non-striated

(2) Voluntary, multinucleate, cylindrical

(3) Involuntary, cylindrical, striated

(4) Voluntary, spindle-shaped, uninucleate

125. A cell organelle containing hydrolytic enzymes is

(1) Lysosome

(2) Microsome

(3) Ribosome

(4) Mesosome

126. Match Column-I with Column-II and select the correct option using the codes given below:

Column-I
a. Citric acid
b. Cyclosporin A
c. Statins
d. Butyric acid

Column-II
(i) Trichoderma
(ii) Clostridium
(iii) Aspergillus
(iv) Monascus

Choose the correct option.

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

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

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

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

127. Biochemical Oxygen Demand (BOD) may not be a good index for pollution for water bodies receiving effluents from

(1) Domestic sewage

(2) Dairy industry

(3) Petroleum industry

(4) Sugar industry

128. Which of the following describes the given graph correctly? (Graph shows reaction-coordinate / potential-energy profile with activation energies labelled 'A' and 'B'.)

(1) Endothermic reaction with energy A in presence of enzyme and B in absence of enzyme

(2) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme

(3) Endothermic reaction with energy A in absence of enzyme and B in presence of enzyme

(4) Exothermic reaction with energy A in absence of enzyme and B in presence of enzyme

129. Which of the following is the least likely to be involved in stabilizing the three-dimensional folding of most proteins?

(1) Hydrogen bonds

(2) Electrostatic interaction

(3) Hydrophobic interaction

(4) Ester bonds

130. A non – proteinaceous enzyme is

(1) Lysozyme
(2) Ribozyme
(3) Ligase
(4) Deoxyribonuclease

131. Stirred-tank bioreactors have been designed for

(1) Purification of product
(2) Addition of preservatives to the product
(3) Availability of oxygen throughout the process
(4) Ensuring anaerobic conditions in the culture vessel

132. Which of the following restriction enzymes produces blunt ends?

(1) Sal I
(2) Eco RV
(3) Xho I
(4) Hind III

133. Which of the following is not a component of downstream processing?

(1) Separation
(2) Purification
(3) Preservation
(4) Expression

134. A foreign DNA and plasmid cut by the same restriction endonuclease can be joined to form a recombinant plasmid using

(1) Eco RI
(2) Taq polymerase
(3) Polymerase III
(4) Ligase

135. Which kind of therapy was given in 1990 to a four-year-old girl with adenosine deaminase (ADA) deficiency? (NEET 2016 (Phase 2))

(1) Gene therapy
(2) Chemotherapy
(3) Immunotherapy
(4) Radiation therapy

136. Match the stages of meiosis of Column-I to their characteristic features in Column-II and select the correct option using the codes given below:

Column-I
a. Pachytene
b. Metaphase I
c. Diakinesis
d. Zygotene

Column-II
(i) Pairing of homologous chromosomes
(ii) Terminalization of chiasmata
(iii) Crossing-over takes place
(iv) Chromosomes align at equatorial plate

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

137. During cell growth, DNA synthesis takes place in

(1) S phase
(2) G1 phase
(3) G2 phase
(4) M phase

138. When cell has stalled DNA replication fork, which checkpoint should be predominantly activated?

(1) G1 / S

(2) G2 / M

(3) M

(4) Both G2 / M and M

139. Which of the following is correct for r-selected species? (NEET 2016 (Phase 2))

(1) Large number of progeny with small size

(2) Large number of progeny with large size

(3) Small number of progeny with small size

(4) Small number of progeny with large size

140. If '+' sign is assigned to beneficial interaction, '–' sign to detrimental and '0' sign to neutral interaction, then the population interaction represented by '+' '–' refers to (NEET 2016 (Phase 2))

(1) Mutualism

(2) Amensalism

(3) Commensalism

(4) Parasitism

141. The principle of competitive exclusion was stated by (NEET 2016 (Phase 2))

(1) Darwin

(2) G. F. Gause

(3) MacArthur

(4) Verhulst and Pearl

142. The process which makes major difference between C3 and C4 plants is

(1) Glycolysis

(2) Calvin cycle

(3) Photorespiration

(4) Respiration

143. Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins?

(1) Glucose-6-phosphate

(2) Fructose 1,6-bisphosphate

(3) Pyruvic acid

(4) Acetyl CoA

144. Oxidative phosphorylation is

(1) Formation of ATP by transfer of phosphate group from a substrate to ADP

(2) Oxidation of phosphate group in ATP

(3) Addition of phosphate group to ATP

(4) Formation of ATP by energy released from electrons removed during substrate oxidation

145. How many hot spots of biodiversity in the world have been identified till date by Norman Myers?

(1) 17

(2) 25

(3) 34

(4) 43

146. Red list contains data or information on

(1) All economically important plants

(2) Plants whose products are in international trade

(3) Threatened species

(4) Marine vertebrates only

147. Which of the following is correctly matched?

(1) Aerenchyma – Opuntia

(2) Age pyramid – Biome

(3) Parthenium hysterophorus – Threat to Biodiversity

(4) Stratification – Population

148. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots?

(1) IAA and gibberellin

(2) Auxin and cytokinin

(3) Auxin and abscisic acid

(4) Gibberellin and abscisic acid

149. The partial pressure of oxygen in the alveoli of the lungs is

(1) Equal to that in the blood

(2) More than that in the blood

(3) Less than that in the blood

(4) Less than that of carbon dioxide

150. Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because

(1) There is a negative pressure in the lungs

(2) There is a negative intrapleural pressure pulling at the lung walls

(3) There is a positive intrapleural pressure

(4) Pressure in the lungs is higher than the atmospheric pressure

151. Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.

(1) Erythrocytes

(2) Leucocytes

(3) Neutrophils

(4) Thrombocytes

152. Serum differs from blood in

(1) Lacking globulins

(2) Lacking albumins

(3) Lacking clotting factors

(4) Lacking antibodies

153. The part of nephron involved in active reabsorption of sodium is

(1) Distal convoluted tubule

(2) Proximal convoluted tubule

(3) Bowman's capsule

(4) Descending limb of Henle's loop

154. Osteoporosis, an age-related disease of skeletal system, may occur due to

(1) Immune disorder affecting neuromuscular junction leading to fatigue

(2) High concentration of Ca^{2+} and Na^{+}

(3) Decreased level of estrogen

(4) Accumulation of uric acid leading to inflammation of joints

155. Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction.

(1) Calcium

(2) Magnesium

(3) Sodium

(4) Potassium

156. Which hormones do stimulate the production of pancreatic juice and bicarbonate?

(1) Angiotensin and epinephrine

(2) Cholecystokinin and gastrin

(3) Cholecystokinin and secretin

(4) Insulin and glucagon

157. Graves' disease is caused due to

(1) Hyposecretion of thyroid gland

(2) Hypersecretion of thyroid gland

(3) Hyposecretion of adrenal gland

(4) Hypersecretion of adrenal gland

158. The posterior pituitary gland is not a 'true' endocrine gland because

(1) It is provided with a duct

(2) It only stores and releases hormones

(3) It is under the regulation of hypothalamus

(4) It secretes enzymes

159. Name a peptide hormone which acts mainly on hepatocytes, adipocytes and enhances cellular glucose uptake and utilization.

(1) Insulin

(2) Glucagon

(3) Secretin

(4) Gastrin

Answer Key

1.B	**2**.D	**3**.A	**4**.C	**5**.A	**6**.C	**7**.C	**8**.A	**9**.B	**10**.C	**11**.A
12.B	**13**.B	**14**.C	**15**.D	**16**.D	**17**.D	**18**.C	**19**.A	**20**.C	**21**.B	**22**.B
23.B	**24**.B	**25**.B	**26**.D	**27**.C	**28**.B	**29**.B	**30**.D	**31**.B	**32**.A	**33**.D
34.B	**35**.C	**36**.B	**37**.D	**38**.D	**39**.C	**40**.A	**41**.B	**42**.D	**43**.D	**44**.D
45.A	**46**.B	**47**.B	**48**.A	**49**.C	**50**.D	**51**.A	**52**.C	**53**.A	**54**.B	**55**.A
56.C	**57**.C	**58**.A	**59**.A	**60**.C	**61**.C	**62**.C	**63**.C	**64**.B	**65**.B	**66**.D
67.C	**68**.B	**69**.B	**70**.A	**71**.B	**72**.D	**73**.B	**74**.C	**75**.D	**76**.B	**77**.D
78.A	**79**.A	**80**.B	**81**.A	**82**.A	**83**.C	**84**.B	**85**.A	**86**.C	**87**.D	**88**.C
89.A	**90**.B	**91**.B	**92**.D	**93**.B	**94**.A	**95**.B	**96**.B	**97**.C	**98**.A	**99**.A
100.B	**101**.B	**102**.B	**103**.A	**104**.C	**105**.C	**106**.C	**107**.C	**108**.D	**109**.B	**110**.A
111.B	**112**.B	**113**.A	**114**.A	**115**.B	**116**.A	**117**.C	**118**.A	**119**.C	**120**.B	**121**.B
122.A	**123**.A	**124**.A	**125**.A	**126**.B	**127**.C	**128**.B	**129**.D	**130**.B	**131**.C	**132**.B
133.D	**134**.D	**135**.A	**136**.A	**137**.A	**138**.A	**139**.A	**140**.D	**141**.B	**142**.C	**143**.D
144.D	**145**.C	**146**.C	**147**.C	**148**.B	**149**.B	**150**.B	**151**.D	**152**.C	**153**.B	**154**.C
155.A	**156**.C	**157**.B	**158**.B	**159**.A						