ALTUS KNOWLEDGE

Total: 200 Que. | NEET TEST 3 | Time: 180 Min.

Physics FLN

1). Two electric lamps A and B radiate the same power. Their filaments have the same dimensions, and have emissivities eA and eB . Their surface temperatures are TA and TB . The ratio TA / TB will be equal to

(a) $\left(\frac{e_B}{e_A}\right)^{1/4}$ (b) $\left(\frac{e_B}{e_A}\right)^{1/2}$ (c) $\left(\frac{e_A}{e_B}\right)^{1/2}$ (d) $\left(\frac{e_A}{e_B}\right)^{1/4}$

2). An organ pipe filled with oxygen gas at 47ºC resonates in its fundamental mode at a frequency 300 Hz. If it is now filled with nitrogen gas, at what temperature will it resonance at the same frequency, in the fundamental mode?

(a) 7ºC (b) 27ºC (c) 87ºC (d) 107ºC

3). Starting with the same initial conditions, an ideal gas expands from volume V1 to V2 in three different ways. The work done by the gas is W1 if the process is purely isothermal, W2 if purely isobaric and W3 if purely adiabatic. Then

(a) W2>W1>W3 (b) W2>W3>W1 (c) W1>W2>W3 (d) W1>W3>W2

4). A set of ‘n’ equal resistors, of value ‘R’ each, are connected in series to a battery of emf ‘E’ and internal resistance ‘R’. The current drawn is I. Now, the ‘n’ resistors are connected in parallel to the same battery. Then, the current drawn from battery becomes 10I. The value of ‘n’ is

(a) 20 (b) 11 (c) 10 (d) 9

5). Monochromatic light of wavelength 6000Å is used in a Young's double slit experiment. One of the slits is covered by a transparent sheet of thickness 1.8×10^{-5} m made of a material of refractive index 1.6. How many fringes will shift due to the introduction of the sheet?

(a) 16 (b) 18 (c) 20 (d) 24

6). The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

(a) (b) (c) (d)

2 : -1 1 : -1 1 : 1 1 : -2

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7). A radioactive substances decays at 1/32 of its initial activity in 25 days. Its half life is

(a) (b) (c) (d)

10 days 5 days 20 days 15 days

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8). In a p-n junction diode, change in temperature due to heating

(a) (b) (c)

Does not affect resistance of p-n junction Affects only forward resistance Affects only reverse resistance

(d)

Affects the overall V – I characteristics of p-n junction

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9). An EM wave is propagating in a medium with a velocity v = vi^ . The instantaneous oscillating electric field of this EM wave is along + y – axis. Then, the direction of oscillating magnetic field of EM wave will be along

(a) (b) (c) (d)

– y-direction + z-direction –z-direction –x-direction

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10). An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm. If the object is displaced through a distance of 20 cm towards the mirror, the displacement of the image will be

(a) (b) (c) (d)

30 cm towards the mirror 36 cm away from the mirror 30 cm away from the mirror 36 cm towards the mirror

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11). The magnetic potential energy stored in a certain inductor is 25 mJ, when the current in the inductor is 60 mA. This inductor is of inductance

(a) (b) (c) (d)

1.389H 138.88H 0.138H 13.89H

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12). A number of spherical conductors of different radii are given charge such that the charge density of each conductor is inversely proportional to its radius. The conductors will have

(a) (b) (c) (d)

The same potential The same potential energy The same charge Potentials inversely proportional to their radii

---

13). A particle of mass m and charge Q is placed in an electric field E which varies with time t as E = E0 sinωt . It will undergo simple harmonic motion of amplitude

(a) (b) (c) (d)

$QE02/m\omega^2$ $QE0/m\omega^2$ $(QE0/m\omega^2)^{1/2}$ $QE0/m\omega$

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14). Current sensitivity of a moving coil galvanometer is 5 div/mA and its voltage sensitivity (angular deflection per unit voltage applied) is 20 div/V. The resistance of the galvanometer is

(a) (b) (c) (d)

250Ω 25Ω 40Ω 500Ω

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15). An isolated parallel-plate capacitor of capacitance C has plates X and Y. If plate X is given charge Q, the potential difference between X and Y is

(a) (b) (c) (d)

ZERO 2Q/C Q/C Q/2C

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16). A ball A, moving with kinetic energy E, makes a head-on, elastic collision with a stationary ball with mass n times that of A. The maximum potential energy stored in the system during the collision is

(a) (b) (c) (d)

nE / (n +1) (n +1)E / n (n −1)E / n E / n

---

17). A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass same. Which of the following physical quantities would remain constant for the sphere?

(a) (b) (c) (d)

Rotational kinetic energy Moment of inertia Angular velocity Angular momentum

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18).

An electric dipole has moment $\vec{p} = p\vec{i}$. Two points which are at equal distances from the dipole, and far away from it, have electric intensities $E_1\vec{i}$ and $-E_2\vec{i}$. The ratio E_1 / E_2 must be

(a) (b) (c) (d)

1 $2^{1/2}$ 2 1/2

---

19). A body executes simple harmonic motion. The potential energy (P.E.), the kinetic energy (K.E.) and total energy (T.E.) are measured as a function of displacement X. Which of the following statements is true ?

(a) (b) (c) (d)

K.E. is maximum when X = 0 T.E. is zero when X = 0 K.E. is maximum when X is maximum P.E. is maximum when X = 0

---

20). The ratio of the largest to shortest wavelenghts in Lyman series of hydrogen spectra is

(a) (b) (c) (d)

25/9 17/6 9/5 4/3

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21).

Each molecule of a gas has f degrees of freedom. The ratio $\frac{c_p}{c_v} = \gamma$ for the gas is

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

(a) (b) (c) (d)

A B C D

---

22). A particle executive linear simple harmonic motion with an amplitude of 3 cm. When the particle is at 2 cm from the mean position, the magnitude of its velocity is equal to that of its acceleration. Then, its time period in second is

A) $\frac{\sqrt{5}}{\pi}$ B) $\frac{\sqrt{5}}{2\pi}$ C) $\frac{4\pi}{\sqrt{5}}$ D) $\frac{2\pi}{\sqrt{3}}$

(a) (b) (c) (d)

A B C D

---

23). The resistance of a wire is R ohm. If it is melted and stretched to n times its original length, its new resistance will be

(a) (b) (c) (d)

nR R/n n2R R/n2

---

24). A uniform rod of mass m, length L, area of cross-section A and Young's modulus Y hangs from the ceiling. Its elongation under its own weight will be

(a) (b) (c) (d)

ZERO mgL/2AY mgL/AY 2mgL/AY

---

25). Radiations of two photons having energies twice and five times the work function of metal are incident successively on the metal surface. The ratio of the maximum velocity of photoelectrons emitted in the two cases will be :

(a) (b) (c) (d)

1:1 1:2 1:3 1:4

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26). Two cars moving in opposite directions approach each other with speed of 20 m/s first car blows a horn having a frequency 400 Hz. The frequency heard by the driver of the second car is [velocity sound 340 m/s]
A) 350 Hz B) 360 Hz C) 420 Hz D) 450 Hz

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

---

27).

A charged particle of charge q and mass m is rotating in a circle of radius R with uniform speed V. Ratio of its magnetic moment (μ) to the angular momentum (L) is

A) $\frac{q}{2m}$ B) $\frac{q}{m}$ C) $\frac{q}{4m}$ D) $\frac{2q}{m}$

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

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28). All of the following are properties of ideal gases except :

(a) Gas molecules do not interact with each other except during collisions
(b) Collisions between gas molecules are completely elastic
(c) Volume occupied by molecules is negligible compared to the volume occupied by the gas
(d) Small amounts of energy are lost during collisions between gas molecules

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29). The ratio of wavelengths of the last line of Balmer series and the last line of Lyman series is

(a) 2 (b) 1 (c) 4 (d) 0.5

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30). In discharge tube experiment electrons are created by Thermionic emission and electrons are moving by applying potential difference of 49V. Find de-Broglie wavelength associated by electron :

(a) 1.75 Å (b) 2.34 Å (c) 3.65 Å (d) 0.29 Å

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31). A thin prism having refracting angle 10º is made of glass of refractive index 1.42. This prism is combined with another thin prism of glass of refractive index 1.7. This combination produces dispersion without deviation. The refracting angle of second prism should be

(a) 4º (b) 6º (c) 8º (d) 10º

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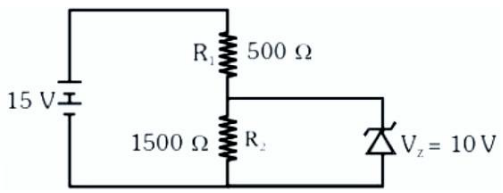
32). In the circuit given the current through the zener diode is



(1) 10 mA
(2) 6.67 mA
(3) 5 mA
(4) 3.33 mA

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

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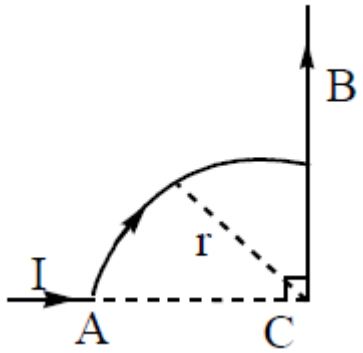
33).



A wire carrying a current I is shaped as shown. Section AB is a quarter circle of radius r.
The magnetic field at C is directed

(a) Along the bisector of the angle ACD, away from AB (b) Along the bisector of the angle ACB, towards AB
(c) Perpendicular to the plane of the paper, directed into the paper (d) At an angle π / 4 to the plane of the paper

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34).

A system is taken from state A to state B along two different paths 1 and 2. The heat absorbed and work done by the system along these two paths are Q_1 and Q_2 and W_1 and W_2 respectively.

A) $Q_1 = Q_2$ B) $W_1 = W_2$

C) $Q_1 - W_1 = Q_2 - W_2$ D) $Q_1 + W_1 = Q_2 + W_2$

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

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35). A Carnot engine operates between a source and a sink of temperatures 900 K and 600 K.
Its e ciency is

(a) 0.25 (b) 0.50 (c) 0.66 (d) 0.33

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36).

The x and y coordinates of the particle at any time are $x = 5t - 2t^2$ and $y = 10t$ respectively, where x and y are in metres and t in seconds. The acceleration of the particle at t = 2 s is

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

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37).

The ratio of resolving powers of an optical microscope for two wavelengths $\lambda_1 = 4000\text{Å}$ and $\lambda_2 = 6000\text{Å}$ is

A) 8 : 27 B) 9 : 4 C) 3 : 2 D) 16 : 81

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

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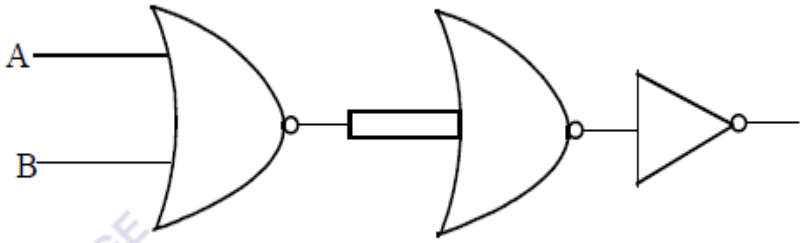
38).

The given electrical network is equivalent to



A) AND gate B) OR gate C) NOR gate D) NOT gate

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

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39). In a common emitter transistor amplifier, the audio signal voltage across the collector is 3 V. The resistance of collector is3kohm. If current gain is 100 and the base resistance is 2 k ohm, the voltage and power gain of the amplifier is

(a) 200 & 1000 (b) 15 & 200 (c) 150 & 15000 (d) 20 & 2000

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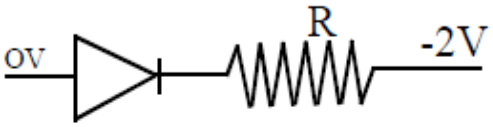
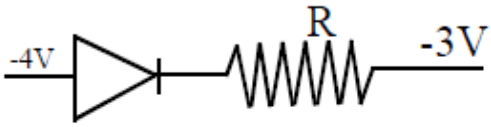
40).

Which one of the following represents forward bias diode?

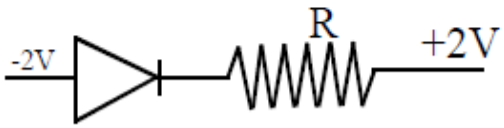
A)



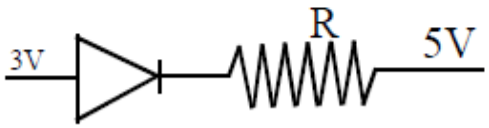
B)



C)



D)



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

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41). An ideal gas A and a real gas B have their volumes increased from V to 2V under isothermal conditions. The increase in internal energy

(a) will be same in both A and B (b) will be zero in both the cases (c) of B will be more than that of A
(d) of A will be more than that of B

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42). When sound waves travel from air to water, which one of the following remains constant?

(a) Time Period (b) Frequency (c) Velocity (d) Wavelength

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43). The moment of inertia of disc about a tangent axis in its plane is

(a) $\frac{MR^2}{4}$ (b) $\frac{3MR^2}{2}$

(c) $\frac{5}{4}MR^2$ (d) $\frac{7MR^2}{4}$

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

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44). After 300 days, the activity of a radioactive sample is 5000 dps (disintegrations per sec). The activity becomes 2500 dps after another 150 days. The initial activity of the sample in dps is

(a) 20,000 (b) 10,000 (c) 7,000 (d) 25,000

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45). A shunt of resistance 1 ohm is connected across a galvanometer of 120 ohm resistance. A current of 5.5 ampere gives full scale deflection in the galvanometer. The current that will give full scale deflection in the absence of the shunt is nearly :

(a) 5.5amp (b) 0.5amp (c) 0.004amp (d) 0.045amp

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46). Drop of water fall from the roof of a building which is 18m high at regular intervals of time. When the first drop reaches the ground, at the same instant fourth drop begins to fall. What are the distances of the second and third drops from the roof :

(a) 6m and 2m (b) 6m and 3m (c) 4m and 1m (d) 8m and 2m

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47). A step up transformer has transformation ratio 5 : 3. What is voltage in secondary if voltage in primary is 60 V

(a) 20 (b) 60 (c) 100 (d) 180

---

48).

A car starts from rest to cover a distance S. The coefficient of friction between the road and the tyres is μ. The minimum time in which the car can cover the distance is proportional to

A) μ B) $\sqrt{\mu}$ C) $\frac{1}{\mu}$ D) $\frac{1}{\sqrt{\mu}}$

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

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49).

A rope is wound around a hollow cylinder of mass 3 kg and radius 40 cm. What is the tangential acceleration of a point on the surface of cylinder, if the rope is pulled with a force of 30 N?

A) $25\,m/s^2$ B) $0.25\,rad/s^2$ C) $25\,rad/s^2$ D) $10\,m/s^2$

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

50).

Dimensional formula of linear momentum is

A) MLT^{-1} B) $ML^{-1}T^{-2}$ C) $ML^{2}T^{-2}$ D) $ML^{-1}T^{-1}$

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

Chemistry FLN

51). The number of water molecules is maximum in
A) 1.8 ml of water at STP B) 18 gram of water
C) 18 moles of water D) 18 molecules of water

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

---

52).

$$CH_4 + O_2 \xrightarrow{Mo_2O_3\ \Delta} X$$

$$C_2H_6 + O_2 \xrightarrow{(CH_3COO)_2Mn} Y$$

$$(CH_3)_3CH \xrightarrow{KMnO_4/H^+} Z$$

The functional groups present in X,Y, Z respectively

A) -OH, -CHO, -COOH B) -CHO, -COOH, -OH
C) -COOH, -CHO, -OH D) -OH, -COOH, -OH

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

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53). Which of the following statements do not form a part of Bohr's model of hydrogen atom?
A) Energy of the electrons in the orbits are quantized
B) The electron in the orbit nearest the nucleus has the lowest energy
C) Electrons revolve in different orbits around the nucleus
D) It explains Zeeman and stark effect

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

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54). Which of the following is the correct IUPAC name?
A) 2 – ethylpentane B) 2 – propene
C) ethoxymethane D) ethylmethanoate

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

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55).

Which one of the following orders is not in accordance with the property stated against it?

A) $F_2 > Cl_2 > Br_2 > I_2$: Bond dissociation energy

B) $F_2 > Cl_2 > Br_2 > I_2$: Oxidising power

C) $HI > HBr > HCl > HF$: Acidic property in water

D) $F_2 > Cl_2 > Br_2 > I_2$: Electro negativity

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

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56). **The ionic radii (in $\mathring{A}$ of N^{3-}, O^{2-} and F^- are** respectively

A) 1.71, 1.36 and 1.40

B) 1.36, 1.40 and 1.71

C) 1.36, 1.71 and 1.40

D) 1.71, 1.40 and 1.36

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

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57). **In which of the following pairs, both the species are not isostructural?**

A) $SiCl_4$, CCl_4 B) NH_3, PH_3 C) XeF_4, XeO_4 D) CO_2, XeF_2

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

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58). Which of the following do not show disproportionation reaction :

(1) ClO^-

(2) ClO_4^-

(3) ClO_2^-

(4) ClO_3^-

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

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59).

Among the following, which one is a wrong statement?

A) PH_5 and $BiCl_5$ do not exist.

B) $p\pi - d\pi$ bonds are present in SO_2

C) SeF_4 and CH_4 have same shape

D) NaOH involve ionic and covalent bonds

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

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60).

Which one of the following is expected to exhibit optical isomerism ? (en = ethylenediamine)

A) *Cis* – $\left[Pt(NH_3)_2Cl_2\right]$

B) *Trans* – $\left[Pt(NH_3)_2Cl_2\right]$

C) *Cis* – $\left[Co(en)_2Cl_2\right]^+$

D) *Trans* – $\left[Co(en)_2Cl_2\right]^+$

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

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61).

Three thermochemical equations are given below

i) $C_{(graphite)} + O_{2(g)} \rightarrow CO_{2(g)}; \Delta, H^o = xkJ\,mol^{-1}$

ii) $C_{(graphite)} + 1/2O_{2(g)} \rightarrow CO_{(g)}; \Delta, H^o = ykJ\,mol^{-1}$

iii) $CO_{(g)} + 1/2O_{2(g)} \rightarrow CO_{2(g)}; \Delta, H^o = zkJ\,mol^{-1}$

Based on the above equations, find out which of the relationship given below is correct.

A) z = x+ y B) x = y + z C) y = 2z – x D) x = y – z

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

---

62).

The final product formed when Ethylamine is treated with $NaNO_2$and HCl followed by hydrolysis is

A) Nitroethane B) Methylcyanide C) Ethyl alcohol D) Diazomethane

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

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63).

(I) $H_2O_2 + O_3 \rightarrow H_2O + 2O_2$

(II) $H_2O_2 + Ag_2O \rightarrow 2Ag + H_2O + O_2$

Role of hydrogen peroxide in the above reactions is respectively

A) Oxidizing in (I) and reducing in (II)
B) Reducing in (I) and oxidizing in (II)
C) Reducing in (I) and (II)
D) Oxidizing in (I) and (II)

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

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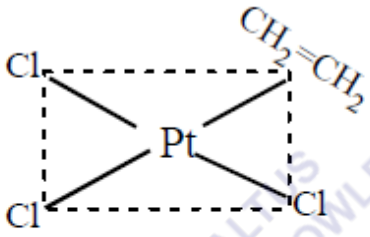
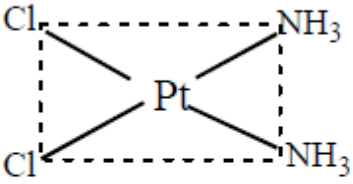
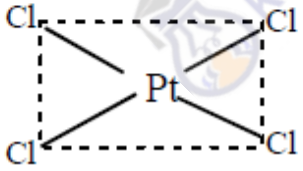
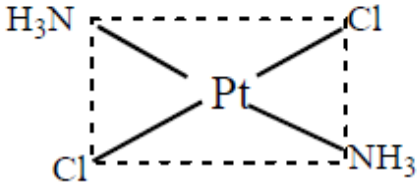
64).

Which of the following is considered to be an anticancer species?

A) 

B) 

C) 

D) 

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

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65).

On heating which of the following releases CO_2 most easily?

A) Na_2CO_3 B) $MgCO_3$ C) $CaCO_3$ D) K_2CO_3

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

---

66). **Which of the following structure is similar to graphite?**

A) B_4C B) B_2H_6 C) BN D) B

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

---

67).

$$CH_3COOH + Cl_2 \xrightarrow{\text{red P}} \underset{Cl}{CH_2}COOH$$

Name of this reaction is

A) Wolf-Kishner reaction

B) Stephen's reaction

C) Perkin's reaction

D) Hell-Volhard-Zelinsky reaction

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

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68). **Base strength of**

$$H_3\overset{(-)}{\underset{(i)}{C}}H_2, H_2C=\overset{(-)}{\underset{(ii)}{C}}H \text{ and } H-\underset{(iii)}{C}\equiv\overset{(-)}{C}$$

is in the order of

A) (i) > (iii) > (ii)

B) (i) > (ii) > (iii)

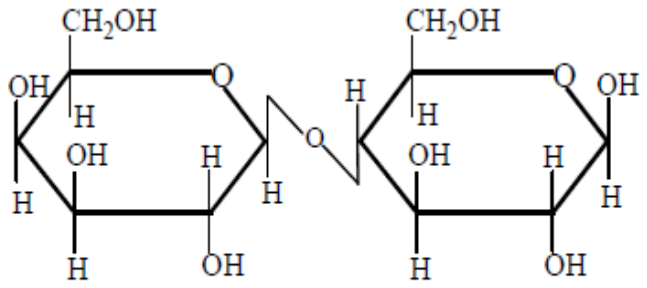
C) (ii) > (i) > (iii)

D) (iii) > (ii) > (i)

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

---

69).



This structure represents

A) Lactose

B) Galactose

C) Maltose

D) amylase

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

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70).

Which of the following acids does not exhibit optical isomerism?

A) Maleic acid

B) Valine

C) Lactic acid

D) Tartaric acid

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

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71). **Which of the following cannot be detected by the isocyanide test ?**

A) $C_6H_5 - NH_2$

B) $C_6H_5 - NH - CH_3$

C) $CH_3 - \underset{\underset{NH_2}{|}}{CH} - CH_3$

D) $CH_3 - \underset{\underset{NH_2}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3$

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

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72). Green chemistry means such reactions which
A) Are related to the depletion of ozone layer
B) Study the reactions in plants
C) Produce colour during reactions
D) Reduce the use and production of hazardous chemicals

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

---

73).

In N_2O_5 molecule each nitrogen atom is surrounded by ..... oxygen atoms.

A) 2 B) 3 C) 5 D) 6

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

---

74). The number of carbon atoms per unit cell of diamond unit cell is
A) 6 B) 1 C) 4 D) 8

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

---

75).

Statement -I: Ionic compounds like NaCl, $BaCl_2$ are less soluble in heavy water than in ordinary water.

Statement -II : Heavy water has a lower dielectric constant than ordinary water

A) Both I and I are true

B) Both I and I are false

C) I is true but II is false

D) I is false but II is true

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

---

76). The van't Hoff factor i for a compound which undergoes dissociation in one solvent and association in other solvent is respectively
A) Less than one and greater than one B) Less than one and less than one
C) Greater than one and less than one D) Greater than one and greater than one

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

---

77). A solution of acetone in ethanol
A) Obeys Raoult's law

B) Shows a negative deviation from Raoult's law
C) Shows a positive deviation from Raoult's law
D) Behaves like a near ideal solution

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

---

78). The method of zone refining of metals is based on the principle of
A) Greater mobility of the pure metal than that of the impurity
B) Higher melting point of the impurity than that of the pure metal
C) Greater noble character of the solid metal than that of the impurity
D) Greater solubility of the impurity in the molten state than in the solid

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

---

79).

Identify the incorrect statement, regarding the molecule XeO_4 :

A) XeO_4 molecule is square planar.
B) There are four $p\pi - d\pi$ bonds.
C) There are four $sp^3 - p$, σ bonds.
D) XeO_4 molecule is tetrahedral

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

---

80). **Which one is most reactive towards S_N1 reaction**

A) $C_6H_5CH(C_6H_5)Br$
B) $C_6H_5CH(CH_3)Br$
C) $C_6H_5C(CH_3)(C_6H_5)Br$
D) $C_6H_5CH_2Br$

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

---

81).

In the following reaction , $C_6H_5CH_2Br \xrightarrow[2.\ H_3O^+]{1.\ Mg,\ Ether}$ the product 'X' is

A) $C_6H_5CH_2OCH_2C_6H_5$
B) $C_6H_5CH_2OH$
C) $C_6H_5CH_3$
D) $C_6H_5CH_2CH_2C_6H_5$

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

---

82).

The correct order of decreasing acid strength of trichloroacetic acid (A), trifluoroacetic acid (B), acetic acid (C) and formic acid (D) is

A) B > A > D > C
B) B > D > C > A
C) A > B > C > D
D) A > C > B > D

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

---

83). Which of the following compounds will give a yellow precipitate with iodine and alkali?
A) Acetophenone B) Methyl acetate
C) Acetamide D) Benzaldehyde

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

---

84).

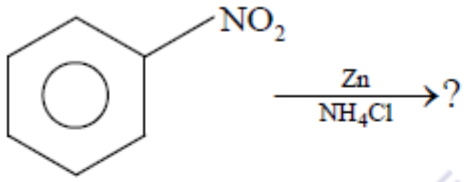
The number of structurally isomeric amines possible from the molecular formula C_3H_9N is

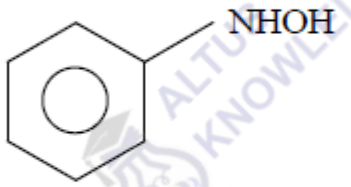
A) 5 B) 2 C) 3 D) 4

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

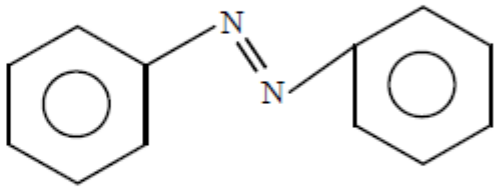
---

85). **What is the product obtained in the following reaction?**

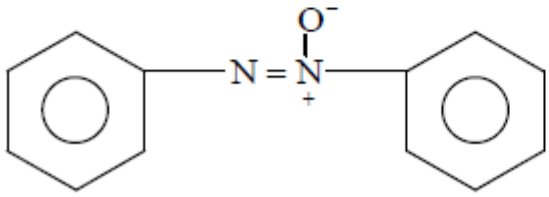




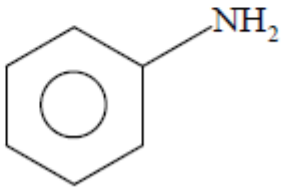
A)



B)



C)



D)

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

---

86). Which of the folowing points defects are shown by AgBr crystals :

1. Schottky defect

2. Frenkel defect

3. Metal excess defect

4.Metal deficiency defect

(a) 1 and 2 (b) 3 and 4 (c) 1 and 3 (d) 2 and 4

---

87). Decomposition of Ammonia over surface of gold catalyst at high pressure is an example for

A) zero order reaction B) pseudo first order reaction

C) first order kinetics D) second order reaction

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

---

88). **Which of the following salts will give highest pH in water?**

A) KCl B) NaCl C) Na_2CO_3 D) $CuSO_4$

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

---

89).

Calcium crystallizes in FCC unit cell with edge length(a) is 0.556 nm. Calculate the density of unit cell?

A) 1.56 gm/ cm^3 B) 2.5 gm/ cm^3 B) 1.1 gm/ cm^3 D) 2.347 gm/ cm^3

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

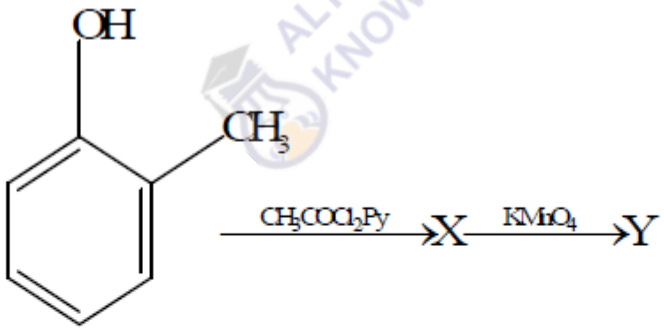
---

90). In an experiment, addition of 5 ml of 1M NaCl to 100 ml of arsenious sulphide sol just causes the complete coagulation. The flocculating value of NaCl is:
A) 50 B) 30 C) 40 D) 25

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

---

91).



The final product 'Y' is used as medicine. Which of the following is incorrect regarding?

A) It has analgesic as well as antipyretic properties

B) It helps to prevent heart attack

C) It has anti-blood clotting action

D) It suppresses the gastric anomalies

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

---

92).

Monomers of glyptal are X and Y. Monomers of Dacron are X and Z. Y and Z are:

A) Positional isomers B) Chain isomers

C) Homologues D) Functional isomers

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

---

93). Vander Waal's real gas, acts as an ideal gas, at which conditions?
A) High temperature, low pressure B) Low temperature, high pressure
C) High temperature, high pressure D) Low temperature, low pressure

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

---

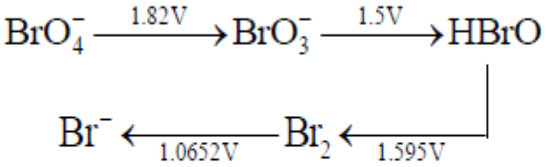
94). Which of the following happens when lead storage battery is discharged?
A) SO2 is evolved B) Lead sulphate is consumed
C) lead is formed D) H2SO4 is consumed

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

---

95).

Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below:



Then the species undergoing disproportionation is

A) BrO_3^- B) BrO_4^- C) Br_2 D) HBrO

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

---

96). At 0° C and one atm pressure, a gas occupies 100 cc. If the pressure is increased to one and a half-time and temperature is increased by one third of absolute temperature, then final volume of the gas will be
(a) 80 cc (b) 88.9 cc
(c) 66.7 cc (d) 100 cc

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

---

97). The electronegativity follows the order
(a) F > O > Cl > Br
(b) F > Cl > Br > O
(c) O > F > Cl > Br
(d) Cl > F > O > Br

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

---

98). Which of the following is not formed when glycerol reacts with HI?

(a) $CH_2=CH-CH_2I$
(b) $CH_2(OH)–CH(I)–CH_2OH$
(c) $CH_3–CH=CH_2$
(d) $CH_3–CH(I)–CH_3$

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

---

99). The amine that does not react with acetyl chloride is

(a) CH_3NH_2
(b) $(CH_3)_2NH$
(c) $(CH_3)_3N$
(d) None of these

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

---

100). The activation energy for a hypothetical reaction, A → Product, is 12.49 kcal/mole. If temperature is raised from 295 to 305, the rate of reaction increased by

(a) 60% (b) 100%
(c) 50% (d) 20%

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

BOTANY FL

101). Mark the correct statement about centriole.
(1) Forms basal body
(2) Found in higher plant cells
(3) Has '9 + 2' organisation of microtubules
(4) Is surrounded by plasma membrane

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

---

102). DNA and histone proteins synthesis occur in
(1) G1 phase (2) S phase
(3) G2 phase (4) M phase

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

---

103). Beginning of terminalisation of chiasmata occurs in
(1) Pachytene (2) Diplotene
(3) Diakinesis (4) Zygotene

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

---

104). Select the **incorrect** match.

(1) Herbarium – Quick reference in taxonomical studies
(2) Botanical garden – '*ex situ*' conservation of plants
(3) Museum – Collection of preserved animals
(4) Flora – Listing and description of all organisms of a particular area

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

---

105). Viroids differ from viruses in
(1) Being infectious

(2) Having capsid
(3) Having genetic material
(4) Being smaller than viruses

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

---

106). The imperfect fungi such as Trichoderma
(1) Reproduce sexually by spore formation
(2) Have aseptate mycelium
(3) Reproduce asexually by conidia formation
(4) Have coenocytic mycelium

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

---

107). In racemose inflorescence
(1) The main axis terminates into a flower
(2) Peduncle has unlimited growth
(3) The flowers are borne in basipetal order
(4) Both (2) and (3)

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

---

108). Dicot stem share a common feature with monocot stem that is both have
(1) Well developed large pith
(2) Conjoint vascular bundles
(3) Open vascular bundles
(4) Pericycle and endodermis

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

---

109). Water potential of pure water at standard temperatures, which is not under any pressure is

(1) Equal to Ψ_s of a solution

(2) Equal to zero

(3) Always negative

(4) Any positive value above zero

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

---

110). Rhizobium and Frankia
a. Are heterotrophs
b. Use solar energy to synthesize their food
c. Are symbiotic nitrogen fixing bacteria
Select the correct option.
(1) Only a is correct
(2) Only a and b are correct
(3) Only a and c are correct
(4) Only c is correct

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

---

111). In cyclic photophosphorylation
(1) There is production of ATP and NADPH2
(2) External source of electrons is required
(3) The reaction center is P700
(4) Splitting of water occurs

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

---

112). Select the incorrect statement.
(1) R.Q of organic acids is more than one.
(2) During fermentation oxygen is not required.
(3) Cytochrome c acts as a mobile carrier for transfer of electrons between complex III and IV during ETS in mitochondria
(4) There is no substrate level phosphorylation during glycolysis.

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

---

113). Read the following statements and choose the correct option.
Statement-A : Auxin inhibits the growth of lateral or axillary buds.
Statement-B : Cytokinins are used to delay the senescence of intact leaves and other plant parts.
(1) Only statement A is correct
(2) Only statement B is correct
(3) Both statements are correct
(4) Both statements are incorrect

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

---

114). Which of the aquatic plants is not pollinated by water?
(1) Vallisneria (2) Zostera
(3) Water hyacinth (4) Hydrilla

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

---

115). If in a eukaryotic cell, RNA polymerase III is nonfunctional, then which of the following RNA will not be formed?
(1) hn RNA (2) 5.8 SrRNA
(3) 5 SrRNA (4) 28 SrRNA

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

---

116). To obtain a pathogen free plant from a diseased plant through tissue culture, the best technique is
(1) Anther culture
(2) Meristem culture
(3) Embryo culture
(4) Protoplast fusion

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

---

117). Blood cholesterol lowering agents called statins are produced from
(1) A bacterium (2) A virus
(3) A yeast (4) An animal

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

---

118). Growing population
(1) Is called stable population
(2) Has more pre-reproductive individuals than reproductive
(3) Show urn shaped age pyramid
(4) Is mature population also

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

---

119). In grassland ecosystem the pyramid of biomass and energy will be ____A____ and ____B____ respectively.

Choose the **correct** option to fill the blanks A and B.

	A	B
(1)	Upright	Upright
(2)	Upright	Inverted
(3)	Inverted	Upright
(4)	Inverted	Inverted

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

---

120). Green mu er scheme has launched to reduce
(1) Noise pollution (2) Water pollution
(3) Air pollution (4) Soil pollution

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

---

121). In binomial nomenclature
(1) Both genus and species names are underlined if handwritten
(2) Genus name starts with small letter
(3) Species name starts with capital letter
(4) Genus name is written after species name

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

---

122). Aseptate mycelium is commonly found in which of the following class of fungi?
(1) Ascomycetes
(2) Basidiomycetes
(3) Phycomycetes
(4) Deuteromycetes

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

---

123). Match the following and select the correct option
a. Oomycetes (i) Algal fungi
b. Basidiomycetes (ii) Fungi imperfecti
c. Ascomycetes (iii) Sac fungi
d. Deuteromycetes (iv) Club fungi
(1) a(ii), b(iii), c(i), d(iv)
(2) a(i), b(iv), c(iii), d(ii)
(3) a(iii), b(iv), c(ii), d(i)
(4) a(iv), b(iii), c(ii), d(i)

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

---

124). Polysomes which are commonly found in prokaryotic cells are composed of
(1) mRNA and DNA
(2) DNA and tRNA
(3) Ribosomes and mRNA
(4) tRNA and mRNA

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

---

125). Micortubules attach to kinetochore of sister chromatids during
(1) Anaphase-I (2) Porphase-II
(3) Metaphase-II (4) Anapahse-II

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

---

126). For stomatal opening, which of the following group of factors are responsible?
(1) CO2 concentration and temperature
(2) NO2 concentration and light
(3) Temperature and N2 concentration
(4) N2 concentration and light

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

---

127). The **correct** sequence of electron transport during non-cyclic photophosphorylation is

(1) PS-II $\rightarrow$ Cyt b_6f $\rightarrow$ PS-I

(2) PS-I $\rightarrow$ Cyt c $\rightarrow$ PS-II

(3) Cyt bc $\rightarrow$ PS-I $\rightarrow$ PS-II

(4) PS-I $\rightarrow$ PS-II $\rightarrow$ Cytbc

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

---

128). Pace of EMP pathway can be regulated by enzyme
(1) Hexokinase
(2) Phosphofructokinase
(3) Enolase
(4) Pyuruvate dehydrogenase

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

---

129). Which of the following pair of plant hormones is responsible for seed germination and apical dominance respectively?
(1) ABA and GAs (2) Auxins and GAs
(3) GAs and IAA (4) Ethylene and ABA

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

---

130). Cleistogamous flowers
(1) Open during the self pollination
(2) Remain close and are bisexual
(3) Are female flowers and never open
(4) Are bisexual and open during cross pollination

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

131). Innermost layer of pollen sac is responsible for
(1) Protection of anther
(2) Nourishing to growing pollen grains
(3) Dehiscence of anther
(4) Providing mechanical strength to anther

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

---

132). Sterile female lacks one X chromosome. This female is suffering from
(1) A disease caused due to trisomy
(2) Klinfelter's syndrome
(3) Turner's syndrome
(4) Phenylketonuria

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

---

133). Greenhouse gases
(1) Absorbs all sunlight and warm the atmosphere
(2) Include gases such as CO_2 and O_2
(3) Are responsible for ozone layer formation
(4) Are mainly CO_2 and CH_4

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

---

134). Which of the given organelles in endomembrane system is the important site for glycosylation of proteins and lipids?
(1) Endoplasmic reticulum
(2) Golgi apparatus
(3) Lysosome
(4) Vacuoles

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

---

135). Flower is hypogynous and ovary is said to be superior in
(1) Mustard (2) Plum
(3) Peach (4) Guava

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

---

136). A living mechanical tissue which provides the mechanical support to the growing parts of the plant such as young stem and petiole of leaf is
(1) Parenchyma
(2) Collenchyma
(3) Sclerenchymatous fibres
(4) Sclereids

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

---

137). It has been observed that grasses can regenerate the parts which are removed by grazing herbivores. The presence of which of the given meristem is involved in such activity?
(1) Apical meristem
(2) Intercalary meristem
(3) Lateral meristem
(4) Secondary meristem

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

---

138). Main plant body is haploid in which of the given plant groups?
(1) Bryophytes (2) Pteridophytes
(3) Gymnosperm (4) Both (1) and (2)

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

---

139). Which of the given plants shows Kranz anatomy in their leaves?
(1) Rice
(2) Maize
(3) Cotton
(4) Sunflower

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

---

140). Which of the plant groups produce both isogametes as well as heterogametes?
(1) Algae (2) Bryophyte
(3) Pteridophyte (4) Gymnosperms

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

---

141). How many nucleosomes are present in the nucleus of diploid eukaryotic cell which possess 6.6×10^6 bp?

(1) 6.6×10^6

(2) 6.6×10^4

(3) 3.3×10^4

(4) 3.3×10^6

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

---

142). Read the statements stating true (T) or false (F) and select the correct option.
A. Saccharum barberi was originally grown in South India.
B. SCP is rich in good quality protein and poor in fats.
C. Wheat variety Atlas 66 with high protein content has been used as donor for improving cultivated wheat.

	A	B	C
(1)	T	T	T
(2)	F	F	T
(3)	T	T	F
(4)	F	T	T

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

---

143). Find the **correct** mathematical expression for geometric growth resulting in a J-shaped population growth curve.

(1) $\frac{dN}{dt}=rN$ (2) $\frac{K-N}{K}$

(3) $\frac{dN}{dt}=rN\left(\frac{K-N}{K}\right)$ (4) $\frac{dN}{dt}=rN\left(\frac{N-K}{N}\right)$

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

---

144). Pioneer community on rocks is of
(1) Phytoplanktons (2) Zooplanktons
(3) Lichens (4) Herbs

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

---

145). Which of the given traits of pea selected by Mendel during hybridisation experiment on pea can be expressed in both homozygous as well as heterozygous conditions?
(1) Round seed (2) Green seed
(3) White flower (4) Terminal flower

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

---

146). How many ATPs are required for each molecule of NH_3 produced w.r.t nitrogen fixation?
(1) 8 (2) 16
(3) 2 (4) 3

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

---

147). Which of the plant groups produce both isogametes as well as heterogametes?
(1) Algae (2) Bryophyte
(3) Pteridophyte (4) Gymnosperms

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

---

148). How many additional ATPs are required during synthesis of three molecules of hexose sugar in sugarcane than in rice?
(1) 12 (2) 54
(3) 36 (4) 16

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

---

149). Which of the given algae exhibits diplontic lifecycle pattern?
(1) Volvox (2) Spirogyra
(3) Fucus (4) Polysiphonia

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

---

150). Which of the given member of class Ascomycetes is also called Drosophila of plant kingdom?

(1) Penicillium
(2) Aspergillus
(3) Neurospora
(4) Claviceps

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

ZOOLOGY FL

151). Choose the incorrect statement w.r.t cockroach
(1) Haemocoel contains haemolymph which contains colourless plasma and haemocytes
(2) Nervous system consists of segmentally arranged ganglia, six in thorax and nine in abdomen
(3) Mushroom gland is present in 6th – 7th abdominal segment in male cockroach
(4) Proventriculus has an outer layer of thick circular muscles and inner thick cuticle forming teeth

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

---

152). Match column I and column II w.r.t epithelium and its location

Column-I	Column-II
(i) Ciliated columnar	(a) Stomach
(ii) Brush border columnar	(b) PCT
(iii) Simple columnar	(c) Intestine
(iv) Brush border cuboidal	(d) Fallopian tube

Choose the **correct** match
(1) i(d), ii(a), iii(b), iv(c)
(2) i(b), ii(c), iii(a), iv(d)
(3) i(d), ii(c), iii(a), iv(b)
(4) i(b), ii(a), iii(c), iv(d)

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

---

153). Smooth muscle fibres are not
(1) Unbranched (2) Spindle shaped
(3) Syncytial (4) Involuntary

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

---

154). **Correct** sequence of layers of wall of gut from inside to outside is

(1) Mucosa → Muscularis → Submucosa → Serosa

(2) Mucosa → Submucosa → Muscularis → Serosa

(3) Submucosa → Mucosa → Muscularis → Serosa

(4) Submucosa → Muscularis → Mucosa → Serosa

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

---

155). Choose the set of enzymes present in intestinal juice

(1) Maltase, Sucrase, Amylase
(2) Enterokinase, Nucleosidase, Trypsinogen
(3) Nuclease, Lipase, Amylase
(4) Lactase, Lipase, Enterokinase

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

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156). Match column I and column II w.r.t organism and type of respiration

	Column-I		**Column-II**
a.	Molluscs	(i)	Pulmonary respiration
b.	Insects	(ii)	Branchial respiration
c.	Earthworm	(iii)	Tracheal respiration
d.	Birds	(iv)	Cutaneous respiration

Choose the **correct** option

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

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

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

---

157). Complete the analogy w.r.t reabsorption

PCT : Glucose and amino acids :: DCT : _____

(1) K^+ and H^+ (2) H^+ and HCO_3^-

(3) NaCl and HCO_3^- (4) K^+ and H_2O

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

---

158). Micturition does not involve
(1) Relaxation of urethral sphincter
(2) Contraction of urinary bladder
(3) Stretching of transitional epithelium of urinary bladder
(4) Contraction of ureters

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

---

159). Choose the correct statement.
(1) In a resting muscle fibre, a subunit of troponin masks the active binding sites on myosin for actin filaments
(2) The myosin monomer called meromyosin has a globular head which has binding sites for ATP and active sites for actin
(3) A motor neuron along with the muscle fibres connected to it constitute motor-end plate
(4) The Z-lines attached to A-bands are pulled inwards towards the H-zone causing shortening of sarcomere

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

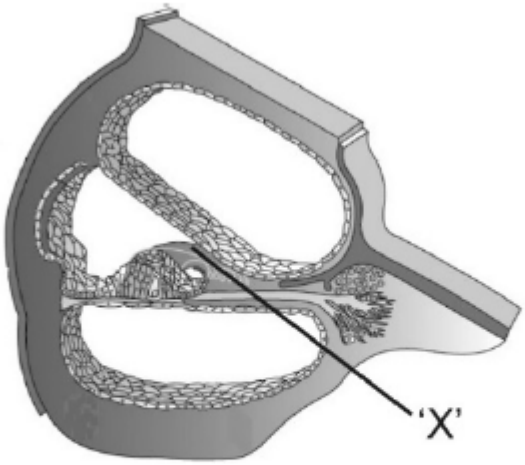
---

160). Read the following statements
Statement-A: The retina contains ganglion cells, bipolar cells and photoreceptor cells arranged in sequence from inside to outside.
Statement-B: Light induces potential difference in photoreceptor cells that generates action potential in bipolar cells through ganglion cells
Choose the correct option.
(1) Only A is correct
(2) Only B is correct
(3) Both A and B are correct
(4) Both A and B are incorrect

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

---

161). Choose the **incorrect** statement w.r.t the structure marked 'X' in the following diagram



(1) It is a thin elastic membrane
(2) It makes up roof of organ of Corti
(3) It is suspended in perilymph
(4) It does not contain afferent neurons

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

---

162). A poikilotherm having four-chambered heart is
(1) Columba (2) Chameleon
(3) Crocodilus (4) Canis

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

---

163). The hormones that attain peak level towards the middle of menstrual cycle are
a. LH b. FSH
c. Estrogen d. Progesterone
Choose the correct option
(1) a only (2) a, b and c
(3) a and b only (4) a, b and d

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

---

164). A hormone releasing IUD that makes the uterus unsuitable for implantation is
(1) Lippes loop (2) LNG 20
(3) Multiload 375 (4) CuT

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

---

165). Hardy-Weinberg equilibrium can be disrupted by presence of all except
(1) Genetic drift
(2) Random mating
(3) Non random mating
(4) Mutations

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

---

166). Choose the **incorrect** match

(1)	Flippers of penguins and dolphins	Convergent evolution
(2)	Marsupials of Australia	Adaptive radiation
(3)	Darwin's finches	Natural selection
(4)	Lemur and spotted cuscus	Divergent evolution

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

---

167). Cells of immune system that do not provide innate immunity are
(1) T-lymphocytes
(2) Neutrophils
(3) NK cells
(4) Macrophages

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

---

168). Which of the following is a naturally sourced stimulant?
(1) Morphine (2) Amphetamines
(3) Cocaine (4) Marijuana

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

---

169). Choose the incorrect statement
(1) Continued inbreeding may result in loss of fertility, vigour and productivity
(2) Cross breeding allows the desirable qualities of two different breeds to be combined
(3) Out breeding may involve out crossing or cross breeding or interspecific hybridisation
(4) Out crossing involves mating of animals of different breeds but having common ancestors for about 4-6 generations

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

---

170). All the following are transformation procedures except
(1) Microinjection (2) Biolistics
(3) Spooling (4) Electroporation

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

---

171). Downstream processing does not involve
(1) Biosynthesis (2) Separation
(3) Purification (4) Centrifugation

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

---

172). ELISA based on the interaction of antigen and antibody can detect the presence of all except
(1) HIV
(2) Pregnancy
(3) Non-coding DNA
(4) Proteins and glycoproteins

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

---

173). How many nucleotides are present in 68A long B-DNA strand?
(1) 20 (2) 40
(3) 60 (4) 80

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

---

174). Select the correct pair of digestive enzymes which work optimally in the alkaline pH range.
(1) Gastric lipase and Lactase
(2) Rennin and Sucrase
(3) Dipeptidase and Nucleotidase
(4) Salivary amylase and Pepsin

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

---

175). Match the items given in Column I with those in Column II and select the **correct** option given below.

	Column-I		**Column-II**
a.	Inspiratory capacity	(i)	IRV + EC
b.	Vital capacity	(ii)	TV + IRV
c.	Residual volume	(iii)	TLC –VC
d.	Functional residual capacity	(iv)	TLC – IC

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

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

---

176). Choose the correct statement regarding mechanism of concentration of the nephric filtrate in humans.
(1) The capability of concentrating the urine is majorly related to the diameter of efferent arteriole.
(2) NaCl and urea maintain the osmolarity gradient in the medullary interstitium.
(3) Osmotic concentration of the glomerular filtrate is the lowest at the bottom of the U-shaped Henle's loop.
(4) Glomerular filtration is an active process requiring high amount of energy.

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

---

177). Substance 'X' which converts angiotensinogen to angiotensin I is secreted by
(1) Wall of heart (2) Adrenal cortex
(3) Liver (4) JG cells

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

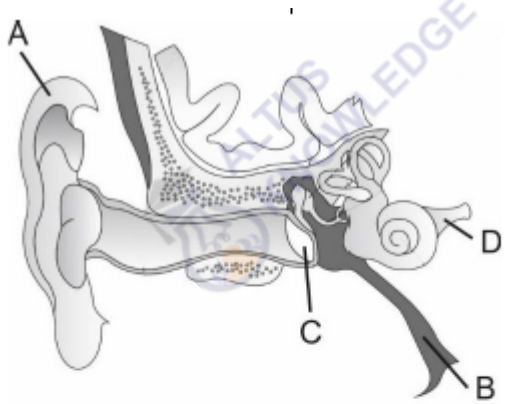
---

178). Palm bones and ankle bones are respectively termed
(1) Metacarpals and tarsals
(2) Phalanges and tarsals
(3) Metatarsals and carpals
(4) Metacarpals and carpals

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

---

179). Parts A, B, C and D of the human ear are shown in the diagram. Select the option which gives incorrect identification along with its functions/characteristics.



(1) A : External ear – Collects the vibrations in the air
(2) B : Eustachian tube – Connects the middle ear cavity with the pharynx
(3) C : Malleus – Increase the efficiency of transmission of sound waves
(4) D : Cochlear nerve – Carry sensory impulses to the auditory cortex of the brain

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

---

180). A lipid soluble hormone which crosses the plasma membrane of the target cell and attaches to intracellular receptors is
(1) Insulin
(2) Epinephrine
(3) Cortisol
(4) Thyrocalcitonin

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

---

181). Choose the option which contains only **incorrect** statements.

a. Goitre may be caused by iodine deficiency in the diet.
b. Target gland of PRL is corpus luteum.
c. Oxytocin causes ejection of milk from mammary gland.
d. ADH maintains the 24-hour diurnal rhythm of the body.
e. The major role of thymus is the development of emergency hormones.

(1) a, b and d (2) b, d and e
(3) c, d and e (4) a and e

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

---

182). Which of the following options correctly arranges the events of development of the foetus in its gestational period?
(a) Development of limbs and digits
(b) Major organ systems are formed
(c) Heart is formed
(d) Eye-lids separate
(e) Hair appear on the head

(1) $c \rightarrow b \rightarrow a \rightarrow d \rightarrow e$
(2) $b \rightarrow c \rightarrow a \rightarrow e \rightarrow d$
(3) $c \rightarrow a \rightarrow b \rightarrow e \rightarrow d$
(4) $a \rightarrow d \rightarrow e \rightarrow c \rightarrow b$

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

---

183). Capacitation of sperms, in humans occurs in
(1) Vas deferens
(2) Female genital tract
(3) Penile urethra
(4) Epididymis

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

---

184). The first gene therapy was given to a 4-year old girl with deficiency of
(1) Pancreatic lipase
(2) Alkaline phosphatase
(3) Adenosine deaminase
(4) Carbonic anhydrase

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

---

185). If a population in Hardy-Weinberg equilibrium has 16% homozygous individuals with a recessive allele 'a' then the frequencies for given genotypes would be
AA% Aa%
(1) 36 48
(2) 16 36
(3) 48 16
(4) 36 16

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

186). Choose the incorrect statement
(1) Ribozyme is a non-proteinaceous enzyme
(2) Lactose is a non-reducing disaccharide
(3) Competitive inhibition is seen when the substrate and the inhibitor compete for the active site of enzyme
(4) A non-competitive inhibitor binds to the enzyme at a site distinct from that which binds the substrate

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

---

187). In a typical ECG of a normal person, end of T wave represents
(1) Contraction of both the atria
(2) Beginning of atrial systole
(3) Beginning of the ventricular contraction
(4) End of ventricular systole

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

---

188). A person with blood group O^- can accept blood from donor with blood group of type

(1) AB^+ (2) O^+

(3) O^- (4) AB^-

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

---

189). When a skeletal muscle contracts
(1) H-zone increases in length
(2) A band decreases in length
(3) I-bands get reduced
(4) H-zone remains unaffected

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

---

190). Cell body of neuron contains certain granular bodies involved in protein synthesis that are called
(1) Perikaryon (2) Nissl's granules
(3) Schwann cells (4) Glial cells

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

---

191). Select the **incorrect** match of a hormone, its source and function

	Hormone	Source	Function
(1)	Oxytocin	Hypothalamus	Milk ejection
(2)	Vasopressin	Posterior pituitary	Reabsorption of water from nephric filtrate
(3)	Cortisol	Adrenal cortex	Anti- inflammatory
(4)	Adrenaline	Adrenal medulla	Increases Blood pressure and heart rate

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

---

192). In which of the following the genus name, its two characters and its phylum are **not** correctly matched?

	Genus Name	Characters	Phylum
(1)	*Spongilla*	• Water canal system • Spongocoel	Porifera
(2)	*Physalia*	• Bioluminescence • Organ level of organisation	Platyhelminthes
(3)	*Ascaris*	• Sexual dimorphism • Complete digestive system	Aschelminthes
(4)	*Asterias*	• Water vascular system • Exclusively marine	Echinodermata

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

---

193). Which of the following characteristic features hold true for the corresponding group of animals?
(1) 4-chambered heart, – Birds
poikilothermy
(2) Cartilaginous – Osteichthyes
endoskeleton
(3) Sucking mouth, – Cyclostomata
unpaired appendages
(4) Two chambered heart, – Amphibia
dicondylic skull

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

---

194). Select the odd one w.r.t natural methods of contraception
(1) Lactational amenorrhea
(2) Coitus interruptus
(3) Rhythm method
(4) Lippes loop

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

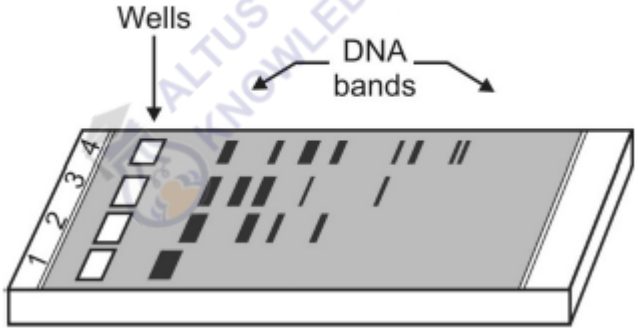
---

195). Choose the incorrect statement
(1) IgM is the antibody mainly involved in secondary immune response
(2) Antibodies produced against allergens in case of hypersensitivity are IgE type
(3) Spleen is commonly called "graveyard of RBCs"
(4) Malignant tumor exhibit the property of metastasis

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

---

196). Observe the figure of a typical gel electrophoresis given below



Choose the incorrect statement
(1) Its employed to check the progression of restriction enzyme digestion
(2) Smaller the fragment size, the farther it moves from anode
(3) Largest DNA fragment is closest to the loading well
(4) Separated DNA can be visualized only after staining with ethidium bromide

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

---

197). Enterokinase catalyses the conversion of
(1) Pepsinogen to pepsin
(2) Procarboxypeptidase to carboxypeptidase
(3) Trypsinogen to trypsin
(4) Peptides or proteins to dipeptides

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

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198). Excessive cigarrete smoking leading to damage of alveolar walls is associated with
(1) Asthma (2) Emphysema
(3) Silicosis (4) Botulism

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

---

199). Choose the **incorrect** match w.r.t animal, its phylum and two features

	Animal	Phylum	Features
(1)	*Clarias*	Chordata	Placoid scales, Operculum
(2)	*Antedon*	Echinodermata	Water vascular system, Radial symmetry
(3)	*Locusta*	Arthropoda	Jointed appendages, Open circulatory system
(4)	*Nereis*	Annelida	Dioecious, Parapodia

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

---

200). Hypothalamus does not contain centre for controlling
(1) Body temperature (2) Hunger
(3) Respiration (4) Osmoregulation

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