VETRII NEET GATEWAY

NEET Question Papter-2023

Physics

Section-A

Units and Measurements

1. The errors in the measurement which arise due to unpredictable fluctuations in temperature and voltage supply are:

a. Random errors
b. Instrumental errors
c. Personal errors
d. Least count errors

2. A metal wire has mass (0.4± 0.002) g, radius (0.3± 0.001) mm and length (5 ± 0.02) cm. The maximum possible percentage error in the measurement of density will nearly be :

a. 1.4% b. 1.2%
c. 1.3% d. 1.6%

Motion in a Straight Line

3. A vehicle travels half the distance with speed v and the remaining distance with speed 2v. Its average speed is:

a. $\frac{3v}{4}$ b. $\frac{v}{3}$
c. $\frac{2v}{3}$ d. $\frac{4v}{3}$

Motion in a Plane

4. A football player is moving southward and suddenly turns eastward with the same speed to avoid an opponent. The force that acts on the player while turning is:

a. along south-west b. along eastward
c. along northward d. along north-east

5. A bullet is fired from a gun at the speed of 280 m/s in the direction 30º above the horizontal. The maximum height attained by the bullet is

(g = 9.8 ms^{-2}, sin 30º = 0.5)

a. 3000 m b. 2800 m
c. 2000 m d. 1000 m

Work, Energy and Power

6. The potential energy of a long spring when stretched by 2 cm is U. If the spring is stretched by 8 cm, potential energy stored in it will be:

a. 16U b. 2U
c. 4U d. 8U

System of Particles & Rotational Motion

7. The angular acceleration of a body, moving along the circumference of a circle, is:

a. along the axis of rotation
b. along the radius, away from centre
c. along the radius towards the centre
d. along the tangent to its position

8. The ratio of radius of gyration of a solid sphere of mass M and radius R about its own axis to the radius of gyration of the thin hollow sphere of same mass and radius about its axis is:

a. 5 : 2 b. 3 : 5
c. 5 : 3 d. 2 : 5

Gravitation

9. Two bodies of mass m and 9m are placed at a distance R. The gravitational potential on the line joining the bodies where the gravitational field equals zero, will be (G = gravitational constant):

a. $-\frac{20Gm}{R}$ b. $-\frac{8Gm}{R}$
c. $-\frac{12Gm}{R}$ d. $-\frac{16Gm}{R}$

Mechanical Properties of Solid

10. Let a wire be suspended from the ceiling (rigid support) and stretched by a weight W attached at its free end. The longitudinal stress at any point of cross-sectional area A of the wire is:

a. Zero
b. $\frac{2W}{A}$
c. $\frac{W}{A}$
d. $\frac{W}{2A}$

Mechanical Properties of Fluid

11. The amount of energy required to form a bubble of radius 2 cm from a soap solution is nearly: (surface tension of soap solution = 0.03 N m^{-1})

a. 50.1×10^{-4} J
b. 30.1×10^{-4} J
c. 5.06×10^{-4} J
d. 3.01×10^{-4} J

12. The venturi-meter works on:

a. The principle of perpendicular axes
b. Huygen's principle
c. Bernoulli's principle
d. The principle of parallel axes

Thermodynamics

13. A Carnot engine has an efficiency of 50% when its source is at a temperature 327°C. The temperature of the sink is:

a. 200° C
b. 27° C
c. 15° C
d. 100° C

Kinetic Theory

14. The temperature of a gas is –50 °C. To what temperature the gas should be heated so that the rms speed is increased by 3 times?

a. 223 K
b. 669 °C
c. 3295 °C
d. 3097 K

Waves

15. The ratio of frequencies of fundamental harmonic produced by an open pipe to that of a closed pipe having the same length is

a. 3 : 1
b. 1 : 2
c. 2 : 1
d. 1 : 3

Electric Charges and Fields

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

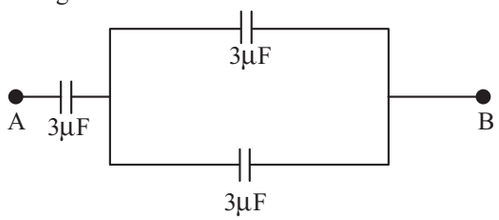
a. 2 mC
b. 8 mC
c. 6 mC
d. 4 mC

17. If $\oint_s \vec{E} \cdot \vec{dS} = 0$ over a surface, then:

a. the electric field inside the surface is necessarily uniform.
b. the number of flux lines entering the surface must be equal to the number of flux lines leaving it.
c. the magnitude of electric field on the surface is constant.
d. all the charges must necessarily be inside the surface.

Electrostatic Potential and Capacitance

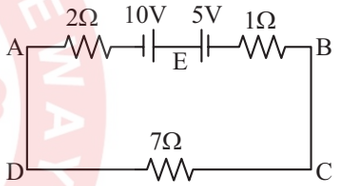
18. The equivalent capacitance of the system shown in the following circuit is:



a. 9 μF
b. 2 μF
c. 3 μF
d. 6 μF

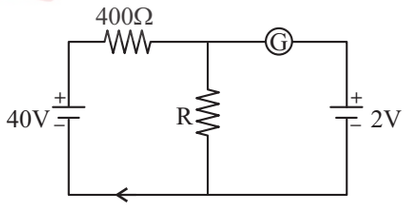
Current Electricity

19. The magnitude and direction of the current in the following circuit is



a. 1.5 A from B A through E
b. 0.2 A from B to A through E
c. 0.5 A from A to B through E
d. $\frac{5}{9}$ A from A to B through E

20. If the galvanometer G does not show any deflection in the circuit shown, the value of R is given by:



a. 400 Ω
b. 200 Ω
c. 50 Ω
d. 100 Ω

21. Resistance of a carbon resistor determined from colour codes is (22000 ± 5%) Ω. The colour of third band must be:

a. Yellow
b. Red
c. Green
d. Orange

Magnetism and Matter

22. The net magnetic flux through any closed surface is:

a. Negative
b. Zero
c. Positive
d. Infinity

Electromagnetic Induction

23. The magnetic energy stored in an inductor of inductance 4 μH carrying a current of 2 A is:

a. 8 μJ
b. 4 μJ
c. 4 mJ
d. 8 mJ

Alternating Current

24. In a series LCR circuit, the inductance L is 10 mH, capacitance C is 1μF and resistance R is 100Ω. The frequency at which resonance

a. 1.59 kHz
b. 15.9 rad/s
c. 15.9 kHz
d. 1.59 rad/s

25. A 12 V, 60 W lamp is connected to the secondary of a step down transformer, whose primary is connected to ac mains of 220 V. Assuming the transformer to be ideal, what is the current in the primary winding?

a. 0.37 A
b. 0.27 A
c. 2.7 A
d. 3.7 A

Electromagnetic Waves

26. An ac source is connected to a capacitor C. Due to decrease in its operating frequency:

a. capacitive reactance remains constant
b. capacitive reactance decreases.
c. displacement current increases.
d. displacement current decreases.

27. In a plane electromagnetic wave travelling in free space, the electric field component oscillates sinusoidally at a frequency of 2.0×10^{10} Hz and amplitude 48 Vm^{-1}. Then the amplitude of oscillating magnetic field is:

(Speed of light in free space = 3×108 ms^{-1})

a. 1.6×10^{-6} T
b. 1.6×10^{-9} T
c. 1.6×10^{-8} T
d. 1.6×10^{-7} T

Ray Optics and Optical Instruments

28. Light travels a distance x in time t1 in air and 10x in time t2 in another denser medium. What is the critical angle for this

a. $\sin^{-1}\left(\frac{10t_1}{t_2}\right)$
b. $\sin^{-1}\left(\frac{t_2}{t_1}\right)$
c. $\sin^{-1}\left(\frac{10t_2}{t_1}\right)$
d. $\sin^{-1}\left(\frac{t_1}{10t_2}\right)$

Wave Optics

29. For Young's double slit experiment, two statements are given below:

Statement I: If screen is moved away from the plane of slits, angular separation of the fringes remains constant.

Statement II: If the monochromatic source is replaced by another monochromatic source of larger wavelength, the angular separation of fringes decreases.

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

a. Statement I is false but Statement II is true
b. Both Statement I and Statement II is true
c. Both Statement I and Statement II are true
d. Statement I is true but Statement II are false

Dual Nature of Radiation and Matter

30. The minimum wavelength of X-rays produced by an electron accelerated through a potential difference of V volts is proportional to:

a. V^2
b. $\sqrt{V}$
c. $\frac{1}{V}$
d. $\frac{1}{\sqrt{V}}$

31. The work functions of Caesium (Cs), Potassium (K) and Sodium (Na) are 2.14 eV, 2.30 eV and 2.75 eV respectively. If incident electromagnetic radiation has an incident energy of 2.20 eV, which of these photosensitive surfaces may emit photoelectrons?

a. Na only
b. Cs only
c. Both Na and K
d. K only

Atoms

32. In hydrogen spectrum, the shortest wavelength in the Balmer series is λ. The shortest wavelength in the Bracket series is :

a. 16 λ
b. 2 λ
c. 4 λ
d. 9 λ

Nuclei

33. The half life of a radioactive substance is 20 minutes. In how much time, the activity of substance drops to $(1/16)^{th}$ of its initial value?

a. 80 minutes
b. 20 minutes
c. 40 minutes
d. 60 minutes

Semiconductor Electronics

34. A full wave rectifier circuit consists of two p-n junction diodes, a centre-tapped transformer, capacitor and a load resistance. Which of these components remove the ac ripple from the rectified output

a. Load resistance
b. A centre-tapped transformer
c. p-n junction diodes
d. Capacitor

35. Given below are two statements:

Statement I: Photovoltaic devices can convert optical radiation into electricity.

Statement II: Zener diode is designed to operate under reverse bias in breakdown region.

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

a. Statement I is incorrect but Statement II is correct.
b. Both Statement I and Statement II are correct.
c. Both Statement I and Statement II are incorrect.
d. Statement I is correct but Statement II is incorrect.

SECTION-B

Motion in a Straight Line

36. A horizontal bridge is built across a river. A student standing on the bridge throws a small ball vertically upwards with a velocity 4 ms^{-1}. The ball strikes the water surface after 4 s. The height of bridge above water surface is (Take g = 10 ms^{-2}):

a. 68 m
b. 56 m
c. 60 m
d. 64 m

Laws of Motion

37. Calculate the maximum acceleration of a moving car so that a body lying on the floor of the car remains stationary. The coefficient of static friction between the body and the floor is 0.15 (g = 10 ms^{-2}).

a. 50 ms^{-2}
b. 1.2 ms^{-2}
c. 150 ms^{-2}
d. 1.5 ms^{-2}

Work, Energy and Power

38. A bullet from a gun is fired on a rectangular wooden block with velocity u. When bullet travels 24 cm through the block along its length horizontally, velocity of bullet become $\frac{u}{3}$. Then it further penetrates into the block in the same direction before coming to rest exactly at the other end of the block. The total length of the block is:

a. 30 cm
b. 27 cm
c. 24 cm
d. 28 cm

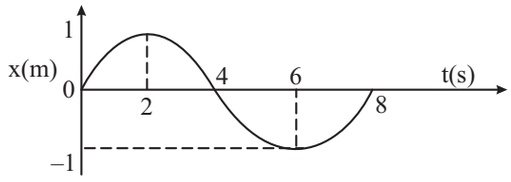
Gravitation

39. A satellite is orbiting just above the surface of the earth with period T. If d is the density of the earth and G is the universal constant of gravitation, the quantity $\frac{3\pi}{Gd}$ represents:

a. $\sqrt{T}$
b. T
c. T^2
d. T^3

Oscillations

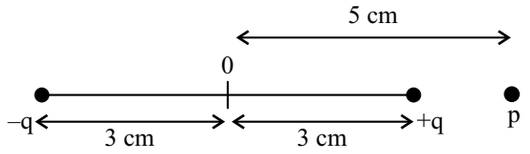
40. The x–t graph of a particle performing simple harmonic motion is shown in the figure. The acceleration of the particle at t = 2 s is:



a. $-\frac{\pi^2}{16} ms^{-2}$
b. $\frac{\pi^2}{8} ms^{-2}$
c. $-\frac{\pi^2}{8} ms^{-2}$
d. $\frac{\pi^2}{16} ms^{-2}$

Electrostatic Potential and Capacitance

41. An electric dipole is placed as shown in the figure.



The electric potential (in 102 V) at point P due to the dipole is (ϵ_0 = permittivity of free space and $\frac{1}{4\pi\epsilon_0} = K$):

a. $\left(\frac{8}{3}\right)qK$
b. $\left(\frac{3}{8}\right)qK$
c. $\left(\frac{5}{8}\right)qK$
d. $\left(\frac{8}{5}\right)qK$

Current Electricity

42. The resistance of platinum wire at 0°C is 2Ω and 6.8Ω at 80°C. The temperature coefficient of resistance of the wire is:

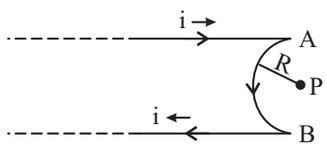
a. 3×10^{-1} °C^{-1}
b. 3×10^{-4} °C^{-1}
c. 3×10^{-3} °C^{-1}
d. 3×10^{-2} °C^{-1}

43. 10 resistors, each of resistance R are connected in series to a battery of emf E and negligible internal resistance. Then those are connected in parallel to the same battery, the current is increased n times. The value of *n* is:

a. 1000
b. 10
c. 100
d. 1

Moving Charges and Magnetism

44. A very long conducting wire is bent in a semi-circular shape from A to B as shown in figure. The magnetic field at point P for steady current configuration is given by:



a. $\frac{\mu_0 i}{4R}\left[1-\frac{2}{\pi}\right]$ pointed into the page

b. $\frac{\mu_0 i}{4R}$ pointed into the page

c. $\frac{\mu_0 i}{4R}$ pointed away from the page

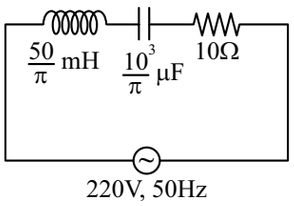
d. $\frac{\mu_0 i}{4R}\left[1-\frac{2}{\pi}\right]$ pointed away from page

45. A wire carrying a current I along the positive *x*-axis has length L. It is kept in a magnetic field $\vec{B} = (2\hat{i} + 3\hat{j} - 4\hat{k})$ T. The magnitude of the magnetic force acting on the wire is:

a. $\sqrt{3}$ IL
b. 3 IL
c. $\sqrt{5}$ IL
d. 5 IL

Alternating Current

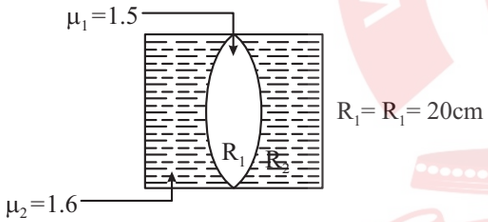
46. The net impedance of circuit (as shown in figure) will be:



a. 25 W
b. $10\sqrt{2}\ \Omega$
c. 15 W
d. $5\sqrt{5}\ \Omega$

Ray Optics and Optical Instruments

47. In the figure shown here, what is the equivalent focal length of the combination of lenses (Assume that all layers are thin)?



a. –50 cm
b. 40 cm
c. –40 cm
d. –100 cm

48. Two thin lenses are of same focal lengths (f), but one is convex and the other one is concave. When they are placed in contact with each other, the equivalent focal length of the combination will be:

a. Infinite
b. Zero
c. $\frac{f}{4}$
d. $\frac{f}{2}$

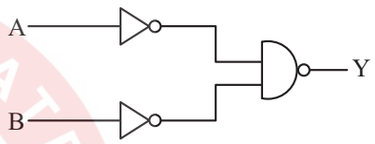
Atoms

49. The radius of inner most orbit of hydrogen atom is 5.3×10^{-11} m. What is the radius of third allowed orbit of hydrogen atom?

a. 4.77Å
b. 0.53Å
c. 1.06Å
d. 1.59Å

Semiconductor Electronics

50. For the following logic circuit, the truth table is:



a.

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

b.

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

c.

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

d.

A	B	Y
0	0	1
0	1	0
1	0	1
1	1	0

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
a	d	d	d	d	a	a	None	d	c	d	c	b	c	c	a	b
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
b	c	d	d	b	a	a	b	d	d	a	d	c	b	c	a	d
35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
b	d	d	b	c	a	b	d	c	d	d	d	d	a	a	c	

NEET Question Paper-2023

Chemistry

Section-A

Some Basic Concepts of Chemistry

1. The right option for the mass of CO_2 produced by heating 20 g of 20% pure limestone is (Atomic mass of Ca = 40)

$\left[CaCO_3 \xrightarrow{1200\,K} CaO + CO_2\right]$

a. 1.32 g
b. 1.12 g
c. 1.76 g
d. 2.64 g

Structure of Atom

2. Select the correct statements from the following:

A. Atoms of all elements are composed of two fundamental particles.
B. The mass of the electron is 9.10939×10^{-31} kg.
C. All the isotopes of a given element show same chemical properties.
D. Protons and electrons are collectively known as nucleons.
E. Dalton's atomic theory, regarded the atom as an ultimate particle of matter.

Choose the correct answer from the options given below:

a. B, C and E only
b. A, B and C only
c. C, D and E only
d. A and E only

3. The relation between n_m,(n_m = the number of permissible values of magnetic quantum number (m)) for a given value of azimuthal quantum number (l), is

a. $n_m = \ell + 2$
b. $\ell = \frac{n_m - 1}{2}$
c. $\ell = 2n_m + 1$
d. $n_m = 2\ell^2 + 1$

Classification of Elements and Periodicity in Properties

4. The element expected to form largest ion to achieve the nearest noble gas configuration is:

a. Na
b. O
c. F
d. N

Chemical Bonding and Molecular Structure

5. Amongst the following, the total number of species NOT having eight electrons around central atom in its outer most shell, is: NH_3, $AlCl_3$, $BeCl_2$, CCl_4, PCl_5

a. 1
b. 3
c. 2
d. 4

6. The correct order of energies of molecular orbitals of N_2 molecule is:

a. $\sigma ls < \sigma^* ls < \sigma 2s < \sigma^* 2s < \left(\pi 2p_x = \pi 2p_y\right) < \left(\pi^* 2p_x = \pi^* 2p_y\right) < \sigma 2p_z < \sigma^* 2p_z$

b. $\sigma ls < \sigma^* ls < \sigma 2s < \sigma^* 2s < \left(\pi 2p_x = \pi 2p_y\right) < \sigma 2p_z < \left(\pi^* 2p_x = \pi^* 2p_y\right) < \sigma^* 2p_z$

c. $\sigma ls < \sigma^* ls < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \left(\pi 2p_x = \pi 2p_y\right) < \left(\pi^* 2p_x = \pi^* 2p_y\right) < \sigma^* 2p_z$

d. $\sigma ls < \sigma^* ls < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \sigma^* 2p_z < \left(\pi 2p_x = \pi 2p_y\right) < \left(\pi^* 2p_x = \pi^* 2p_y\right)$

7. Intermolecular forces are forces of attraction and repulsion between interacting particles that will include:

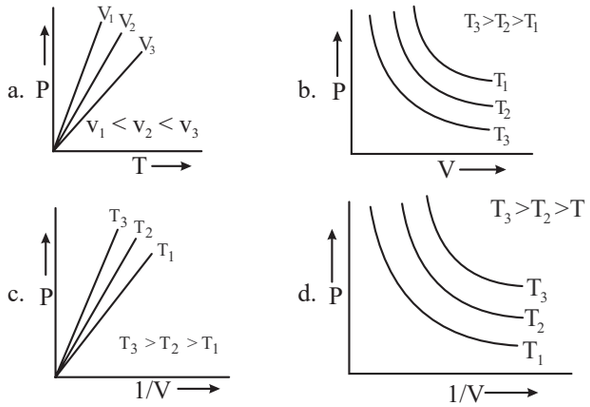
A. dipole-dipole forces.
B. dipole - induced dipole forces,
C. hydrogen bonding.
D. covalent bonding.
E. dispersion forces.

Choose the most appropriate answer from the options given below:

a. A, C, D, E are correct.
b. B, C, D, E are correct.
c. A, B, C, D are correct.
d. A, B, C, E are correct.

States of Matter

8. Which amongst the following options is correct graphical representation of Boyle's Law?



Hydrogen

9. Which of the following statements are NOT correct?

A. Hydrogen is used to reduce heavy metal oxides to metals.

B. Heavy water is used to study reaction mechanism.

C. Hydrogen is used to make saturated fats from oils.

D. The H-H bond dissociation enthalpy is lowest as compared to a single bond between two atoms of any element.

E. Hydrogen reduces oxides of metals that are more active than iron.

Choose the most appropriate answer from the options given below:

a. A, B, C only
b. B, C, D, E only
c. B, D only
d. D, E only

The s-Block Elements

10. Which one of the following statements is correct?

a. Mg plays roles in neuromuscular function and interneuronal transmission.

b. The daily requirement of Mg and Ca in the human body is estimated to be 0.2 – 0.3 g.

c. All enzymes that utilise ATP in phosphate transfer require Ca as the cofactor.

d. The bone in human body is an inert and unchanging substance.

11. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Metallic sodium dissolves in liquid ammonia giving a deep blue solution, which is paramagnetic.

Reason R: The deep blue solution is due to the formation of amide.

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

a. A is false but R is true.

b. Both A and R are true and R is the correct explanation of A.

c. Both A and R are true but R is NOT the correct explanation of A.

d. A is true but R is false.

The p-Block Elements

12. Taking stability as the factor, which one of the following represents correct relationship?

a. $TlI > TlI_3$
b. $TlCl_3 > TlCl$
c. $InI_3 > InI$
d. $AlCl > AlCl_3$

13. Match List-I with List-II

List-I	List-II
A. Coke	I. Carbon atoms are sp^3 hybridised.
B. Diamond	II. Used as a dry lubricant
C. Fullerene	III. Used as a reducing agent
D. Graphite	IV. Cage like molecules

Choose the correct answer from the options given below:

a. A-III, B-IV, C-I, D-II
b. A-II, B-IV, C-I, D-III
c. A-IV, B-I, C-II, D-III
d. A-III, B-I, C-IV, D-II

Organic Chemistry-Some Basic Principles and Techniques

14. In Lassaigne's extract of an organic compound, both nitrogen and sulphur are present, which gives blood red colour with Fe^{3+} due to the formation of

a. $[Fe(SCN)]^{2+}$
b. $Fe_4[Fe(CN)_6]_3.xH_2O$
c. NaSCN
d. $[Fe(CN)_5NOS]^{4-}$

15. The number of σ bonds, π bonds and lone pair of electrons in pyridine, respectively are

a. 12, 2, 1
b. 11, 2, 0
c. 12, 3, 0
d. 11, 3, 1

Hydrocarbons

16. Weight (g) of two moles of the organic compound, which is obtained by heating sodium ethanoate with sodium hydroxide in presence of calcium oxide is:

a. 18
b. 16
c. 32
d. 30

The Solid State

17. A compound is formed by two elements A and B. The element B forms cubic close packed structure and atoms of A occupy 1/3 of tetrahedral voids. If the formula of the compound is A_xB_y, then the value of x + y is in option

a. 2
b. 5
c. 4
d. 3

Solutions

18. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Helium is used to dilute oxygen in diving apparatus.

Reasons R: Helium has high solubility in O_2

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true and R is NOT the correct explanation of A.
d. A is true but R is false.

Electrochemistry

19. The conductivity of centimolar solution of KCl at 25°C is 0.0210 ohm^{-1} cm^{-1} and the resistance of the cell containing the solution at 25 °C is 60 ohm. The value of cell constant is:

a. 3.34 cm^{-1} b. 1.34 cm^{-1}
c. 3.28 cm^{-1} d. 1.26 cm^{-1}

20. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: In equation $\Delta_r G = -nFE_{cell}$, value of $\Delta_r G$ depends on n.

Reasons R: E_{cell} is an intensive property and $\Delta_r G$ is an extensive property.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false

Chemical Kinetics

21. For a certain reaction, the rate = $k[A]^2[B]$. When the initial concentration of A is tripled keeping concentration of B constant, the initial rate would

a. increase by a factor of three.
b. decrease by a factor of nine.
c. increase by a factor of six.
d. increase by a factor of nine

22. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: A reaction can have zero activation energy.

Reason R: The minimum extra amount of energy absorbed by reactant molecules so that their energy becomes equal to threshold value, is called activation energy.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true and R is NOT the correct explanation of A.
d. A is true but R is false.

Surface Chemistry

23. Which one is an example of heterogenous catalysis?

a. Combination between dinitrogen and dihydrogen to form ammonia in the presence of finely divided iron.
b. Oxidation of sulphur dioxide into sulphur trioxide in the presence of oxides of nitrogen.
c. Hydrolysis of sugar catalysed by H^+ ions.
d. Decomposition of ozone in presence of nitrogen monoxide.

The p-Block Elements (Group 15 to 18)

24. Amongst the given options, which of the following molecules/ion acts as a Lewis acid?

a. OH^- b. NH_3
c. H_2O d. BF_3

The d-and f-Block Elements

25. The stability of Cu^{2+} is more than Cu^+ salts in aqueous solutions due to:

a. second ionisation enthalpy
b. first ionisation enthalpy
c. enthalpy of atomisation
d. hydration energy

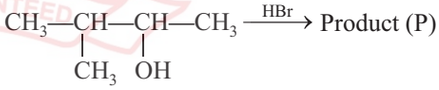
Coordination Compounds

26. Homoleptic complex from the following complexes is:

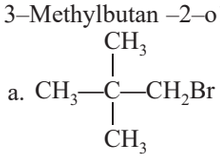
a. Triamminetriaquachromium (III) chloride
b. Potassium trioxalatoaluminate (III)
c. Diamminechloridonitrito – N- platinum(II)
d. Pentaamminecarbonatocobalt (III) chloride

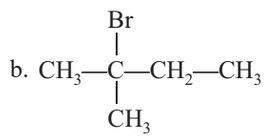
Haloalkanes and Haloarenes

27. Consider the following reaction and identify the product (P).

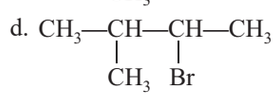


3–Methylbutan –2–o1

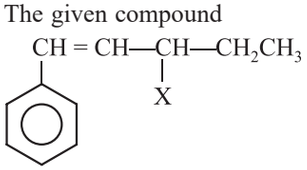
a. 

b. 

c. $CH_3CH = CH—CH_3$

d. 

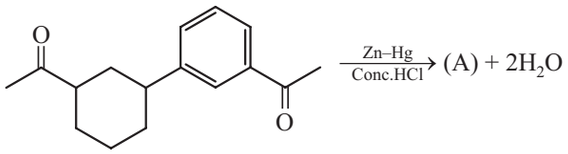
28. The given compound

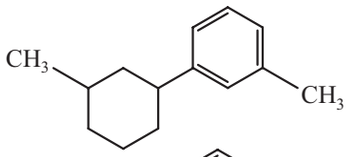


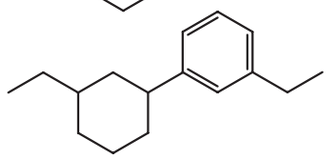
is an example of _____.

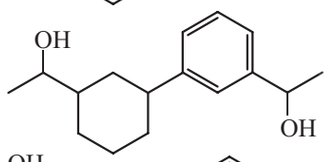
a. vinylic halide b. benzylic halide
c. aryl halide d. allylic halide

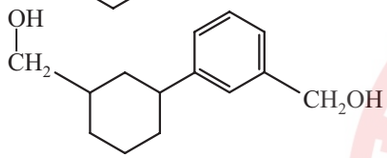
29. Identify product (A) in the following reaction:



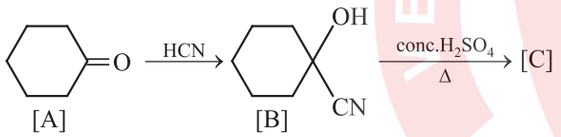
a. 

b. 

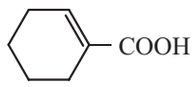
c. 

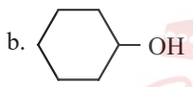
d. 

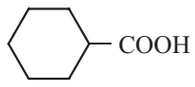
30. Complete the following reaction :

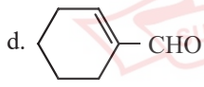


[C] is _____

a. 

b. 

c. 

d. 

Amines

31. Which of the following reactions will NOT give primary amine as the product?

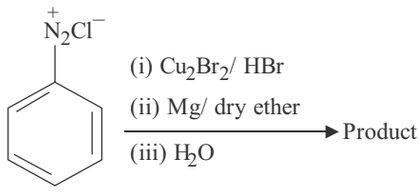
a. $CH_3CONH_2 \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ LiAlH_4}$ Product

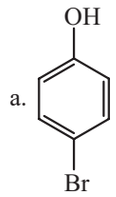
b. $CH_3CONH_2 \xrightarrow{Br_2/KOH}$ Product

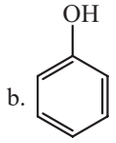
c. $CH_3CN \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ LiAlH_4}$ Product

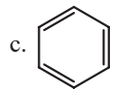
d. $CH_3NC \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ LiAlH_4}$ Product

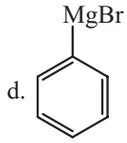
32. Identify the product in the following reaction:



a. 

b. 

c. 

d. 

Biomolecules

33. Given below are two statements:

Statement I: A unit formed by the attachment of a base to 1' position of sugar is known as nucleoside

Statement II: When nucleoside is linked to phosphorous acid at 5'-position of sugar moiety, we get nucleotide.

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

a. Statement I is false but Statement II is true.

b. Both Statement I and Statement II are true.

c. Both Statement I and Statement II are false.

d. Statement I is true but Statement II is false.

Polymers

34. Which amongst the following molecules on polymerization produces neoprene?

a. $H_2C = \underset{\displaystyle CH_3}{\underset{|}{C}} - CH = CH_2$

b. $H_2C = CH - CH = CH_2$

c. $H_2C = \underset{\displaystyle Cl}{\underset{|}{C}} - CH = CH_2$

d. $H_2C = CH - C \equiv CH$

Chemistry in Everyday Life

35. Some tranquilizers are listed below. Which one from the following belongs to barbiturates?

a. Veronal
b. Chlordiazepoxide
c. Meprobamate
d. Valium

Section-B

Thermodynamics

36. Which amongst the following options is the correct relation between change in enthalpy and change in internal Energy?

a. $\Delta H + \Delta U = \Delta nR$ b. $\Delta H = \Delta U - \Delta n_g RT$

c. $\Delta H = \Delta U + \Delta n_g RT$ d. $\Delta H - \Delta U = -\Delta nRT$

Equilibrium

37. The equilibrium concentrations of the species in the reaction $A + B \rightleftharpoons C + D$ are 2, 3, 10 and 6 mol L^{-1} respectively at 300 K. ΔG^0 for the reaction is

(R = 2 cal/mol K)

a. –13.73 cal b. 1372.60 cal

c. –137.26 cal d. –1381.80 cal

Redox Reactions

38. On balancing the given redox reaction,

$aCr_2O_7^{(2-)} + bSO_3^{(2-)}(aq) + cH^+(aq) \rightarrow$

$2aCr^{3+}(aq) + bSO_4^{2-}(aq) + c/2\ H_2O(l)$

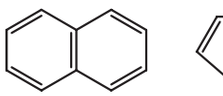
the coefficients a, b and c are found to be, respectively:

a. 8, 1, 3 b. 1, 3, 8

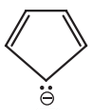
c. 3, 8, 1 d. 1, 8, 3

Hydrocarbons

39. Consider the following compounds/species :

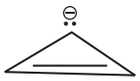


(I)



(II)

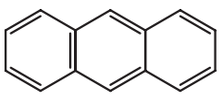
(III)



(IV)

(V)

(VI)



(VII)

The number of compounds/species which obey Huckel's rule is _____.

a. 5 b. 4

c. 6 d. 2

Environmental Chemistry

40. Given below are two statements:

Statement I: The nutrient deficient water bodies lead to eutrophication.

Statement II: Eutrophication leads to decrease in the level of oxygen in water bodies.

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

a. Statement I is incorrect but statement II is true

b. Both statement I and Statement II are true.

c. Both statement I and statement II are false.

d. Statement I is correct but statement II is false

The Solid State

41. What fraction of one edge centred octahedral void lies in one unit cell of fcc?

a. $\frac{1}{12}$ b. $\frac{1}{2}$

c. $\frac{1}{3}$ d. $\frac{1}{4}$

Surface Chemistry

42. Pumic stone is an example of:

a. foam b. sol

c. gel d. solid sol

General Principles and Processes of Isolation of Elements

43. The reaction that does not take place in blast furnace between 900 K to 1500 K in temperature range during extraction of iron is:

a. $CaO + SiO_2 \rightarrow CaSiO_3$

b. $Fe_2O_3 + CO \rightarrow 2FeO + CO_2$

c. $FeO + CO \rightarrow Fe + CO_2$

d. $C + CO_2 \rightarrow 2CO$

The p-Block Elements (Group 15 to 18)

44. Match List-I with List-II:

	List-I (Oxoacids of Sulphur)		**List-II (Bonds of Sulphur)**
A.	Peroxodisulphuric acid	I.	Two S-OH, Four S=O, One S-O-S
B.	Sulphuric acid	II.	Two S-OH, One S=O
C.	Pyrosulphuric acid	III.	Two S-OH, Four S=O,One S-O-O-S
D.	Sulphurous acid	IV.	Two S-OH, Two S=O

Choose the correct answer from the options given below :

a. A-III, B-IV, C-II, D-I b. A-I, B-III, C-II, D-IV

c. A-III, B-IV, C-I, D-II d. A-I, B-III, C-IV, D-II

The d-and f-Block Elements

45. Which of the following statements are INCORRECT?

A. All the transition metals except scandium form MO oxides which are ionic.

B. The highest oxidation number corresponding to the group number in transition metal oxides is attained in Sc_2O_3 to Mn_2O_7.

C. Basic character increases from V_2O_3 to V_2O_4 to V_2O_5.

D. V_2O_4 dissolves in acids to give VO_4^{3-} salts.

E. CrO is basic but Cr_2O_3 is amphoteric.

Choose the correct answer from the options given below:

a. B and C only
b. A and E only
c. B and D only
d. C and D only

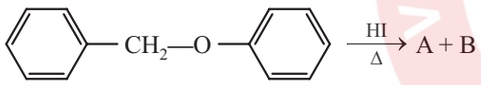
Coordination Compounds

46. Which complex compound is most stable?

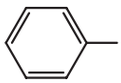
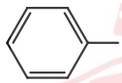
a. $[Co(NH_3)_6]_2 (SO_4)_3$
b. $[Co(NH_3)_4 (H_2O)Br] (NO_3)_2$
c. $[Co(NH_3)_3 (NO_3)_3]$
d. $[CoCl_2(en)_2]NO_3$

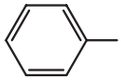
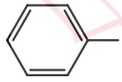
Alcohols, Phenols and Ethers

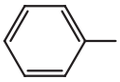
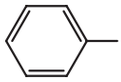
47. Consider the following reaction

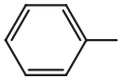
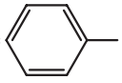


Identify products A and B

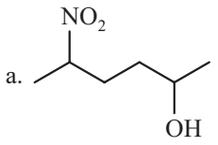
a. A =  and B = 

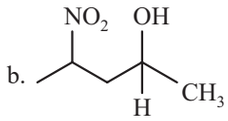
b. A =  and B = 

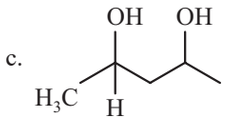
c. A =  and B = 

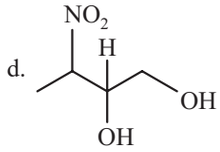
d. A =  and B = 

48. Which amongst the following will be most readily dehydrated under acidic conditions ?

a. 

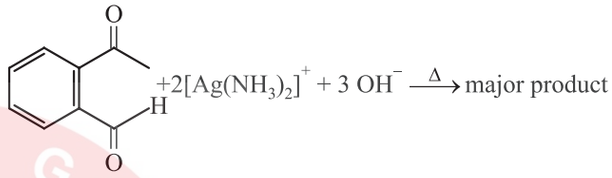
b. 

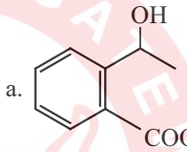
c. 

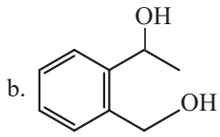
d. 

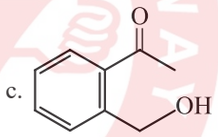
Aldehydes, Ketones and Carboxylic Acids

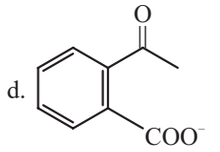
49. Identify the major product obtained in the following reaction:



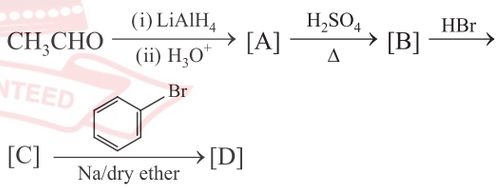
a. 

b. 

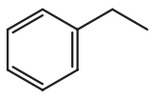
c. 

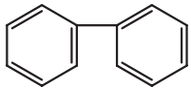
d. 

50. Identify the final product [D] obtained in the following sequence of reactions,



a. $HC \equiv C^-Na^+$

b. 

c. 

d. C_4H_{10}

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
c	a	b	d	b	b	d	c	d	b	d	a	d	a	d	c	b
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
d	d	b	d	c	a	d	d	b	b	d	b	a	d	c	d	c
35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
a	c	d	b	b	a	d	d	b	c	d	d	d	c	d	b	

NEET Question Paper-2023

Botany

Section-A

Plant Kingdom

1. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: The first stage of gametophyte in the life cycle of moss is protonema stage.

Reason R: Protonema develops directly from spores produced in capsule.

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

a. A is not correct but R is correct.
b. Both A and R are correct and R is the correct explanation of A.
c. Both A and R are correct but R is NOT the correct explanation of A.
d. A is correct but R is not correct.

2. Identify the pair of heterosporous pteridophytes among the following:

a. *Equisetum* and *Salvinia* b. *Lycopodium* and *Selaginella*
c. *Selaginella* and *Salvinia* d. *Psilolum* and *Salvinia*

Morphology of Flowering Plants

3. Family Fabaceae differs from Solanaceae and Liliaceae. With respect to the stamens, pick out the characteristics specific to family Fabaceae but not found in Solanaceae or Liliaceae.

a. Epiphyllous and Dithecous anthers
b. Diadelphous and Dithecous anthers
c. Polyadelphous and epipetalous stamens
d. Monoadelphous and Monothecous anthers

4. Axile placentation is observed in

a. China rose, Petunia and Lemon
b. Mustard, Cucumber and Primorose
c. China rose, Beans and Lupin
d. Tomato, Dianthus and Pea

Anatomy of Flowering Plants

5. Given below are two statements:

Statement I: Endarch and exarch are the terms often used for describing the position of secondary xylem in the plant body.

Statement II: Exarch condition is the most common feature of the root system.

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

a. Statement I is incorrect but Statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is correct but Statement II is false.

6. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Late wood has fewer xylary elements with narrow vessels.

Reason R: Cambium is less active in winters.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

Biomolecules

7. Cellulose does not form blue colour with Iodine because

a. It breakes down when iodine reacts with it.
b. It is a disaccharide.
c. It is a helical molecule.
d. It does not contain complex helices and hence cannot hold iodine molecules.

Cell Cycle and Cell Division

8. Among eukaryotes, replication of DNA takes place in

a. G_2 phase
b. M phase
c. S phase
d. G_1 phase

9. Which of the following stages of meiosis involves division of centromere?

a. Telophase
b. Metaphase I
c. Metaphase II
d. Anaphase II

10. The process of appearance of recombination nodules occurs at which sub stage of prophase I in meiosis?

a. Diakinesis
b. Pachytene
c. Zygotene
d. Diplotenes

Transport in Plants

11. Movement and accumulation of ions across a membrane against their concentration gradient can be explained by

a. Active Transport
b. Osmosis
c. Facilitated Diffusion
d. Passive Transport

12. Given below are two statements :

Statement I: The forces generated by transpiration can lift a xylem-sized column of water over 130 meters height.

Statement II: Transpiration cools leaf surfaces sometimes 10 to 15 degrees, by evaporative cooling.

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

a. Statement I is incorrect but Statement II is correct.
b. Both Statement I and Statement II are correct.
c. Both Statement I and Statement II are incorrect.
d. Statement I is correct but Statement II is incorrect.

Mineral Nutrition

13. Which micronutrient is required for splitting of water molecule during photosynthesis?

a. copper
b. manganese
c. molybdenum
d. magnesium

Photosynthesis in Higher Plants

14. How many ATP and NADPH, are required for the synthesis of one molecule of Glucose during Calvin cycle?

a. 18 ATP and 16 $NADPH_2$
b. 12 ATP and 12 $NADPH_2$
c. 18 ATP and 12 $NADPH_2$
d. 12 ATP and 16 $NADPH_2$

15. The reaction centre in PS II has an absorption maxima at

a. 780 nm
b. 680 nm
c. 700 nm
d. 660 nm

Respiration in Plants

16. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: ATP is used at two steps in glycolysis.

Reason R: First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6- phosphate into fructose-1-6-diphosphate.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

Plant Growth and Development

17. Spraying of which of the following phytohormone on juvenile conifers helps in hastening the maturity period, that leads to early seed production?

a. Abscisic Acid
b. Indole-3-butyric Acid
c. Gibberellic Acid
d. Zeatin

18. In tissue culture experiments, leaf mesophyll cells are put in a culture medium to form callus. This phenomenon may be called as:

a. Senescence
b. Differentiation
c. Dedifferentiation
d. Development

19. Which hormone promotes intemode/petiole elongation in deep water rice?

a. 2, 4-D
b. GA_3
c. Kinetin
d. Ethylene

Sexual Reproduction in Flowering Plants

20. Large, colourful, fragrant flowers with nectar are seen in:

a. wind pollinated plants
b. insect pollinated plants
c. bird pollinated plants
d. bat pollinated plants

21. In angiosperm, the haploid, diploid and triploid structures of a fertilized embryo sac sequentially are:

a. Synergids, antipodals and Polar nuclei
b. Synergids, Primary endosperm nucleus and zygote
c. Antipodals, synergids, and primary endosperm nucleus
d. Synergids, Zygote and Primary endosperm nucleus

22. What is the function of tassels in the corn cob?

a. To protect seeds
b. To attract insects
c. To trap pollen grains
d. To disperse pollen grains

Principles of Inheritance and Variation

23. The phenomenon of pleiotropism refers to

a. more than two genes affecting a single character.
b. presence of several alleles of a single gene controlling a single crossover.
c. presence of two alleles, each of the two genes controlling a single trait.
d. a single gene affecting multiple phenotypic expression.

24. Frequency of recombination between gene pairs on same chromosome as a measure of the distance between genes to map their position on chromosome, was used for the first time by

a. Henking
b. Thomas Hunt Morgan
c. Sutton and Boveri
d. Alfred Sturtevant

Molecular Basis of Inheritance

25. What is the role of RNA polymerase III in the process of transcription in Eukaryotes?

a. Transcription of only snRNAS
b. Transcription of rRNAs (28S, 18S and 5.8S)
c. Transcription of tRNA, 5 srRNA and snRNA
d. Transcription of precursor of mRNA

26. Expressed Sequence Tags (ESTs) refers to

a. Certain important expressed genes.
b. All genes that are expressed as RNA.
c. All genes that are expressed as proteins.
d. All genes whether expressed or unexpressed.

27. Unequivocal proof that DNA is the genetic material was first proposed by

a. Wilkins and Franklin
b. Fedrick, Griffith
c. Alfred Hershey and Martha Chase
d. Avery, Macleoid and McCarthy

Biotechnology : Principles and Processes

28. Upon exposure to UV radiation, DNA stained with ethidium bromide will show

a. Bright orange colour
b. Bright red colour
c. Bright blue colour
d. Bright yellow colour

29. In gene gun method used to introduce alien DNA into host cells, microparticles of _____ metal are used.

a. Silver
b. Copper
c. Zinc
d. Tungsten or gold

30. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out

a. Polysaccharides
b. RNA
c. DNA
d. Histones

Ecosystem

31. Identify the correct statements:

A. Detrivores perform fragmentation
B. The humus is further degraded by some microbes during mineralization.
C. Water soluble inorganic nutrients go down into the soil and get precipitated by a process called leaching.
D. The detritus food chain begins with living organisms.
E. Earthworms break down detritus into smaller particles by a process called catabolism.

Choose the correct answer from the options given below:

a. D, E, A only
b. A, B, C only
c. B, C, D only
d. C, D, E only

32. In the equation GPP – R = NPP

GPP is Gross Primary Productivity

NPP is Net Primary Productivity.

R here is

a. Reproductive allocation
b. Photosynthetically active radiation
c. Respiratory quotient
d. Respiratory loss

Biodiversity and Conservation

33. The historic Convention on Biological Diversity, 'The Earth Summit' was held in Rio de Janeiro in the year:

a. 2002
b. 1992
c. 1985
d. 1986

34. Among 'The Evil Quartet', which one is considered the most important cause driving extinction of species?

a. Co-extinctions
b. Habitat loss and fragmentation
c. Over exploitation for economic gain
d. Alien species invasions

Environmental Issues

35. The thickness of ozone in a column of air in the atmosphere is measured in terms of:

a. Kilobase
b. Dobson units
c. Decameter
d. Decibels

Section-B

Plant Kingdom

36. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: In gymnosperms the pollen grains are released from the microsporangium and carried by air currents.

Reason R: Air currents carry the pollen grains to the mouth of the archegonia where the male gametes are discharged and pollen tube is not formed.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

Anatomy of Flowering Plants

37. Given below are two statements: One is labelled as Assertion A and the other is labeled as Reason R:

Assertion A: A flower is defined as modified shoot wherein the shoot apical meristem changes to floral meristem.

Reason R: Internode of the shoot gets condensed to produce different floral appendages laterally at successive nodes instead of leaves.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

38. Identify the correct statements:

A. Lenticels are the lens-shaped openings permitting the exchange of gases.
B. Bark formed early in the season is called hard bark.
C. Bark is a technical term that refers to all tissues exterior to vascular cambium.
D. Bark refers to periderm and secondary phloem.
E. Phellogen is single-layered in thickness. Choose the correct answer from the options given below:

a. B and C only
b. B. C and E only
c. A and D only
d. A, B and D only

Biomolecules

39. Melonate inhibits the growth of pathogenic bacteria by inhibiting the activity of

a. Dinitrogenase
b. succinic dehydrogenase
c. Amylase
d. Lipase

Cell Cycle and Cell Division

40. Match List-I with List-II

List-I		List-II	
(A)	M Phase	(I)	Proteins are synthesized
(B)	G_2 Phase	(II)	Inactive phase
(C)	Quiescent stage	(III)	Interval between mitosis and initiation of DNA replication
(D)	G_1 Phase	(IV)	Equational division

Choose the correct answer from the options given below:

a. A-II, B-IV, C-I, D-III
b. A-III, B-II, C-IV, D-I
c. A-IV, B-II, C-I, D-III
d. A-IV, B-I, C-II, D-III

Transport in Plants

41. Match List-I with List-II

List-I		List-II	
(A)	Cohesion	(I)	More attraction in liquid phase
(B)	Adhesion	(II)	Mutual attraction among wate molecules
(C)	Surface tension	(III)	Water loss in liquid phase
(D)	Guttation	(IV)	Attraction towards polar surfaces

Choose the correct answer from the option given below:

a. A-II, B-I, C-IV, D-III
b. A-II, B-IV, C-I, D-III
c. A-IV, B-III, C-II, D-I
d. A-III, B-I, C-IV, D-II

Mineral Nutrition

42. Match List-I with List-II

List-I		List-II	
(A)	Iron	(I)	Synthesis of auxin
(B)	Zinc	(II)	Component of nitrate reductase
(C)	Boron	(III)	Activator of catalase
(D)	Molybdenum	(IV)	Cell elongation and differentiation

Choose the correct answer from the options given below:

a. A- II, B- IV, C- I, D-III b. A-III, B- II, C-I, D-IV

c. A-III, B- III, C-IV, D-I d. A-III, B-I, C-IV, D-II

Photosynthesis in Higher Plants

43. Which of the following combinations is required for chemiosmosis?

a. proton pump, electron gradient, NADP synthase

b. membrane, proton pump, proton gradient. ATP synthase

c. membrane, proton pump, proton gradient, NADP synthase

d. proton pump, electron gradient, ATP synthase

Respiration in Plants

44. Math List-I with List-II

List-I		List-II	
(A)	Oxidative ecarboxylation	(I)	Citrate synthase
(B)	Glycolysis	(II)	Pyruvate
(C)	Oxidative phosphorylation	(III)	Electron transport system
(D)	Tricarboxylic acid cycle	(IV)	EMP pathway

Choose the correct answer from the options given below:

a. A-II, B-IV, C-III,, D-I b. A-III, B-IV, C-II,, D-I

c. A-II, B-IV, C-I,, D-III d. A-III, B-I, C-II,, D-IV

Principles of Inheritance and Variation

45. Which of the following statements are correct about Klinefelter's Syndrome?

A. This disorder was first described by Langdon Down (1866).

B. Such an individual has overall masculine development. However, the feminine development is also expressed.

C. The affected individual is short stature.

D. Physical, psychomotor and mental development is retarded.

E. Such individuals are sterile.

Choose the correct answer from the options given below:

a. A and E only b. A and B only

c. C and D only d. B and E only

Molecular Basis of Inheritance

46. How many different proteins does the ribosome consist of?

a. 20 b. 80

c. 60 d. 40

Biotechnology : Principles and Processes

47. Main steps in the formation of Recombinant DNA are given below. Arrange these steps in a correct sequence

A. Insertion of recombinant DNA into the host cell.

B. Cutting of DNA at specific location by restriction enzyme.

C. Isolation of desired DNA fragment.

D. Amplification of gene of interest using PCR.

Choose the correct answer from the option given below:

a. B, D, A, C b. B, C, D, A

c. C, A, B, D d. C, B, D, A

Organisms and Populations

48. Given below are two statements:

Statement I: Gause's 'Competitive Exclusive Principle' states that two closely related species competing for the same related species competing for the same resources cannot co-exist indefinitely and competitively inferior one will be eliminated eventually.

Statement II: In general, carnivores are more adversely affected by competition than herbivores.

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

a. Statement I is incorrect but Statement II is true

b. Both Statement I and Statement II are true

c. Both Statement I and Statement II are false

d. Statement I is correct but Statement II is false.

49. Match List-I with List-II

List-I (Interaction)		List-II (Species A And B)	
(A)	Mutualism	(I)	+(A), O(B)
(B)	Commensalism	(II)	–(A), O(B)
(C)	Amensalism	(III)	+(A), -(B)
(D)	Parasitism	(IV)	+(A), +(B)

Choose the correct answer from the given options:

a. A-III, B-I, C-IV, D-II b. A-IV, B-II, C-I, D-III

c. A-IV, B-I, C-II, D-III d. A-IV, B-III, C-I, D-II

Environmental Issues

50. Which of the following answers are NOT correct?

a. The amount of some toxic substances of industrial waste water increases in the organisms at successive trophic levels.

b. The micro-organisms involved in biodegradation of organic matter in a sewage polluted water body consume a lot of oxygen causing the death of aquatic organisms.

c. Algal blooms caused by excess of organic matter in water improve water quality and promote fisheries.

d. Water hyacinth grows abundantly in eutrophic water bodies and leads to an imbalance in the ecosystem dynamics of the water body.

Section-A

Animal Kingdom

51. Radial symmetry is NOT found in adults of phylum

a. Echinodermata
b. Ctenophora
c. Hemichordata
d. Coelenterata

52. Match List-I with List-II.

List-I		List-II	
(A)	*Taenia*	(I)	Nephridia
(B)	*Paramoecium*	(II)	Contractile vacuole
(C)	*Periplaneta*	(III)	Flame cells
(D)	*Pheretima*	(IV)	Urecose gland

Choose the correct answer from the options give below:

a. A-II, B-I, C-IV, D-III
b. A-I, B-II, C-III, D-IV
c. A-I, B-II, C-IV, D-III
d. A-III, B-II, C-IV, D-I

Structural Organisation in Animals

53. Given below are two statements:

Statement I: Ligaments are dense irregular tissue

Statement II: Cartilage is dense regular tissue.

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

a. Statement I is false but Statement III is true.
b. Both Statement I and II are true
c. Both Statement I and II are false
d. Statement I is true but Statement II is false

Cell : The Unit of Life

54. Which of the following are NOT considered as the part of endomembrane system?

A. Mitochondria
B. Endoplasmic Reticulum
C. Chloroplasts
E. Peroxisomes
D. Golgi complex

Choose the most appropriate answer from the options given below:

a. A, D and E only
b. B and D only
c. A, C and E only
d. A and D only

55. Which of the following functions is carried out by cytoskeleton in a cell?

a. Transportation
b. Nuclear division
c. Protein synthesis
d. Motility

Biomolecules

56. Given below are two statements:

Statement I: Low temperature preserves the enzyme in a temporarily inactive state whereas high temperature destroys enzymatic activity because proteins are denatured by heat.

Statement II: When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor.

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

a. Statement I is false but statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is true but Statement II is false.

57. Given below are two statements:

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

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

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

a. Statement I is false but Statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is true but Statement II is false.

Digestion and Absorption

58. Match List-I with List-II.

List-I (Cells)		**List-II** (Secretion)	
(A)	Peptic cells	(I)	Mucus
(B)	Goblet Cells	(II)	Bile Juice
(C)	Oxyntic Cell	(III)	Proenzyme Pepsinogen
(D)	Hepatic cells	(IV)	HCl and intrinsic factor for absorption of vitamin B_{12}

Choose the correct answer from the options given below

a. A-II, B-IV, C-I, D-III
b. A-IV, B-III, C-II, D-I
c. A-II, B-I, C-III, D-IV
d. A-III, B-I, C-IV, D-II

59. Once the undigested and unabsorbed substances enter the caecum, their backflow is prevented by-

a. Pyloric sphincter
b. Sphincter of Oddi
c. Ileo-caecal valve
d. Gastro-oesophageal sphincter

Breathing and Exchange of Gases

60. Vital capacity of lung is _____.

a. IRV + ERV + TV
b. IRV + ERV
c. IRV + ERV + TV + RV
d. IRV + ERV + TV – RV

Body Fluids and Circulation

61. Match List-I with List-II.

List-I		List-II	
(A)	P-wave	(I)	Beginning of systole
(B)	Q-wave	(II)	Repolarisation of ventricles
(C)	QRS complex	(III)	Depolarisation of atria
(D)	T-wave	(IV)	Depolarisation of ventricles

a. A-I, B-II, C-III, D-IV
b. A-III, B-I, C-IV, D-II
c. A-IV, B-III, C-II, D-I
d. A-II, B-IV, C-I, D-III

Excretory Products and their Elimination

62. Given below are statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Nephrons are of two types: Cortical & Juxta medullary, based on their relative position in cortex and medulla.

Reason R: Juxta medullary nephrons have short loop of Henle whereas, cortical nephrons have longer loop of Henle.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

Locomotion and Movement

63. Match List-I with List-II.

List-I (Type of Joint)		List-II (Found between)	
(A)	Cartilaginous Joint	(I)	Between flat skull bones
(B)	Ball and Socket Joint	(II)	Between adjacent vertebrae in vertebral column
(C)	Fibrous Joint	(III)	Between carpal and metacarpal of thumb
(D)	Saddle Joint	(IV)	Between Humerus and Pectoral girdle

Choose the correct answer from the option given below:

a. A-II, B-IV, C-III, D-I
b. A-III, B-I, C-II, D-IV
c. A-II, B-IV, C-I, D-III
d. A-I, B-IV, C-III, D-II

Neural Control and Coordination

64. Match List-I with List-II with respect to human eye.

List-I		List-II	
(A)	Fovea	(I)	Visible coloured portion of eye that regulates diameter of pupil.
(B)	Iris	(II)	External layer of eye formed of dense connective tissue.
(C)	Blind spot	(III)	Point of greatest visual acuity or resolution.
(D)	Sclera	(IV)	Point where optic nerve leaves the eyeball and photoreceptor cells are absent.

Choose the correct answer from the options given below:

a. A-II, B-I, C-III, D-IV
b. A-III, B-I, C-IV, D-II
c. A-IV, B-III, C-II, D-I
d. A-I, B-IV, C-III, D-II

Chemical Coordination and Integration

65. Match List-I with List-II.

List-I		List-II	
(A)	CCK	(I)	Kidney
(B)	GIP	(II)	Heart
(C)	ANF	(III)	Gastric gland
(D)	ADH	(IV)	Pancreas

Choose the correct answer from the options given below:

a. A-IV, B-II, C-III, D-I
b. A-IV, B-III, C-II, D-I
c. A-III, B-II, C-IV, D-I
d. A-II, B-IV, C-I, D-III

Human Reproduction

66. Given below are two statements:

Statement I: Vas deferens receives a duct from seminal vesicle and opens into urethra as the ejaculatory duct.

Statement II: The cavity of the cervix is called cervical canal which along with vagina forms birth canal.

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

a. Statement I incorrect but Statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is correct but Statement II is false.

67. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Endometrium is necessary for implantation of blastocyst.

Reason R: In the absence of fertilization, the corpus luteum degenerates that causes disintegration of endometrium.

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

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true but R is NOT the correct explanation of A.
d. A is true but R is false.

68. Which of the following statements are correct regarding female reproductive cycle?

A. In non-primate mammals cyclical changes during reproduction are called oestrus cycle.
B. First menstrual cycle begins at puberty and is called menopause.
C. Lack of menstruation may be indicative of pregnancy.
D. Cyclic menstruation extends between menarche and menopause.

Choose the most appropriate answer from the options given below:

a. A, C and D only
b. A and D only
c. A and B only
d. A, B and C only

Reproductive Health

69. Which one of the following common sexually transmitted diseases is completely curable when detected early and treated properly?

a. HIV Infection
b. Genital herpes
c. Gonorrhoea
d. Hepatitis-B

70. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Amniocentesis for sex determination is one of the strategies of Reproductive and Child Health Care Programme.

Reason R: Ban on amniocentesis checks increasing menace of female foeticide.

In the light of the above statements. Choose the correct answer from the options given below:

a. A is false but R is true.
b. Both A and R are true and R is the correct explanation of A.
c. Both A and R are true and R is NOT the correct explanation of A.
d. A is true but R is false.

71. Match List-I with List-II.

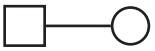
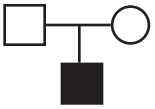
List-I		List-II	
(A)	Vasectomy	(I)	Oral method
(B)	Coitus interruptus	(II)	Barrier method
(C)	Cervical caps	(III)	Surgical method
(D)	Saheli	(IV)	Natural method

Choose the correct answer from the options given below:

a. A-IV, B-II, C-I, D-III
b. A-III, B-I, C-IV, D-II
c. A-III, B-IV, C-II, D-I
d. A-II, B-III, C-I, D-IV

Principles of Inheritance and Variation

72. Which one of the following symbols represents mating between relatives in human pedigree analysis?

a. 
b. 
c. 
d. 

73. Broad palm with single palm crease is visible in a person suffering from-

a. Thalassemia
b. Down's syndrome
c. Turner's syndrome
d. Klinefelter's syndrome

Molecular Basis of Inheritance

74. Given below are two statements:

Statement I: RNA mutates at a faster rate.

Statement II: Viruses having RNA genome and shorter life span mutate and evolve faster.

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

a. Statement I false but Statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is true but Statement II is false.

75. Match List-I with List-II.

List-I		List-II	
(A)	Gene 'a'	(I)	β-galactosidase
(B)	Gene 'y'	(II)	Transacetylase
(C)	Gene 'i'	(III)	Permease
(D)	Gene 'z'	(IV)	Repressor protein

Choose the correct answer from the option given below:

a. A-III, B-I, C-IV, D-II
b. A-III, B-I, C-IV, D-III
c. A-II, B-III, C-IV, D-I
d. A-III, B-IV, C-I, D-II

76. Given below are two statements:

Statement I: In prokaryotes, the positively charged DNA is held with some negatively charged proteins in a region called nucleoid.

Statement II: In eukaryotes, the negatively charged DNA is wrapped around the positively charged histone octamer to form nucleosome.

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

a. Statement I is incorrect but Statement II is true.
b. Both Statement I and Statement II are true.
c. Both Statement I and Statement II are false.
d. Statement I is correct but Statement II is false.

Evolution

77. Select the correct group/set of Australian Marsupials exhibiting adaptive radiation.

a. Lemur, Anteater, Wolf
b. Tasmanian wolf, Bobcat, Marsupial mole
c. Numbat, Spotted cuscus, Flying phalanger
d. Mole, Flying squirrel, Tasmanian tiger cat

Human Health and Disease

78. Match List-I with List-II

List-I		List-II	
(A)	Ringworm	(I)	*Haemophilus influenzae*
(B)	Filariasis	(II)	*Trichophyton.*
(C)	Malaria	(III)	*Wuchereria bancrofti*
(D)	Pneumonia	(IV)	*Plasmodium vivax*

Choose the correct answer from the options given below:

a. A-III, B-II, C-IV, D-I
b. A-II, B-III, C-IV, D-I
c. A-II, B-III, C-I, D-IV
d. A-III, B-II, C-I, D-IV

79. Match List-I with List-II.

List-I		List-II	
(A)	Heroin	(I)	Effect on cardiovascular system
(B)	Marijuana	(II)	Slow down body function
(C)	Cocaine	(III)	Painkiller
(D)	Morphine	(IV)	Interfere with transport dopamine

Choose the correct answer from the options given below:

a. A-III, B-IV, C-I, D-II
b. A-II, B-I, C-IV, D-III
c. A-I. B-II, C-III, D-IV
d. A-IV, B-III, C-II, D-I

80. In which blood corpuscles, the HIV undergoes replication and produces progeny viruses?

a. Eosinophils
b. T_H cells
c. B-lymphocytes
d. Basophils

Biotechnology : Principles and Processes

81. Which of the following is not a cloning vector?

a. Probe
b. BAC
c. YAC
d. pBR322

Biotechnology and its Applications

82. Which one of the following techniques does not serve the purpose of early diagnosis of a disease for its early treatment?

a. Enzyme Linked Immuno-Sorbent Assay (ELISA) technique
b. Recombinant DNA Technology
c. Serum and Urine analysis
d. Polymerase Chain Reaction (PCR) technique

Organisms and Populations

83. Match List-I with List-II.

List-I (Interacting species)		List-II (Name of Interaction)	
(A)	A Leopard and a Lion in a forest/ grassland	(I)	Competition
(B)	A Cuckoo laying egg in a Crow's nest	(II)	Brood parasitism
(C)	Fungi and root of a higher plant in Mycorrtizae	(III)	Mutualism
(D)	A cattle egret and a Cattle in a field	(IV)	Commensalism

Choose the correct answer from the options given below:

a. A-II, B-III, C-I, D-IV
b. A-I, B-II, C-III, D-IV
c. A-I, B-II, C-IV, D-III
d. A-III, B-IV, C-I, D-II

Environmental Issues

84. Which of the following statements is correct?

a. Algal Bloom decreases fish mortality.
b. Eutrophication refers to increase in domestic sewage and waste water in lakes.
c. Biomagnification refers to increase in concentration of the toxicant at successive trophic levels.
d. Presence of large amount of nutrients in water restricts 'Algal Bloom'.

85. Given below are two statements:

Statement I: Electrostatic precipitator is most widely used in thermal power plant.

Statement II: Electrostatic precipitator in thermal power plant removes ionising radiations

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

a. Statement I incorrect but Statement II is correct.
b. Both Statement I and Statement II are correct.
c. Both Statement I and Statement II are incorrect.
d. Statement I is correct but Statement II is incorrect.

Section-B

Animal Kingdom

86. The unique mammalian characteristics are:

a. pinna, monocondylic skull and mammary glands
b. hairs, tympanic membrane and mammary glands
c. hairs, pinna and mammary glands
d. hairs, pinna and indirect development

87. Select the correct statements with reference to chordates.

A. Presence of a mid-dorsal, solid and double nerve cord.
B. Presence of closed circulatory system.
C. Presence of paired pharyngeal gills
D. Presence of dorsal heart
E. Triploblastic pseudocoelomate animals.

Choose the correct answer from the options given below:

a. C, D and E only
b. A, C and D only
c. B and C only
d. B, D and E only

Structural Organisation in Animals

88. Which of the following is characteristic feature of cockroach regarding sexual dimorphism?

a. Presence of anal cerci
b. Dark brown body colour and anal cerci
c. Presence of anal styles
d. Presence of sclerites

89. Match List-I with List-II.

List-I		List-II	
(A)	Mast cells	(I)	Ciliated epithelium
(B)	Inner surface of bronchiole	(II)	Areolar connective tissue
(C)	Blood	(III)	Cuboidal epithelium
(D)	Tubular parts of nephron	(IV)	specialised connective tissue

Choose the correct answer from the options

a. A-III, B-IV, C-II, D-I
b. A-I, B-II, C-IV, D-III
c. A-II, B-III, C-I, D-IV
d. A-II, B-I, C-IV, D-III

90. In cockroach, excretion is brought about by-

A. Phallic gland
B. Urecose gland
C. Nephrocytes
D. Fat body
E. Collaterial glands

Choose the correct answer from the options given below:

a. B and D only
b. A and E only
c. A, B and E only
d. B, C and D only

Cell Cycle and Cell Division

91. Given below are two statements:

Statement I: During G_o phase of cell cycle the cell is metabolically inactive

Statement II: The centrosome undergoes duplication during S phase of interphase.

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

a. Statement I is incorrect but Statement II is correct
b. Both Statement I and Statement II are correct
c. Both Statement I and Statement II are incorrect.
d. Statement I is correct but Statement II is incorrect.

92. Select the correct statements.

A. Tetrad formation is seen during leptotene
B. During Anaphase, the centromere split and chromatids separate.
C. Terminalization takes place during Pachytene.
D. Nucleolus, Golgi complex and ER are reformed during Telophase.
E. Crossing over takes place between sister chromatids of homologous

Choose the correct answer from the option given below:

a. B and E only
b. A and C only
c. B and D only
d. A, C and E only

Body Fluids and Circulation

93. Which of the following statements are correct?

A. Basophils are most aboundant cell of the total WBCs
B. Basophils secrete histamine, serotonin and heparin
C. Basophils are involved in inflammatory response
D. Basophils have kidney shaped nucleus
E. Basophil are agranulocyte

Choose the correct answer from the options given below:

a. A and B only
b. D and E only
c. C and E only
d. B and C only

Excretory Products and their Elimination

94. Which of the following statements are correct?

A. An excessive loss of body fluid from the body switches off osmoreceptors.
B. ADH facilitates water reabsorption to prevent diuresis.
C. ANF causes vasodilation.

D. ADH causes increase in blood pressure.

E. ADH is responsible for decrease in GFR.

Choose the correct answer from the options given below:

a. C, D and E only
b. A and B only
c. B, C and D only
d. A, B and E only

Locomotion and Movement

95. Which of the following statements are correct regarding skeletal muscle?

A. Muscle bundles are held together by collagenous connective tissue layer called fascicle.

B. Sarcoplasmic reticulum of muscle fibre is a store house of calcium ions.

C. Striated appearance of skeletal muscle fibre is due to distribution pattern of actin and myosin proteins.

D. M line is considered as functional unit of contraction called sarcomere.

Choose the most appropriate answer from the options given below:

a. C and D only
b. A, B and C only
c. B and C only
d. A, C and D only

Neural Control and Coordination

96. The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are.

a. Corpus callosum and thalamus
b. Limbic system & hypothalamus
c. Corpora quadrigemina & hippocampus
d. Brain stem & epithalamus

Chemical Coordination and Integration

97. Which of the following are NOT under the control of thyroid hormone?

A. Maintenance of water and electrolyte balance

B. Regulation of basal metabolic rate

C. Normal rhythm of sleep-wake cycle

D. Development of immune system

E. Support the process of R.B.Cs formation Choose the correct answer from the options given below:

a. D and E only
b. A and D only
c. B and C only
d. C and D only

Molecular Basis of Inheritance

98. Which one of the following is the sequence on corresponding coding strand, if the sequence on mRNA formed is as follow

5'AUCGAUCGAUCGAUCGAUCGAUCG

AUCG 3?

a. 3' ATCGATCGATCGTCGATCG
ATCGATCG 5'
b. 5' UAGCUAGCUAGCUAGCUA
GCUAGC UAGC 3'
c. 3' UAGCUAGCUAGCUAGCUA
GCUAGCUAGC 5'
d. 5' ATCGATCGATCGATCGATCG
ATCGATCG 3'

Strategies for Enhancement in Food Production

99. Which one of the following NOT an advantage of inbreeding?

a. It decreases the productivity of inbred population, after continuous inbreeding.
b. It decreases homozygosity.
c. It exposes harmful recessive genes that are eliminated by selection.
d. Elimination of less desirable genes and accumulation of superior genes takes place due to it

Organisms and Populations

100. Match List-I with List-II.

List-I		List-II	
(A)	Logistic growth	(I)	Unlimited resource availability condition
(B)	Exponential growth	(II)	Limited resource availability condition
(C)	Expanding age pyramid	(III)	The percent individuals of pre-reproductive age is largest followed by reproductive and post reproductive age groups
(D)	Stable age pyramid	(IV)	The percent individuals of pre-reproductives and reproductive age group are same

Choose the correct answer from the options given below:

a. A-II, B-IV, C-III, D-I
b. A-II, B-I, C-III, D-IV
c. A-II, B-III, C-I, D-IV
d. A-II, B-IV, C-I, D-III

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
b	c	b	a	a	b	d	c	d	b	a	b	b	c	b	b	c
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
c	d	b	d	c	d	d	c	b	c	a	d	c	b	d	b	b
35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
b	d	b	c	b	d	b	d	b	a	d	b	b	d	c	c	c
52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
d	c	c	d	b	a	d	c	a	b	d	c	b	b	b	c	a
69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
c	a	c	c	b	b	c	a	c	b	b	b	a	c	b	c	d
86	87	88	89	90	91	92	93	94	95	96	97	98	99	100		
c	c	c	d	d	a	c	d	c	c	b	d	d	a	b		