JUPITER ACADEMY

FULL TEST 5 PHYSICS

NEET-UG - Physics

Time Allowed: 1 hour

General Instructions:

ANSWER ANY 45 QUESTIONS

Attempt any 45 questions

- The speed (v) of ripples on the surface of water depends on surface tension (*σ*), density (*ρ*) and wavelength (*λ*). [4]
 The square of speed (v) is proportional to:
 - a) $\rho\lambda\sigma$ b) $\frac{\lambda}{\sigma\rho}$ c) $\frac{\rho}{\sigma\lambda}$ d) $\frac{\sigma}{\rho\lambda}$
- Using dimensional analysis which of the following is correct (m is relativistic mass, m₀ is rest mass, V is the [4] velocity of particle and c is the velocity of light)?

a)
$$m = \frac{m_0}{\sqrt{1 - \frac{V^2}{c^2}}}$$

b) $m = \frac{m_0}{\sqrt{1 - V^2}}$,
c) $m = \frac{m_0}{\sqrt{1 - c^2 V^2}}$
d) $m = \frac{m_0}{\sqrt{1 - c^2}}$

3. What is the number of significant figures in 0.310×10^3 ?

- c) 2 d) 6
- A particle moving with uniform acceleration has velocity 6 m/s at a distance of 5 m from the initial position. [4]
 After moving another 7 m, the velocity becomes 8 m/sec. The initial velocity and acceleration of the particle are:
 - a) 4 m/s, 4 m/s^2 b) 4 m/s, 2 m/s^2 c) 2 m/s, 4 m/s^2 d) 6 m/s, 1 m/s^2

5. A stone falls freely from rest from a height h and it travels a distance $\frac{9h}{25}$ in the last second. The value of h is: [4]

a) 122.5 m b) 145 m

c) 100 m d) 200 m

6. **Assertion (A):** The projection of $(3\hat{i} - 4\hat{k})$ on the y-axis is 3 units. **Reason (R):** The projection of \vec{A} along y-axis is $\vec{A} \cdot \hat{j}$.

- a) Both A and R are true and R is the correctb) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false. d) A is false but R is true.
- 7. If maximum and minimum values of the resultant of two forces acting at a point are 7 N and 3 N respectively, [4] the smaller force is equal to
 - a) 4 N b) 2 N

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[4]

Maximum Marks: 180

c) 3 N

d) 5 N

- 8. Waterfalls from a height of 60 m at the rate 15 $\frac{kg}{s}$ to operate a turbine. The losses due to frictional forces are [4] 10% of energy. How much power is generated by the turbine? Take g = 10 m/s².
 - a) 10.2 kW b) 7.0 kW c) 8.1 kW d) 12.3 kW
- 9. In elastic collision, 100% energy transfer takes place when

a)
$$m_1 = m_2$$
 b) $m_1 < m_2$

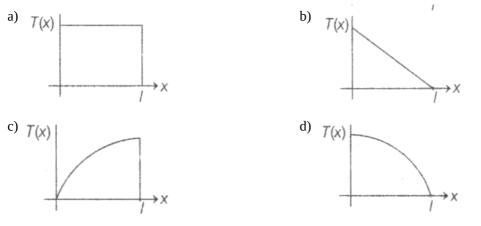
c)
$$m_1 = 2 m_2$$
 d) $m_1 > m_2$

10. Two particles of the same mass m are moving in circular - orbits because of force, given by $F(r) = \frac{-16}{r} - r^3$. [4] The first particle is at a distance r = 1, and the second, at r = 4. The best estimate for the ratio of kinetic energies of the first and the second particle is closest to

a)
$$3 \times 10^{-3}$$

c) 6×10^{-2}
d) 6×10^{2}

A uniform rod of length l is being rotated in a horizontal plane with a constant angular speed about an axis [4] passing through one of its ends. If the tension generated in the rod due to rotation is T(x) at a distance x from the axis, then which of the following graphs depicts it most closely?



12. A wheel has moment of inertia 5 kg m². If 10⁵ J of work is done in producing rotational kinetic energy, then the **[4]** wheel attains an angular speed equal to

a) 200 rad/s	b) 100 rad/s
c) 20 rad/s	d) 10 rad/s

13. Three identical thin rods each of length l and mass M are joined together to form a letter H. The moment of [4] inertia of the system about the rod joining the outer sides is:

a)
$$\frac{Ml^2}{4}$$
 b) $\frac{4Ml^2}{12}$
c) $\frac{Ml^2}{3}$ d) $\frac{2Ml^2}{6}$

14. The time period of a geostationary satellite at a height of 36000 km is 24 hrs. A spy satellite orbits very close to [4] the earth surface (R = 6400 km). What will be its time period?

a) 1.5 hrs	b) 1 hr
c) 2 hrs	d) 4 hrs

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The kinetic energies of a planet in an elliptical orbit about the sun, at positions A, B and C are K_A, K_B and K_C [4] respectively. AC is the major axis and SB is perpendicular to AC at the position of the sun S as shown in the figure. Then:

	figure. Then:		
	a) $K_{A} < K_{B} < K_{C}$	b) $K_A > K_B > K_C$	
	c) $K_B < K_A < K_C$	d) $K_B > K_A < K_C$	
16.	A work of 2 $ imes$ 10 ⁻² J is done on a wire of length 50 cr	n and area of cross-section 0.5 mm ² . If Young's modulus	[4]
	of the material of the wire is 2 \times 10 10 N/m 2 , then the	wire must be:	
	a) stretched by 0.707 mm	b) stretched by 0.407 mm	
	c) elongated to 50.1414 cm	d) contracted by 2.0 mm	
17.	Radius of a soap bubble is increased from R to 2R. We	ork done in this process in terms of surface tension is	[4]
	a) $36 \ \pi R^2 S$	b) $48 \pi R^2 S$	
	c) $12 \pi R^2 S$	d) $24 \pi R^2 S$	
18.	The coefficient of volumetric expansion of mercury is	$18 \times 10^{5} ^{\circ}\text{C}$ The thermometer bulb has a volume of 10^{6}	[4]
	m ³ and cross-section of the stem is 0.002 cm ² . Assum length of the mercury column at 100 °C will be	ing that bulb is filled with mercury at 0 $^{\circ}$ C the increase in	
	a) 18 mm	b) 18 cm	
	c) 9 cm	d) 9 mm	
19.	An electric heater supplies heat to a system at a rate of rate of increase in internal energy is:	120 W. If system performs work at a rate of 90 Js ⁻¹ , the	[4]
	a) 60 Js ⁻¹	b) 30 Js ⁻¹	
	c) 90 Js ⁻¹	d) 210 Js ⁻¹	
20.	The temperature of the system decreases in the proces	s of:	[4]
	a) adiabatic expansion	b) isothermal compression	
	c) free expansion	d) isothermal expansion	
21.	How much heat energy in joules must be supplied to 1 temperature by 40°C at constant pressure? (Mol. wt. o		[4]
	a) 50 R	b) 80 R	
	c) 60 R	d) 70 R	
22.	SHM could be related to		[4]
	a) non-uniform circular motion	b) uniform circular motion	
	c) straight line motion	d) projectile motion	
23.	For waves propagating in a medium, identify the prop	erty that is independent of the others	[4]

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	a) Frequency	b) All these depend on each other	
	c) Velocity	d) Wavelength	
24.	Assertion (A): If two spherical conductors of different electric field intensities will be equal. Reason (R): Surface charge density = $\frac{\text{Total charge}}{\text{area}}$.	nt radii have the same surface charge densities, then their	[4]
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
25.	A charge Q is kept at the centre of a circle of radius r.	If permittivity of free space is \in_0 then the work done in	[4]
	carrying a charge q along the diameter of the circle wi	ill be:	
	a) $\frac{qQ}{(8\pi\varepsilon_0 r)}$	b) zero	
	c) $\frac{qQ}{(4\pi\varepsilon_0\varepsilon_r r)}$	d) $\frac{qQ}{(2\pi\varepsilon_0)}$	
26.	Assertion (A): A parallel plate capacitor is connected	across battery through a key. A dielectric slab of dielectric	[4]
	constant K is introduced between the plates. The energy	gy which is stored becomes K times.	
	Reason (R): The surface density of charge on the plat	te remains constant or unchanged.	
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
27.	Assertion (A): The tyres of aircrafts are slightly cond	ucting.	[4]
	Reason (R): If a conductor is connected to ground, th	e extra charge induced on conductor will flow to ground.	
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
28.	A fuse wire is a wire of:		[4]
	a) high resistance and high melting point	b) low resistance and low melting point	
	c) high resistance and low melting point	d) low resistance and high melting point	
29.	A steady current of 1 A is flowing through the conductor section of the conductor in 1 sec is:	ctor. The number of electrons flowing through the cross-	[4]
	a) 6.25×10^{15}	b) 6.25×10^{18}	
	c) 6.25×10^{17}	d) 6.25×10^{19}	
20	Very end since a second identical mariety and a final	$n = 10 \Omega$ and each conclusion of complexity and construction	[4]

30. You are given several identical resistances each of value $R = 10 \Omega$ and each capable of carrying a maximum [4] current of one ampere. It is required to make a suitable combination of these resistances of 5 Ω which can carry a current of 4 ampere. The minimum number of resistances of the type R that will be required for this job is:

- a) 10 b) 4
- c) 20 d) 8
- 31. **Assertion (A):** The internal resistance of a cell is constant.

Reason (R): Ionic concentration of the electrolyte remains same during use of a cell.

a) Both Assertion (A) and Reason (R) are true	b) Both Assertion (A) and Reason (R) are true,
and Reason (R) is the correct explanation of	but Reason (R) is not the correct
the Assertion (A).	explanation of the Assertion (A).
c) Assertion (A) is true, but Reason (R) is	d) Assertion (A) is false and Reason (R) is also

When a current of 5 mA is passed through a galvanometer having a coil of resistance 15 Ω , it shows full-scale 32. [4] deflection. The value of the resistance to be put in series with the galvanometer to convert it into a voltmeter of range 0-10 V is:

false.

b) $4.005 \times 10^3 \Omega$ a) $1.985 \times 10^3 \Omega$ d) 2.045 \times 10³ Ω

false.

c) 2.535 \times 10³ Ω

33.

- A closely wound solenoid of 2000 turns and area of cross-section $1.6 \times 10^{-4} \text{m}^2$, carrying a current of 4.0 A, is [4]
- suspended through its centre allowing it to turn in a horizontal plane. What is the magnetic moment associated with the solenoid?
 - a) 3.18 Am² b) 2.08 Am²

34. A small coil of radius r is placed at the centre of a large coil of radius R, where R >> r. The two coils are [4] coplanar. The mutual induction of the coils is proportional to

1

a)
$$\frac{r}{R^2}$$
 b) $\frac{r}{R}$
c) $\frac{r^2}{R}$ d) $\frac{r^2}{R^2}$

- 35. A 5 cm long solenoid having 10 ohm resistance and 5 mH inductance is joined to a 10 V battery. At steady state, [4] the current through the solenoid (in ampere) will be:
 - a) 1 b) 2
 - c) zero d) 5
- In a wave $E_0 = 100 \text{ Vm}^{-1}$. Find the magnitude of Poynting's vector: 36.
 - a) 26.5 Wm⁻² b) 13.25 Wm⁻² d) 19.7 Wm⁻² c) 18.25 Wm⁻²
- In X-ray tube when the accelerating voltage is halved, the difference between the wavelengths of K_{lpha} line and 37. [4] minimum wavelength of continuous X-ray spectrum:
 - a) becomes half b) becomes more than two times c) becomes less than two times d) remains constant
- 38. Radius of curvature of human eye is 0.78 cm. For an object at infinity, image is formed at 3 cm behind the [4] refracting surface. The refractive index of eye is

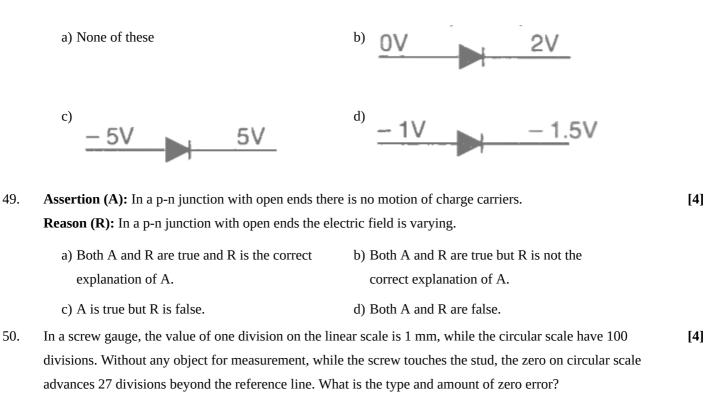
a) 6.2	b) 3
c) 1.35	d) 1

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39.	In a Young's double slit experiment, the separation of fringes, the distance D of the screen from the slits sl	of the two slits is doubled. To keep the same spacing of nould be made:	[4]
	a) $\frac{D}{\sqrt{2}}$	b) 4D	
	c) 2D	d) $\frac{D}{2}$	
40.	Which of the following is a dichroic crystal?		[4]
	a) Selenite	b) Tourmaline	
	c) Mica	d) Quartz	
41.	Assertion (A): We cannot get a diffraction patterns	from a wide slit illuminated by monochromatic light.	[4]
	Reason (R): In the diffraction pattern, all the bright	bands are not of the same intensity.	
	a) Both A and R are true and R is the correct explanation of A.	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
42.	Light of wavelength 4000 $\stackrel{0}{A}$ is incident on a metal penergy of the emitted photoelectrons would be	plate whose work function is 2 eV. The maximum kinetic	[4]
	a) 1.5eV	b) 2.0eV	
	c) 0.5eV	d) 1.1eV	
43.	A photocell connected in an electrical circuit is place I flows in the circuit. What will be the current in the	ed at a distance d from a source of light. As a result, current circuit, when the distance is reduced to d/3 ?	[4]
	a) 6I	b) ¹ / ₃ I	
	c) I	d) 9I	
44.	The ground state energy of hydrogen atom is –13.6	eV. The orbital radius of the electron is	[4]
	a) 8.6 $ imes 10^{-11}$ m	b) 6.4 $ imes 10^{-11}$ m	
	c) 5.3 $\times 10^{-11}$ m	d) 7.5 $ imes 10^{-11}$ m	
45.	The mass of an atomic nucleus is less than the sum	of the masses of its constituents. The mass defect is:	[4]
	 a) converted into energy which binds the nucleons together 	b) converted into heat energy	
	c) wasted	d) converted into electric energy	
46.	In a middle of the depletion layer of a reverse biased	d p-n junction, the	[4]
	a) electric field is maximum	b) potential is zero	
	c) potential is maximum	d) electric field is zero	
47.	A transistor is operated in common emitter configur	ration at constant collector voltage V_{C} = 1.5V such that a	[4]
	change in the base current from 100 μA to 150 μA mA. The current gain β is	produces a change in the collector current from 5 mA to 10	
	a) 100	b) 50	
	c) 75	d) 67	

48. Which of the following is forward biased?

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a) Negative, 0.27 mm	b) Positive, 0.27 mm

c) Negative, 0.027 mm

d) Positive, 0.027 mm

Maximum Marks : 200

Chemistry Model paper 5 NEET-UG - CHEMISTRY

Time Allowed : 50 mins

General Instructions:

Answer any 45 questions

Section A

- 1) SO_2CI_2 on reaction with excess of water results into acidic mixture $SO_2Cl_2 + 2H_2O \rightarrow H_2SO_4 + 2HCl$ 16 moles of NaOH is required for the complete neutralisation of the resultant acidic mixture. The number of moles of SO_2Cl_2 used is: [4] a) 4 b) 16 c) 8 d) 2
- A compound with molar mass 180 is acylated with CH₃COCl to get a compound with molar mass 390. The number of amino groups present per molecule of the former compound is: [4]
 - a) 2 b) 6 c) 4 d) 5
- The angular momentum of an electron in 2p orbital is:
 [4]
 - a) $\frac{h}{\sqrt{2}\pi}$ b) $\frac{h}{4\pi}$ c) $\frac{2h}{\pi}$ d) $\frac{h}{2\pi}$
- 4) How many waves are present in 1 km length of a radio wave having frequency 155× 10¹⁷ Hz? [4]
 a) 25.8× 10⁴
 b) 5.16× 10⁶
 c) 25.8× 10⁷
 d) 5.16× 10¹³
- 5) ElementE belongs to the period 4 and group 16 of the periodic table. The valence shell electron configuration of the element, which is just above E in the group is [4]
 a) 3s².3p⁴
 b) 4d¹⁰.5s², 5p⁴
 c) 3d¹⁰.4s², 4p⁴
 d) 2s², p⁴
- 6) Which of the following is the **correct** order of ionisation energy?

i. $Be^+ > Be$ ii. $Be < Be^+$ iii. C > Beiv. B > Be[4] a) B, C b) C, D c) B, A d) A, C

- 7) Which of the following molecule is/are non polar? i. XeF_2
 - ii. PCl_3F_2 iii. XeF_4
 - iv. All of these [4]

[7]			
a)	С	b)	В
c)	D	d)	А

8) In $H_6P_6O_{18}$ and P_4O_{10} how many P - O - P bonds are present respectively? [4]

a)	6, 4	b)	6, 2
c)	6, 6	d)	6, 5

9) If x, y, z represents the bond length of P - O linkage as in a given ion, then which order is correct in given

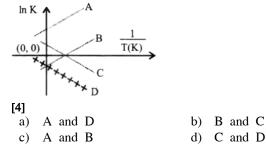
options? $\begin{array}{ccc}
& & & & & \\ & & & & \\ & & & & \\ H - P - & & & \\ H - P - & & & \\ \mu & & \\ H_2 P O_3^- & & & \\ H_2$

- 10) For the reaction; $3O_2 \longrightarrow 2O_3$; $\Delta H = +ve$. We can say that: [4]
 - a) Ozone is less stable than oxygen and ozone decomposes forming oxygen readily
 - b) Ozone is less stable than oxygen
 - c) Oxygen is less stable than ozone and oxygen readily forms ozone
 - d) Ozone is more stable than oxygen
- 11) Given, $C_{(graphite)} + O_2(g) \longrightarrow CO_2(g); \Delta_r H^\circ = -393.5$ kJ mol⁻¹ $H_2(g) + \frac{1}{2} O_2(g) \longrightarrow H_2O(l); \Delta_r H^\circ = -285.8$ kJ mol⁻¹ $CO_2(g) + 2H_2O(l) \longrightarrow CH_4(g) + 2O_2(g); \Delta_r H^\circ = +890.3$ kJ mol⁻¹ Based on the above thermochemical equations, the value of $\Delta_r H^\circ$ at 298 K for the reaction, $C_{(graphite)} + 2H_2(g) \longrightarrow CH_4(g)$ will be [4] a) +78.8 kJ mol⁻¹ b) - 144.0 kJ mol⁻¹ c) +144.0 kJ mol⁻¹ d) - 74.8 kJ mol⁻¹ 12) The K values of acetic acid hypochlorous acid and
- 12) The K_a values of acetic acid, hypochlorous acid and formic acid are 1.74 × 10⁻⁵, 3.0 × 10⁻⁸ and 1.8 × 10⁻⁴ respectively. Which of the following orders of pH of 0.1 mol dm⁻³ solutions of these acids is correct? [4]
 - a) Formic acid > Acetic acid > Hypochlorous acid
 - b) Formic acid > Hypochlorous acid > Acetic acid
 - c) Hypochlorous acid > Acetic acid > Formic acid
 - d) Acetic acid > Hypochlorous acid > Formic acid
- 13) For reaction, PCl₃(g) + Cl₂(g) ⇒ PCl₅(g), the value of K_cat 250°C is 26 mol litre ⁻¹. The value of K_p at this temperature will be: [4]
 a) 0.83 atm ⁻¹
 b) 0.61 atm ⁻¹
 - c) 0.57 atm^{-1} d) 0.46 atm^{-1}
- 14) If the salts M_2X , QY_2 and PZ_3 have the same solubilities, (but < 0.1 M) their, K_{sp} values are related as: [4]

a) $K_{sp}(M_2X) = K_{sp}(QY_2) < K_{sp}(PZ_3)$ b) $K_{sp}(M_2X) > K_{sp}(QY_2) > K_{sp}(PZ_3)$ c) $K_{sp}(M_2X) > K_{sp}(QY_2) = K_{sp}(PZ_3)$ d) $K_{sp}(M_2X) = K_{sp}(QY_2) > K_{sp}(PZ_3)$

15) Which of the following lines CORRECTLY show the temperature dependence of equilibrium constant, K, for





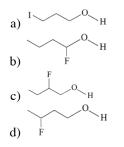
16) Balance the following redox reaction occurring in acidic medium and identify the total number of reactant and product species having coefficients which are prime numbers.

Fe ²⁺	$+ \operatorname{Cr}_2 \operatorname{O}_7^{2-} \longrightarrow \operatorname{Fe}^{3+}$	$+ Cr^{3+}$	[4]
a)	3	b)	1
c)	4	d)	2

- 17) A sample of H_2O_2 solution labelled as 22.4 volume has density 248 g/litre. Select the correct statements about this fact: [4]
 - a) Mass of $H_2O_2 = 68$ g per litre b) $M_{H_2O_2} = 2$ and $M_{H_2O_2} = 1.11$ c) All of these d) Mola function of $H_2O_2 = 0.167$
 - d) Mole fraction of $H_2O_2 = 0.167$

18) Water gas is prepared by ____. [4]

- a) Passing steam over hot coke
- b) Passing air over hot coke
- c) Heating oxalic acid with concentrated sulphuric acid
- d) Dehydration of formic acid in the presence of sulphuric acid
- 19) Select the correct statement regarding B₂H₆. [4]
 - a) It has only 2c 2e⁻ bond
 - b) Hybridisation of boron is sp³
 - c) It is planar
 - d) It does not react with NH3
- 20) In which of the following compounds the hydroxylic proton is most acidic? [4]

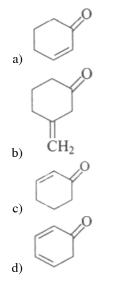


21) Arrange the following carbanions in decreasing order of stability:

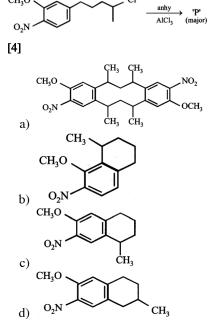
 $\begin{array}{cccc} & \underset{(P)}{\overset{\ominus}{\operatorname{CH}_2 = \overset{\ominus}{\operatorname{CH}_2 + \overset{\bullet}{\operatorname{CH}_2 + \overset{$

22) The IUPAC name of the following compound is:

- a) 2 nitro 4 hydroxymethyl 5 amino benzaldehyde
- b) 3 amino 4 hydroxymethyl 5 nitrobenzaldehyde
- c) 4 amino 2 formyl 5 hydroxymethyl nitrobenzene
- d) 5 amino 4 hydroxymethyl 2 nitrobenzaldehyde
- 23) Which of the following has longest C O bond? [4]



24) The major product 'P' formed in the given reaction is: $CH_{3}O \sim O \sim C^{C1}$



25) The number of geometrical isomers possible with the

struc	ture	/	\checkmark	\checkmark		
is		[4]				
a)	4				b)	5
c)	6				d)	8

- 26) Formation of a solution from two components can be considered as:
 - i. Pure solvent \rightarrow separated solvent molecules, Δ H₁
 - ii. Pure solute \rightarrow separated solute molecules, Δ H₂
 - iii. Separated solvent and solute molecules \rightarrow solution, Δ H_3

Solution so formed will be ideal if: [4]

a)
$$\Delta$$
 H_{soln.}= Δ H₃ - Δ H₁ - Δ H₂
b) Δ H_{soln.}= Δ H₁ + Δ H₂ + Δ H₃

- c) Δ H_{soln.}= Δ H₁ Δ H₂ + Δ H₃ d) Δ H_{soln.}= Δ H₁ + Δ H₂ - Δ H₃
- 27) An aqueous solution contains 35% acetic acid and 46% ethanol. The mole fractions of acetic acid, ethanol and , respectively. [4] water are
 - 0.22, 0.39, 0.39 0.35, 0.46, 0.19 a) b) 0.33, 0.33, 0.33 d) 0.22, 0.22, 0.56 c)
- 28) A depolariser used in dry cell batteries is: [4] a) Sodium phosphate b) Ammonium chloride Manganese dioxide c)
 - d) Potassium hydroxide
- 29) Which of the following complex will show maximum conductance? [4]
 - b) $[Cr(NH_3)_4Cl_2]Cl$ a) Cr(NH₃)₅Cl]Cl₂ c) $Cr(NH_3)_6$]Cl₃ d) $[Cr(NH_3)_3Cl_3]$
- 30) The rate equation for the reaction, $2A + B \rightarrow C$ is found to be, rate = K [A][B]. The correct statement in relation to this reaction is: [4]
 - a) K is independent of [A]and [B]
 - b) Rate of formation of C is twice the rate of disappearance of A
 - c) Unit of K is s⁻¹
 - d) $T_{1/2}$ is constant
- 31) Which one of the given statement for order of the reaction is not correct? [4]
 - a) Order of reaction is equal to sum of the powers of concentration terms in differential rate law
 - b) Order cannot be fractional
 - c) Order can be determined experimentally
 - d) It is not affected with the stoichiometric coefficient of reactant
- 32) Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar? [4]

a) Ca < Ba < S < Se < Ar b) Ca < S < Ba < Se < Arc) S < Se < Ca < Ba < Ar d) Ba < Ca < Se < S < Ar

33) Identify X, Y and Z in the following reaction. (Equation not balanced)

 $Clo + NO_2 \rightarrow \underline{X} \xrightarrow{H_2O} \underline{Y} + \underline{Z}$ [4]

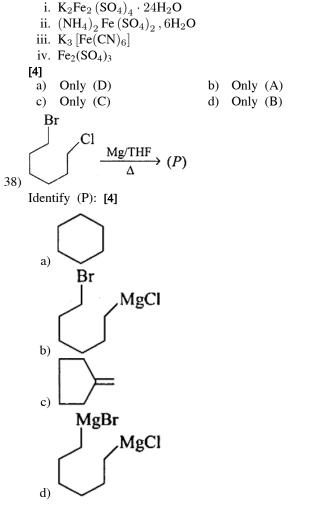
- a) $X = CINO_3$, $Y = Cl_2$, $Z = NO_2$
- b) $X = CINO_2$, Y = HCl, $Z = HNO_2$
- c) $X = CIONO_2$, Y = HOCI, $Z = NO_2$
- d) $X = ClONO_2$, Y = HOCl, $Z = HNO_3$
- 34) Assuming complete ionization, same moles of which of the following compounds will require the least amount of acidified $KMnO_4$ for complete oxidation? [4] a) FeC₂O₄ b) FeSO₃
 - c) FeSO₄ d) $Fe(NO_2)_2$
- 35) Which of the following pair will have effective magnetic moment equal [4] -2

a)	Cr ⁺³ and Mn ⁺²	b) Cr^{+2} and Fe^+
c)	Ti ⁺² and V ⁺²	d) V^{+2} and Sc^{+3}

36) The number of possible isomers of an octahedral $\operatorname{complex}[\operatorname{Co}(\operatorname{C}_2\operatorname{O}_4)_2(\operatorname{NH}_3)_2]^{-1}$ is [4] 2 a) b) 3 1

c)	4			d)

37) Which will not give test of all the ions present in it?



39) In the following reaction the most probable product will be: Br

$$[4] \begin{bmatrix} H_{H_{2}C} - CH_{3} & \frac{\partial_{H}}{\partial_{N}^{2}} \\ H_{3}C - H_{4} & H_{3}C - H_{4} \\ H_{3}C - H_{4} & H_{4} \\ H_{4} - CH_{3} & H_{4} \\ H_{4} - CH_{4} & H_{4} \\ H_{4} - CH$$

40)

c) d) None of these

41) On reacting with Na, alcohols give sodium alkoxides and liberate H_2 . In this reaction, alcohols behave as

4

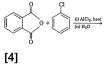
[4]

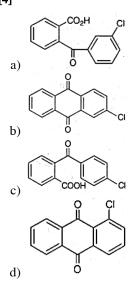
c)

- Weak bases a) Weak acids
- Strong acids b) d) Neutral species
- 42) Which one of the following statements is correct?
 - i. Nitration of hexamethylenetetramine yields mesityl oxide.
 - ii. Acetone forms a cyclic ketal on its treatment with ethyl alcohol.
 - iii. Benzophenone reacts with sodium bisulphite to form benzophenone sodium bisulphite.
 - iv. Acetaldehyde reacts with benzyl amine to form a Schiff base.

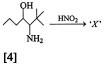
[4]

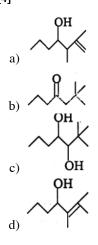
- Option (iii) b) Option (iv) a)
- Option (i) Option (ii) c) d)
- 43) The major product of the following reaction is



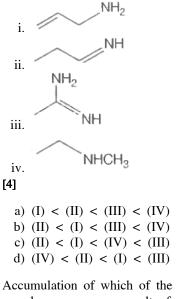


44) Predict the major productX in the following reaction:





45) The increasing order of basicity of the following compounds is



- 46) Accumulation of which of the following molecules in the muscles occurs as a result of vigorous exercise? [4]
 - a) Glucose b) Lactic acid
 - c) Glycogen d) Pyruvic acid
- 47) The formulas of A and B for the following reaction sequence

Fructose
$$\xrightarrow{HCN}_{H_30^+} A$$

(i) NaBH₄ B

[4]

(

a) A =
$$C_7H_{14}O_8$$
, B = C_6H_{14}

b) A =
$$C_7H_{13}O_7$$
, B = $C_7H_{14}O$
c) A = $C_7H_{14}O_8$, B = $C_6H_{14}O_6$

d) A =
$$C_7H_{12}O_8$$
, B = C_6H_{14}

- 48) Which purification technique is used for high boiling liquid compound (decomposes near its boiling point)? [4]
 - a) Fractional distillation
 - b) Steam distillation
 - c) Reduced pressure distillation
 - d) Simple Distillation
- 49) A mixture of o hydroxyacetophenone and hydroxyacetophenone can be separated by [4]
 - a) Sublimation
 - b) Steam distillation
 - c) Fractional crystallization
 - d) Distillation
- 50) Heat absorbed by calorimeter, thermometer and stirrer during measurement of heat in an experiment is called . [4]
 - a) Enthalpy constant
- b) Entropy constant
- c) Cryoscopic constant d) Calorimeter constant

JUPITER ACADEMY

BOTANY MODEL PAPER-5

NEET-UG - Biology

Maximum Marks: 180

Time Allowed: 1 hour

General Instructions:

- For each correct response, the candidate will get 4 marks.
- For each incorrect response, one mark will be deducted from the total scores.

	BOTA	ANY (Section-A)	
1.	Identify the correct sequence of taxa in the hierarc	hy:	[4]
	a) Phylum, class, family, species, order	b) Species, genus, family, order, class	
	c) Class, family, species, genus, order	d) Species, genus, phylum, family, class	
2.	Who was Known as The Darwin of the 20th centu	ry?	[4]
	a) Aristotle	b) de Candolle	
	c) Ernst Mayr	d) Linnaeus	
3.	Mumps is a:		[4]
	a) Fungal disease	b) Protozoan disease	
	c) Viral disease	d) Bacterial disease	
4.	Adhesive pad of fungi penetrates the host with the	help of	[4]
	a) hooks and suckers	b) softening by enzymes	
	c) only by mechanical pressure	d) mechanical pressure and enzymes	
5.	Which of the following is a parthenocarpic fruit?		[4]
	a) Papaya	b) Pomegranate	
	c) Apple	d) Orange	
6.	Cycas possesses two cotyledons but it is not dicot	because of:	[4]
	a) Naked seeds	b) Monocot like stem	
	c) Circinate ptyxis	d) Compound leaves	
7.	In typological concept of classification:		[4]
	a) Phylogeny is taken into consideration	b) All known characters and evidences are	
		taken into consideration	
	c) Only plants are classified	d) Only a few characters are considered	
8.	In angiosperms, each pollen grain produces two sp	perms. What do these sperms do in fertilization of a flower?	[4]
	A. Each one fertilizes a separate egg cells to give	rise to two seeds.	
		es antipodal cell that gives rise to the endocarp of the fruit.	
	C. Both fertilize a single egg cell.		

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D. One fertilizes an egg cell and the other fertilizes the polar nuclei that for food reserve tissue.

9.

a) Only B	b) Only C
c) Only A	d) Only D
Which one of the following statements is not true?	
a) Pollen grains are rich in nutrients, and they are used in the form of tablets and syrups.	 b) Honey is made by bees by digesting pollen collected from flowers.
c) The flowers pollinated by flies and bats secrete foul odour to attract them.	 d) Pollen grains of some plants cause severe allergies and bronchial afflictions in some people.

10. The given figure shows a typical structure of monocotyledonous seeds. Identify A, B, C, D and E parts marked [4] in the given figures.

	Seed coat & fruit-wall- Aleurone layer- C D Plumule		
	B B $Radicle E$		
	a) A - Endosperm, B - Embryo, C - Scutellum,D - Coleoptile, E - Coleorhiza	b) A - Embryo, B - Endosperm, C - Scutellum,D - Coleoptile, E - Coleorhiza	
	c) A - Embryo, B - Endosperm, C - Scutellum, D - Coleorhiza, E - Coleoptile	d) A - Endosperm, B - Embryo, C - Scutellum, D - Coleorhiza, E - Coleoptile	
11.	Pedicellate flowers arising from a single point form:		[4]
	a) Umbel	b) Verticillaster	
	c) Cymose head	d) Capitulum	
12.	Casparian strips occur in:		[4]
	a) Endodermis	b) Epidermis	
	c) Cortex	d) Pericycle	
13.	Mendel conducted experiments for		[4]
	a) 4 years	b) 6 years	
	c) 7 years	d) 5 years	
14.	Incomplete dominance is found in:		[4]
	a) Pisum sativum	b) Both Pisum sativum and Antirrhinum majus	
	c) Antirrhinum majus	d) Leguminosae	
15.	E.coli has only 4.6 $\times 10^6$ base pairs and completes the	process of replication within 18 minutes; then the average	[4]
	rate of polymerisation is approximately		
	a) 1000 base pairs/second	b) 2000 base pairs/second	
	c) 4000 base pairs/second	d) 3000 base pairs/second	
16.	Which level of regulation involves controlling the rate	at which mRNA is translated into protein?	[4]

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2/6

	a) Translation control	b) Post-transcriptional control	
	c) Transcriptional control	d) Post-translational control	
17.	DNA is not present in:		[4]
	a) Mitochondria	b) Ribosomes	
	c) Chloroplast	d) Nucleus	
18.	Which of the following statements regarding cell wa	ll is false?	[4]
	a) They are found inside the plasma membrane of a cell.	b) The main constituent of a primary cell wall is cellulose molecules.	
	c) Secondary cell walls contain lignin, a substance that makes them stronger than primary cell walls.	d) They are found in plants but not in animals.	
19.	Agents which produce allergy is known as:		[4]
	a) Allergens	b) Antigens	
	c) Oncogenes	d) proto-oncogene	
20.	Which one of the following is not a property of cance	erous cells whereas the remaining three are?	[4]
	a) They do not remain confined in the area of formation	b) They compete with normal cells for vital nutrients	
	c) They divide in an uncontrolled manner	d) They show contact inhibition	
21.	In which of the following stages chromosomes align the spindle get attached to the kinetochores of sister of	at the equator and the microtubules from opposite poles of chromatids?	[4]
	a) Telophase	b) Anaphase - I	
	c) Metaphase - II	d) Prophase - II	
22.	Veldts of Africa and Pampas of South America are:		[4]
	a) Chaparral biomes	b) Rain forest biomes	
	c) Temperate biomes	d) Grassland biomes	
23.	Pyramid of number is inverted in case of:		[4]
	a) Grassland ecosystem	b) Forest ecosystem	
	c) Pond ecosystem	d) Desert ecosystem	
24.	Waste water treatment generates a large quantity of s	ludge, which can be treated by:	[4]
	a) Floe	b) Oxidation pond	
	c) Anaerobic digesters	d) Chemicals	
25.	Symbol of WWF is:		[4]
	a) White bear	b) Panda	
	c) Hombill	d) Tiger	
26.	Select correct option regarding to biodiversity richne	ess of certain groups in different areas on earth:	[4]

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	a) Birds: Columbia > Greenland >NewYork	b) Entire biodiversity: Norway > Columbia	
	c) Birds: Amazon Rain forest > India	d) Vascular Plant: Midwest USA > Equador	
27.	Which one of the following pair is correctly matche	ed to the wild life and national park?	[4]
	a) Periyar-Tiger	b) Manas-Elephant	
	c) Gir forest-Tiger	d) Corbett park-Asiatic lion	
28.	Histone protein and RNA synthesis occur in:		[4]
	a) G ₁ - phase	b) G ₂ - phase	
	c) S - phase	d) Early anaphase	
29.	Meiosis results in:		[4]
	a) All of these	b) Reduction in the number of chromosomes	
	c) Production of gametes	d) Introduction of variation	
30.	Photorespiration is characteristic of:		[4]
	a) CAM plants	b) All of these	
	c) C ₃ plants	d) C ₄ plants	
31.	Identify the wrong statement:		[4]
	A. Carotenoids protect chlorophyll from photo-oxid	dation	
	B. Antenna is a system including all pigments exce		
	C. Absorption maxima of PS-I and PS-II is 680 nm D. More than one	and 700 nm respectively	
	a) C	b) B	
	c) D	d) A	141
32.	Dark reaction of photosynthesis in C_3 plants helps i	n synthesis of:	[4]
	a) O ₂	b) ATP	
	c) NADPH ₂	d) PGAL	
33.	First stable product of Calvin cycle has:		[4]
	a) 3 carbon atoms	b) 6 carbon atoms	
	c) 2 carbon atoms	d) 4 carbon atoms	
34.	Oxidative phosphorylation is the formation of:		[4]
	a) ATP in respiration	b) ATP in photosynthesis	
	c) NADPH ₂ in respiration	d) NADPH ₂ in photosynthesis	
35.	Plant growth is unique because:		[4]
	a) Plants not retain the capacity for unlimited	b) Plants retain the capacity for limited growth	
	growth throughout their life	throughout their life	
	c) Plants retain the capacity for unlimited	d) Plants retain the capacity for unlimited	
	growth during some part of their life	growth throughout their life	

BOTANY (Section-B)

Attempt any 10 questions

36.	Philosophic zoologique was written by :		[4]
	a) Spencer	b) Lamarck	
	c) de Vries	d) Mendel	
37.	Albugo is included in:		[4]
	a) Basidiomycetes	b) Phycomycetes	
	c) Ascomycetes	d) Deuteromycetes	
38.	Which one of the following is correct statement?		[4]
	 a) Pteridophyte gametophyte has a protonemal and leafy stage 	b) In gymnosperm female gametophyte is free living	
	c) Origin of seed habit can be traced in pteridophytes	 d) Antheridiophores and archegoniophores are present in pteridophytes 	
39.	Geitonogamy involves:		[4]
	a) Fertilization of a flower by the pollen from another flower of the same plant.	 b) Fertilization of a flower by the pollen from a flower of another plant belonging to a distant population. 	
	c) Fertilization of a flower by the pollen from the same flower.	 d) Fertilization of a flower by the pollen from a flower of another plant in the same population. 	
40.	Velamen and spongy tissue are found in:		[4]
	a) Parasitic roots	b) Epiphytic roots	
	c) Breathing roots	d) Tuberous roots	
41.	A plant with genotype AABbCC is selfed F_2 phenot	ypic ratio would be:	[4]
	a) 3 : 1	b) 1 : 1	
	c) 27 : 9 : 9 : 9 : 3 : 3 : 3	d) 9 : 3 : 3 : 1	
42.	The number of bases per turn in D-DNA:		[4]
	a) 8	b) 9	
	c) 10	d) 11	
43.	The filaments present in cilia and flagella are compo	osed of:	[4]
	a) Microfibrils	b) Microfilaments	
	c) Microvilli	d) Microtubules	
44.	What are the advantages of gobar gas over convention	onal utilization?	[4]
	i. It is most efficient source of energy.		
	ii. It is used as good fertilizer.		
	iii. It reduces the chances of spreading of pathogens	,	

	a) (i) and (iii) only	b) (ii) and (iii) only	
	c) All of these	d) (i) and (ii) only	
45.	The organelles involved with photorespiration are:		[4]
	a) Mitochondria, chloroplasts and ribosomes	b) Mitochondria, peroxisomes and chloroplast	
	c) Mitochondria, peroxisomes and	d) Mitochondria, nucleus and ribosomes	
	glyoxysomes		
46.	Which of the followings is mainly produced by the a	ctivity of anaerobic bacteria on sewage?	[4]
	a) Mustard gas	b) Marsh gas	
	c) Laughing gas	d) Propane	
47.	The components of ecosystem are seen to function as	s a unit when you consider the following aspects:	[4]
	a) Productivity	b) Decomposition	
	c) All of these	d) Energy flow	
48.	Dwarfness can be controlled by treating the plant wit	th:	[4]
	a) Auxin	b) Gibberellic acid	
	c) Antigibberellin	d) Cytokinin	
49.	Antigibberellin is:		[4]
	a) Cycocel	b) Plastoquinone	
	c) IAA	d) Ubiquinone	
50.	The difference between C4 and C3 plants lies in		[4]
	a) Primary carbon dioxide acceptor.	b) type of photophosphorylation.	
	c) electron carriers involved in light reaction.	d) absence of RuBisCO in C4 plants.	

JUPITER ACADEMY

ZOOLOGY MODEL PAPER 5

NEET-UG - Biology

Maximum Marks: 180

Time Allowed: 1 hour

General Instructions:

2.

3.

4.

5.

6.

- For each correct response, the candidate will get 4 marks.
- For each incorrect response, one mark will be deducted from the total scores.

ZOOLOGY (Section-A)

1. Which one of the following statements is totally wrong about the occurrence of notochord while the other three [4] are correct?

a) It is present only in larval tail in Ascidians	 b) It is replaced by a vertebral column in adult frog 	
c) It is present throughout life in Amphioxus	d) It is absent throughout life in humans from the very beginning	
Which of the following is commonly called Pearl og	yster?	[4]
a) Limulus	b) Chaetopleura	
c) Dentalium	d) Pinctada	
Which of the following organism is correctly match	ed with its common name?	[4]
a) Aplysia - sea mouse	b) Ancylostoma - pinworm	
c) Aurelia - comb jelly	d) Adamsia - sea anemone	
The ciliated epithelial cells are required to move parare mainly present in:	rticles or mucus in a specific direction. In humans, these cell	s [4]
a) Eustachian tube and Salivary duct	b) Bile duct and Bronchioles	
c) Bronchioles and Fallopian tubes	d) Fallopian tubes and Pancreatic duct	
	raph. (i) help is stop substances from leaking eep neighbouring cells together (iii) facilitate the the cytoplasm of adjoining cells.	[4]
a) (i) Gap junctions (ii) Adhering junctions (iii) Tight junctions	b) (i) Tight junctions (ii) Gap junctions (iii) Adhering junctions	
c) (i) Adhering junctions (ii) Gap junctions (iii) Tight junctions	d) (i) Tight junctions (ii) Adhering junctions (iii) Gap junctions	
Match the columns and find correct combination:		[4]
(A) Earthworm	(i) Pulmonary]
(B) Human	(ii) Gills	1

	(C) Prawn	(iii) Tracheal	
	(D) Insects	(iv) Cutaneous	
	a) (A)-(iv), (B)-(i), (C)-(ii), (D)-(iii)	b) (A)-(i), (B)-(ii), (C)-(iii), (D)-(iv	
	c) (A)-(iv), (B).(ii), (C)-(i), (D)-(iii)	d) (A)-(iii), (B)-(ii), (C)-(iv), (D).(i)	
•	Haemoglobin has least affinity for:		[4]
	a) Same affinity for all of these	b) Carbon monoxide	
	c) Carbon dioxide	d) Oxygen	
	Match the column I (organs) with column II (functions)) and choose the correct option.	[4]

7.

9.

12.

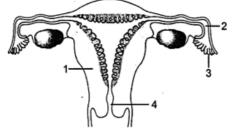
Column I (Organs)	Column II (Functions)
A Nose	(i) stops food from going down into lungs.
B Epiglottis	(ii) produces sound.
C Pharynx	(iii) traps bacteria as well as dust.
D Larynx	(iv) allows air to pass from nose to oesophagus.

a) A - (iv), B - (ii), C - (iii), D - (i)	b) A - (ii), B - (iii), C - (i), D - (iv)	
c) A - (i), B - (iv), C - (ii), D - (iii)	d) A - (iii), B - (i), C - (iv), D - (ii)	
Vocal cords are mainly made up of:		[4]
a) Bones	b) Collagen fibers	
c) Cartilage	d) Elastic fibers	

d) Diaphragm

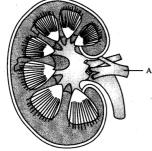
10. Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some [4] food. This coughing would have been due to improper movement of

- a) Tongue b) Neck
- c) Epiglottis
- Below given diagram is sectional view of female reproductive system. The labelled part represents: 11.



a) 1-Uterus, 2-Fallopian tube, 3-Fimbriae, 4b) 1-Perimetrium, 2-Ampulla, 3-Fimbriae, 4-Vagina Cervical canal c) 1-Endometrium, 2-Ampulla, 3-Fimbriae, 4d) 1-Myometrium, 2-Ampulla, 3-Fimbriae, 4-Cervical canal Cervical canal day after fertilisation. Blastocyst embeds in the endometrium on ____ [4] a) fifth b) seventh d) sixth c) eighth

13.	The acrosome plays important role in:		[4]
	a) Motility of sperm	b) Penetration of ovum by sperm	
	c) The fusion of pronuclei of the gametes	d) Clevage	
14.	Which factor is responsible for an explosive impact of	n the growth of the population?	[4]
	a) Decreased maternal mortality rates	b) Better detection and cure of STDs	
	c) Increased health facilities along with better	d) Better awareness about sex related matters	
	living conditions		
15.	Progestogens alone or in combination with estrogens	can be used as a contraceptive in the form of	[4]
	a) Injections only	b) Implants only	
	c) Pills only	d) Pills, injections and implants	
16.	Earliest reptiles evolved in the period:		[4]
	a) Devonian	b) Carboniferous	
	c) Ordovician	d) Silurian	
17.	According to Hugo de Vries, the mechanism of evolution	tion is:	[4]
	a) Minor mutations	b) Phenotypic variations	
	c) Saltation	d) Multiple step mutations	
18.	Refer the given figure of the structure of kidney and a	inswer the question.	[4]



Identify the marked structure and its function.

then further into the circulation.

- a) Ureter, transmits urine from the kidney to the bladder.
 b) Renal column, helps the renal cortex to be better anchored.
 c) Renal vein, takes the blood they have been purified by the kidneys back to the heart and blood.
- 19. The substance which is completely reabsorbed from the filtrate in the renal tubule under normal condition is: [4] a) Glucose b) Water c) Salt d) Ammonia 20. [4] Kidney crystals are solid clusters of: a) Calcium nitrate and uric acid b) Calcium carbonate and uric acid c) Calcium metabisulphite and uric acid d) Phosphate and uric acid 21. An acromian process is characteristically found in mammals in: [4]

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a) Skull

c) Pelvic girdle

d) Sternum

22. Match the following and mark the correct option:

Column I		Column II	
(A) Fast muscle fibres		(i) Myoglobin	
(B) Slow muscle fibres		(ii) Lactic acid	
(C) Actin filament		(iii) Contractile unit	
(D) Sarcomere		(iv) I-band	
a) (A)-(i), (B)-(ii), (C)-(iv), (D)-(iii)	b) (A	.)-(ii), (B)-(i), (C)-(iii), (D)-(iv)	
c) (A)-(iii), (B)-(ii), (C)-(iv), (D)-(i)	d) (A	a)-(ii), (B)-(i), (C)-(iv), (D)-(iii)	
Glenoid cavity articulates:			[4]
a) Scapula with acromion	b) C	avicle with scapula	
c) Clavicle with acromion	d) H	umerus with scapula	
Choroid becomes thick in the anterior part of eye	to form the	2:	[4]
a) pupil	b) iri	S	
c) lens	d) ci	liary body	
Which of the following is not a function of hypoth	nalamus?		[4]
a) Thermoregulation	b) Se	ex drives or Libido	
c) Creative thinking and consciousness	d) H	unger and satiety	
Cell performing diapedesis and phagocytosis:			[4]
a) Neutrophil	b) R	BC	
c) Eosinophil	d) Ba	asophil	
Male sex hormone is:			[4]
a) All of these	b) Pr	ogesterone	
c) Testosterone	d) A	drenaline	
Action of the peptide hormone on a target cell is n	nediated by	y:	[4]
a) Cyclic AMP	b) A	ГР	
c) A cytoplasmic receptor	d) Ej	binephrine	
Consider the following three statements and mark	the right o	ptions.	[4]
i. The plasma without clotting factors is called lymph.			
ii. Thymus is called the graveyard of RBCs.			
iii. Thrombocytes are the cell fragments produced	I from meg	akaryocytes.	
a) Both (ii) and (iii) are correct	b) Bo	oth (i) and (iii) are correct	
c) Only (iii) is correct	d) O	nly (i) correct	
Which one of the following statements is correct r	regarding b	lood pressure?	[4]

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	a) 105/5	50 mm Hg makes one very active	b) 100/55 mm Hg is considered an ideal blood pressure	
		90 mm Hg is considered high and ires treatment	d) 190/110 mm Hg may harm vital organs like brain and kidney	
31.	Blood pres	ssure is measured by		[4]
	a) Phon	ocardiogram	b) Electrocardiogram	
	c) Steth	oscope	d) Sphygmomanometer	
32.	Which of t	he following contributed in popula	rising the PCR (POlymerase chain reactions) technique ?	[4]
	a) Avai	lability of cheap deoxyribonucleoti	des b) Availability of 'Thermostable' DNA polymerase	
	c) Avai	lability of synthetic primers	d) Easy availability of DNA template	
33.	Which one	of the following is a case of wrong	g matching?	[4]
	Option			
	(a)	Somatic hybridization	Fusion of two diverse cell	
	(b)	Vector DNA	Site for tRNA synthesis	
	(c)	Micro propagation	In vitro production of plants in large numbers	
	(d)	Callus	Unorganized mass of cells	
	a) Optic	on (a)	b) Option (d)	
	c) Optio		d) Option (c)	
34.		red variety of transgenic basmati ric		[4]
		not require chemical fertilisers and th hormones.	b) gives high yield and is rich in vitamin A.	
	c) gives arom	s high yield but has no characteristi na.	c d) is completely resistant to all insect pests and diseases of paddy.	
35. Probiotics are:			[4]	
	a) cance	er inducing microbes.	b) safe antibiotics.	
	c) new	kind of food allergens.	d) live microbial food supplement.	
ZOOLOGY (Section-B)				
36.	Attempt any 10 questions			[4]
50.	 36. Which of the following characteristics is correct for reptilia? a) Body is covered with moist skin and is devoid of scales, the ear is represented by a tympanum, alimentary canal, urinary, and reproductive tracts open into a common cloaca. b) Fresh water animals with bony endoskeleton and airbladder regulates buoyancy. 		-	ניין
			and airbladder regulates buoyancy.	
	c) Body	y covered with dry and cornified sk	in, d) Marine animals with cartilaginous	

	scales over the body are epidermal; they do	endoskeleton and body are covered with	
	not have external ears.	placoid scales.	
37.	Select the correct sequence of organs in the alimentary	y canal of cockroach starting from the mouth:	[4]
	a) Pharynx \rightarrow Oesophagus \rightarrow Gizzard \rightarrow Crop \rightarrow Ileum \rightarrow Colon \rightarrow Rectum	b) Pharynx \rightarrow Oesophagus \rightarrow Gizzard \rightarrow Ileum \rightarrow Crop \rightarrow Colon \rightarrow Rectum	
	c) Pharynx \rightarrow Oesophagus \rightarrow Crop \rightarrow Gizzard $-$	→ H) μ H haryn&olørOesd β hargun → Ileum → Crop → Gizzard → Colon → Rectum	
38.	The blood protein involved in blood coagulation is :		[4]
	a) Fibrino protein	b) Prothrombin	
	c) Thrombin	d) Fibrinogen	
39.	In man, voice box is known as:		[4]
	a) Larynx	b) Syrinx	
	c) Inhalation and exhalation	d) Bronchus	
40.	Fertilizers are emitted by:		[4]
	a) Polar bodies	b) Mature eggs	
	c) Sperms	d) Immature eggs	
41.	Here are unlabelled diagram A, B, C, D of different by (A) (B) (C) (C) (D)	arrier methods. Select the correct option regarding them :	[4]
	a) A-Male condom, B-Female condom, C-	b) A-Condom, B-Vaults, C-CuT, D-Implants	
	CuT, D-Implants		
	c) A-Male condom, B-Cervical cap, C-CuT, D-	d) A-Condom, B-Female condom, C-CuT, D-	
42.	Vaults Life is not found on the moon because of:	Vaults	[4]
42.			[4]
	a) Absence of carbon	b) Absence of water	
40	c) Absence of nitrogen	d) Absence of oxygen	F 4 1
43.	What is the cause that right kidney is at slightly lower		[4]
	 a) Due to improper ascentment of kidney during embryonic life. 	b) Presence of colon in right side during I.U.L.	
	 c) Presence of liver in right side therefore kidney does not ascends properly in I.U.L. 	d) None of the these	
44.	Tetanus is a sustained contraction of the muscle is due	e to:	[4]

a) Auto immune disease
b) Ca⁺⁺ deficiency
c) Parathyroid deficiency
d) Bacterial disease

45. Broca's area is located in:

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	a) Ventral part of temporal lobe	b) Dorsal part of optic lobe	
	c) Lateral part of frontal lobe	d) forward part of temporal lobe	
46	The synthesis of ADH is done by:		[4]
	a) Posterior pituitary	b) Middle pituitary	
	c) Hypothalamus	d) Anterior pituitary	
47	Ail adrenal cortex hormones are:		[4]
	a) Peptide	b) Catecholamines	
	c) Steroid	d) Polypeptide	
48	RBC in mammals has no nucleus because:		[4]
	a) It has degenerated during developmen	t b) Nucleus decreases surface area	
	c) Nucleus is harmful for RBC	d) They do not have nucleus since early	
49	49. Study the following statements regarding recombinant DNA technology and select the incorrect ones.		[4]
	i. Taq polymerase extends the primers using the nucleotides provided in the reaction.		
	ii. Antibiotic resistance genes are considered as desirable genes in recombinant DNA technology.		
	iii. DNA fragments are separated according to their charge only in agarose gel electrophoresis.		
	iv. Transformation is a procedure through w bacterium.	which a piece of DNA is integrated in to the genome of a host	
		otein, host cells can be multiplied in a continuous culture.	
	vi. Downstream processing is one of the steps of polymerase chain reaction.		
	a) (i). (iii), and (v)	b) (iii) and (vi)	
	c) (i), (iv), and (v)	d) (ii), (iii), and (vi)	
50	First hormone prepared by genetic engineeri	ing is	[4]
	a) thyroxine	b) oxytocin	
	c) insulin	d) adrenaline	