

MOTION

Question Paper [CODE - 27395]

NEET PATTERN TEST Brahmastra Semi Major Test-04 (New pattern)

13th NEET - Phase 12

KOTA

Date: 16-Feb-2025

Duration: 3 Hours

Max Marks: 720

IMPORTANT INSTRUCTIONS

- The test is of 3 hours duration and the Test Booklet contains 180 multiple-choice questions (four options with a single correct answer) from Physics (45 Ques.), Chemistry (45 Ques.) and Biology (90 Ques.). [All Questions are compulsory]
- Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total score. The maximum marks are 720.
- Rough work is to be done in the space provided for this purpose in the Test Booklet only.
- Blank papers, Chpboards, Log tables, Slide Rule, Calculators, Cellular Phones, Pagers and Electronic Gadgets in any form are not allowed to be carried inside the examination hall.

GENERAL INSTRCUTION FOR FILLING THE OMR

- Use Blue/Black Ball Point Pen only for marking responses on Answer Sheet (OMR sheet).
- Indicate the correct answer for each question by filling appropriate bubble in your OMR answer sheet.
- While filling the bubbles please be careful about Question Number

महत्वपूर्ण निर्देश

- परीक्षा अवधि 3 घंटा है एवं परीक्षा पुस्तिका में भौतिकी (45 प्रश्न), रसायनशास्त्र (45 प्रश्न) एवं जीव विज्ञान (45 प्रश्न) विषयों से कुल 180 बहुविकल्पीय प्रश्न हैं (4 विकल्पों में से एक सही उत्तर है)। [सभी प्रश्न अनिवार्य हैं]
- प्रत्येक प्रश्न 4 अंक का है। प्रत्येक सही उत्तर के लिए परीक्षार्थी को 4 अंक दिए जाएंगे। प्रत्येक गलत उत्तर के लिए कुल योग में से एक अंक घटाया जाएगा। अधिकतम अंक 720 है।
- रफ कार्य इस परीक्षा पुस्तिका में केवल निर्धारित स्थान पर ही करें।
- खाली पेपर, किलप बोर्ड, लॉग टेबल, स्लाइड रूल, कैलकुलेटर, सेल्युलर फोन, पेजर और इलेक्ट्रॉनिक गैजेट्स को किसी भी रूप में परीक्षा हॉल के अंदर ले जाने की अनुमति नहीं है।

OMR भरने के लिए सामान्य निर्देश

- उत्तर पुस्तिका (OMR पुस्तिका) पर निशान लगाने के लिए केवल नीले/काले बॉल पाइट पेन का प्रयोग कर।
- उत्तर अपनी OMR उत्तर पुस्तिका में उपयुक्त गोले भरके प्रत्येक प्रश्न के लिए सही उत्तर अंकित करें।
- उत्तर गोले भरते समय प्रश्न संख्या पर ध्यान दें।

SYLLABUS

Physics

Magnetic Effects of Current and Magnetism, Electromagnetic Induction, Alternating Currents, Electromagnetic Waves, Dual Nature of Radiation and Matter, Atoms, Nuclei, Semiconductor - Electronics: Materials, Devices and Simple Circuits

Chemistry

Electrochemistry, p-block, d-and f-Block Elements, Aldehydes, Ketones and Carboxylic Acids, Amines, Salt Analysis

Biology

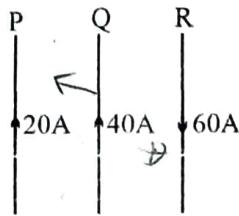
Organisms and populations, Ecosystem, Biodiversity and Conservation, Biotechnology Principles and Processes, Biotechnology and its Applications, Human Health and disease, Microbes in human welfare

[PHYSICS]

1. The momentum of a photon of energy $h\nu$ will be

- (1) $h\nu$
- (2) $h\nu/c$
- (3) $h\nu c$
- (4) h/ν

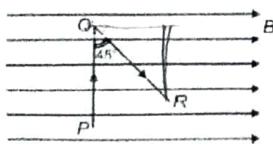
2. P, Q and R are long straight wires in air, carrying currents as shown. What is the direction of the resultant force on Q?



- (1) to the left
 - (2) to the right
 - (3) perpendicular to this page
 - (4) the same as that of the current in Q
3. The momentum of a photon is 3.3×10^{-29} kg m/sec. Its frequency will be

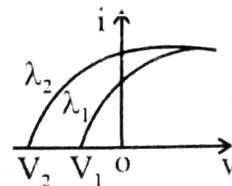
- (1) 3×10^3 Hz
- (2) 6×10^3 Hz
- (3) 7.5×10^{12} Hz
- (4) 1.5×10^{13} Hz

4. A bent current carrying conductor is placed in a region with uniform horizontal magnetic field. The magnetic field is parallel to the plane of the bent conductor. Ratio of magnitude of magnetic force on the two portions PQ and QR is [Given $PQ = 1$ m, $QR = 1.5$ m]



- (1) $1 : \sqrt{2}$
- (2) $2 : \sqrt{3}$
- (3) $\sqrt{2} : 3$
- (4) $2\sqrt{2} : 3$

5. In the given diagram if V represent the stopping potential and wavelength of incident light is λ . If $V_2 > V_1$ then



- (1) $\lambda_1 = \lambda_2$
- (2) $\lambda_1 > \lambda_2$
- (3) $\lambda_1 < \lambda_2$
- (4) none of these

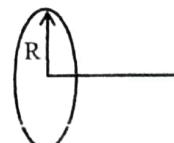
A point charge 0.2C is placed on the circumference of a non-conducting ring of radius 1m , which is rotating with constant angular acceleration of 2rad/s^2 . If ring starts motion at $t = 0$, then magnetic field at the centre of the ring at $t = 10\text{s}$, is

- (1) 3×10^{-7} tesla
- (2) 10^{-7} tesla
- (3) 4×10^{-7} tesla
- (4) 2×10^{-7} tesla

7. Ratio of wavelength of deuteron proton accelerated by equal potential-

- (1) $\frac{1}{\sqrt{2}}$
- (2) $\sqrt{\frac{2}{1}}$
- (3) $\frac{1}{2}$
- (4) $\frac{2}{1}$

8. Constant current I is flowing through a circular coil of radius R. At what distance from the centre will the magnetic field (on the axis) be maximum :



- (1) $\frac{R}{\sqrt{2}}$
- (2) $\frac{R}{2}$
- (3) R
- (4) zero

9.

Electrons in a certain energy level $n = n_1$, can emit 3 spectral lines. When they are in another energy level, $n = n_2$, they can emit 6 spectral lines. The ratio of orbital speeds of the electrons is

- (1) 4 : 3
- (2) 3 : 4
- (3) 2 : 1
- (4) 1 : 2

10. A wire of 6.28 m length carries 2A current is moulded in form of coil of 2 cm radius then magnetizing field at its centre-(1 Tesla = 10^4 orested)

- (1) 31.4 orested
- (2) 3.14 orested
- (3) 3.14×10^{-2} orested
- (4) 2500 orested

11. The de-Broglie wavelength of a neutron at 27°C is λ . What will be its wavelength at 927°C

- (1) $\lambda/2$
- (2) $\lambda/3$
- (3) $\lambda/4$
- (4) $\lambda/9$

12. Two current carrying loops of radius R and $2R$ carrying current I and $2I$ respectively are placed concentrically with their planes at right angle. The magnitude of resultant magnetic field at the centre will be

- (1) Zero
- (2) $\frac{\mu_0 I}{2R}$
- (3) $\frac{\mu_0 I}{\sqrt{2}R}$
- (4) $\frac{\sqrt{5}\mu_0 I}{2R}$

13. If E is total energy of electron in ground state of H-atom, then K.E. [K] and P.E. (U) of electron in that orbit will be - [assume $U_\infty = 0$]

- (1) $K = -E = -U$
- (2) $K = -U = -\frac{E}{2}$
- (3) $K = -E = -\frac{U}{2}$
- (4) $K = E = \frac{U}{2}$

14.

The magnetic field \vec{dB} due to a small current element $d\ell$ at a distance r and element carrying current i is,

- (1) $d\vec{B} = \frac{\mu_0}{4\pi} i \left(\frac{d\ell \times \vec{r}}{r} \right)$
- (2) $d\vec{B} = \frac{\mu_0}{4\pi} i^2 \left(\frac{d\ell \times \vec{r}}{r} \right)$
- (3) $d\vec{B} = \frac{\mu_0}{4\pi} i^2 \left(\frac{d\ell \times \vec{r}}{r^2} \right)$
- (4) $d\vec{B} = \frac{\mu_0}{4\pi} i \left(\frac{d\ell \times \vec{r}}{r^3} \right)$

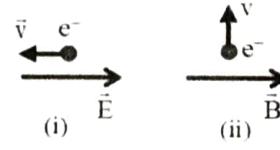
15. How many electrons, protons, and neutrons are there in a nucleus of atomic number 11 and mass number 24?

- (1) 11, 12, 13
- (2) 11, 11, 13
- (3) 12, 11, 13
- (4) 11, 13, 12

16. A charge particle is projected in magnetic field such that \vec{v} is perpendicular to \vec{B} then the power supplied by the magnetic force is

- (1) Positive
- (2) Negative
- (3) Zero
- (4) May be positive, negative or zero

17. An electron is moving through a field. It is moving (i) opposite an electric field (ii) perpendicular to a magnetic field as shown. For each situation the de-Broglie wave length of electron

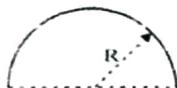


- (1) Increasing, increasing
- (2) Increasing, decreasing
- (3) Decreasing, same
- (4) Same, Same

18. Of the three basic forces, gravitational, electrostatic and nuclear, which are able to provide an attractive force between two neutrons -

- (1) electrostatic and gravitational only
- (2) electrostatic and nuclear only
- (3) electrostatic, nuclear and gravitational
- (4) nuclear and gravitational only

19. Magnetic moment of semi circular steel wire of radius 'R' is 'M'. If it is makes straight then magnetic moment is :-



- (1) $\frac{2M}{\pi}$
- (2) $\frac{\pi M}{2}$
- (3) πM
- (4) M

20. In most stable nuclei neutron number N and proton number Z has the relation -

- (1) $N < Z$
- (2) $N = Z$
- (3) $N > Z$
- (4) $N \geq Z$

21. Calculate the energy released when three alpha particles combine to form a ${}^6C^{12}$ nucleus. The atomic mass of ${}_2He^4$ is 4.002608 a.m.u.

- (1) 7.27 MeV
- (2) 6.27 MeV
- (3) 5.25 MeV
- (4) 8.21 MeV

22. Radius of current carrying coil is 'R'. Then ratio of magnetic fields at the centre of the coil to the axial point, which is $R\sqrt{3}$ distance away from the centre of the coil :-

- (1) 1 : 1
- (2) 1 : 2
- (3) 4 : 1
- (4) 8 : 1

23. When Boron is added as impurity to silicon , the resulting material is semiconductors

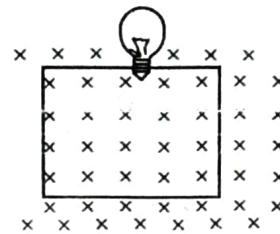
- (1) p-type
- (2) n-type
- (3) pn-type
- (4) none

24. The flux linked with a coil at any instant 't' is given by $\phi = 10t^2 - 50t + 250$. The induced emf at $t = 3s$ is -

- (1) 190V
- (2) -190V
- (3) -10V
- (4) 10V

25.

- A square wire loop of 10.0 cm side lies at right angles to a uniform magnetic field of 20T. A 10V light bulb is in a series with the loop as shown in the figure. The magnetic field is decreasing steadily to zero over a time interval Δt . The bulb will shine with full brightness if Δt is -



- (1) 20 ms
- (2) 0.02 ms
- (3) 2 ms
- (4) 0.2 ms

26.

- A Zener diode with a breakdown voltage of 4 V is connected in series [reverse biased] with a resistance R to a battery of emf 10 V. The maximum power dissipation rating for the Zener diode is 1 W. The value of R to ensure maximum power dissipation across the diode is

- (1) 12Ω
- (2) 24Ω
- (3) 36Ω
- (4) 6Ω

27.

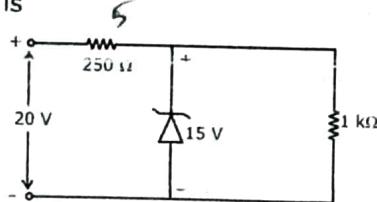
- A current of 2 ampere is flowing through a coil of radius 0.1 m and having 10 turns. The magnetic moment of the coil will be

- (1) $20A - m^2$
- (2) $2A - m^2$
- (3) $0.314 A - m^2$
- (4) $0.628 A - m^2$

28. If n_p and n_e be the numbers of holes and conduction electrons in an extrinsic semiconductor, then

- (1) $n_p > n_e$
- (2) $n_p = n_e$
- (3) $n_p < n_e$
- (4) $n_p \neq n_e$

29. A zener diode, having breakdown voltage equal to 15 V, is used in a voltage regulator circuit shown in figure. The current through the diode is

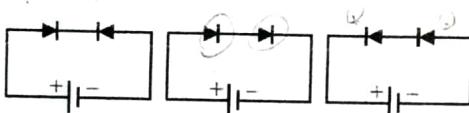


- (1) 20 mA
- (2) 5 mA
- (3) 10 mA
- (4) 15 mA

30. What is the value of inductance of a 25 cm long solenoid if it has 1000 turns and radius of its circular cross section is 5cm -

- (1) 0.02 H
- (2) 0.04 H
- (3) 0.01 H
- (4) 0.08 H

31. Two identical p-n junction may be connected in series with a battery in three ways (figure). The potential drops across the p-n junctions are equal in -



- (1) circuit 1 and 2
- (2) circuit 2 and 3
- (3) circuit 3 and 1
- (4) circuit 1 only

32. To get an OR gate from a NAND gate we need :

- (1) Only 2 NAND gate
- (2) Two NOT obtained from NAND and one NAND gate
- (3) 4 NAND gates and 2 AND gates obtained from NAND gate
- (4) None of these

33. Zener diode is used as -

- (1) Half wave rectifier
- (2) Full wave rectifier
- (3) voltage stabilizer
- (4) None

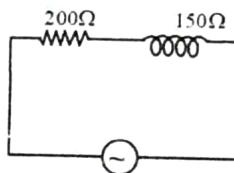
34. When a current changes from 2A to 4A in 0.05 sec in a coil, induced emf is 8 V. The self inductance of coil is-

- (1) 0.1 H
- (2) 0.2 H
- (3) 0.4 H
- (4) 0.8 H

35. For an alternating current $I = I_0 \cos \omega t$, what is the rms value and peak value of current-

- (1) $I_0, \frac{I_0}{\sqrt{2}}$
- (2) $\frac{I_0}{\sqrt{2}}, I_0$
- (3) $I_0, \frac{I_0}{\sqrt{2}}$
- (4) $2I_0, \frac{I_0}{\sqrt{2}}$

36. Impedance of the following circuit will be-



- (1) 150Ω
- (2) 200Ω
- (3) 250Ω
- (4) 340Ω

37. The graph between the stopping potential V_0 and frequency (n) of incident photons for photocell is a straight line with a slope -

- (1) h
- (2) eh
- (3) e/h
- (4) h/e

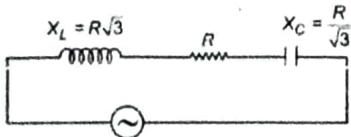
38. An electron and proton have the same de-broglie wavelength then the kinetic energy of electron

- (1) zero
- (2) infinite
- (3) equal kinetic energy of the proton
- (4) greater than kinetic energy of the proton

39. A resistor R , an inductor L and a capacitor C are connected in series to an oscillator of frequency n . If the resonant frequency is n_r , then the current lags behind voltage, when

- (1) $n = 0$
- (2) $n < n_r$
- (3) $n = n_r$
- (4) $n > n_r$

40. In a series LCR AC circuit shown below, the power factor is



- (1) $\sqrt{\frac{3}{7}}$
- (2) $\sqrt{\frac{2}{5}}$
- (3) $\sqrt{\frac{2}{3}}$
- (4) $\sqrt{\frac{3}{8}}$

41. In Rutherford's α -particle scattering experiment, what will be correct angle for α scattering for an impact parameter $b = \infty$?

- (1) 90°
- (2) 270°
- (3) 0°
- (4) 180°

42. Resonance frequency of a circuit is f . If the capacitance is made 4 times the initial value, then the resonance frequency will become.

- (1) $f/2$
- (2) $2f$
- (3) f
- (4) $f/4$

43. A and B are isotopes. B and C are isobars. If d_A , d_B and d_C be the densities of nuclei A, B and C respectively then -

- (1) $d_A > d_B > d_C$
- (2) $d_A < d_B < d_C$
- (3) $d_A = d_B = d_C$
- (4) $d_A = d_B < d_C$

44. What is the current in the circuit shown below



- (1) 0 amp
- (2) 10^{-2} amp
- (3) 1 amp
- (4) 0.10 amp

45. The output of a two input NOR gate is in state 1 when-

- (1) either input terminals is at 0 state
- (2) either input terminals is at 1 state
- (3) both input terminals are at 0 state
- (4) both input terminals are at 1 state

CHEMISTRY

[CHEMISTRY]

46. Borax bead test is given by :

- (1) Cu^{2+}
- (2) Fe^{2+}
- (3) Mn^{2+}
- (4) All of these

47. On heating KMnO_4 , one among the following is not formed :

- (1) K_2MnO_4
- (2) O_2
- (3) MnO_2
- (4) MnO

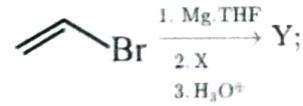
48. Resistance of a 0.1 M KCl solution in a conductance cell is 200 ohm and conductivity is 0.015 S cm^{-1} . The value of cell constant is :

- (1) 4.5 cm^{-1}
- (2) 3.0 cm^{-1}
- (3) 6.3 cm^{-1}
- (4) 5.2 cm^{-1}

49. When $\text{CH}_2=\text{CH}-\text{COOH}$ is reduced with LiAlH_4 , the compound obtained will be -

- (1) $\text{CH}_3-\text{CH}_2-\text{COOH}$
- (2) $\text{CH}_2=\text{CH}-\text{CH}_2\text{OH}$
- (3) $\text{CH}_3-\text{CH}_2-\text{CH}_2\text{OH}$
- (4) $\text{CH}_3-\text{CH}_2-\text{CHO}$

50. Consider the following sequence of reaction :



Y will be :

- (1)
- (2)
- (3)
- (4)

51. Metal salt (A) on treatment with dil H_2SO_4 gives effervescence. The produced gas turns lime water milky. If excess of produced gas is passed in it, a clear solution is obtained. The metal salt is

- (1) Chloride
- (2) Carbonate
- (3) Oxalate
- (4) Phosphate

52. Which of the following statements is wrong for actinides

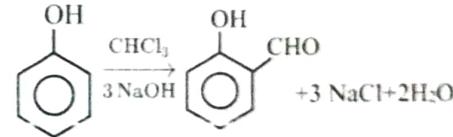
- (1) All actinides are radioactive
- (2) The maximum oxidation state exhibited by actinide ions is +7
- (3) All actinides are artificial i.e., man-made
- (4) All actinides have more complex magnetic property than lanthanides

53. Arrange the following metals in decreasing order of their oxidizing power.

Metal	E°_{red} (volt)
Ba	-2.90
Al	-1.66
Cr	-0.74
Na	-2.71

- (1) Cr > Ba > Na > Al
- (2) Cr > Al > Na > Ba
- (3) Al > Cr > Na > Ba
- (4) Ba > Na > Al > Cr

54. The given reaction is

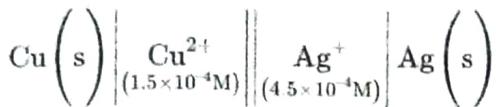


- (1) Carbylamine reaction
- (2) Cannizzaro's reaction
- (3) Reimer-Tiemann reaction
- (4) Wurtz reaction

55. Brown ring test is given by

- (1) $\overset{\ominus}{\text{NO}_2}$
- (2) $\overset{\ominus}{\text{NO}_3}$
- (3) $\text{S}_2\text{O}_3^{2-}$
- (4) $\overset{\ominus}{\text{NO}_2}$ and $\overset{\ominus}{\text{NO}_3}$

- 56.** Gibb's free energy (ΔG) for the given cell will be



[Given, $E_{\text{Cu}^{2+}/\text{Cu}}^\circ = 0.34 \text{ V}$, $E_{\text{Ag}^+/\text{Ag}}^\circ = 0.80 \text{ V}$, $\log(1.5) = 0.176$, $\log(4.5) = 0.653$]

- (1) -59234 J
- (2) -64520 J
- (3) -72375 J
- (4) -92375 J

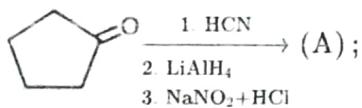
- 57.** Which series of elements have nearly the same atomic radii?

- (1) F, Cl, Br, I
- (2) Na, K, Rb, Cs
- (3) Li, Be, B, C
- (4) Fe, Co, Ni

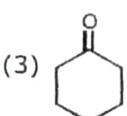
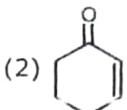
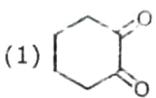
- 58.** Formaldehyde is warmed with 50% NaOH. The order of reaction that takes place is

- (1) 0
- (2) 1
- (3) 2
- (4) 3

SNV



Product 'A' will be :



(4) None of these

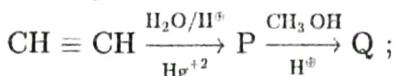
- 60.** Cations and anions of inorganic mixture can be identified by

- (1) Only dry test analysis
- (2) Only wet test analysis
- (3) Both dry as well as wet test analysis
- (4) Only by the use of mp

- 61.** In context with the transition elements, which of the following statements is incorrect?

- (1) In addition to the normal oxidation state, the zero oxidation state is also shown by these elements in complexes
- (2) In the highest oxidation states, the transition metal shows basic character and forms cationic complexes
- (3) In the highest oxidation states of the first five transition elements (Sc to Mn), all the 4s and 3d electrons are used for bonding
- (4) Once the d⁵ configuration is exceeded, the tendency to involve all the 3d electrons in bonding decreases

62.



Q is :

- (1)
- (2)
- (3)
- (4)

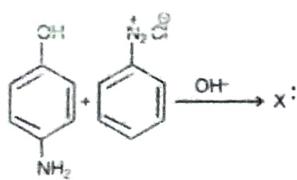
- 63.** A compound in which a metal ion M^{x+} ($Z=25$) has a spin only magnetic moment of $\sqrt{24} \text{ BM}$. The number of unpaired electrons in the compound and the oxidation state of the metal ion are respectively.

- (1) 4 and 2
- (2) 5 and 3
- (3) 3 and 2
- (4) 4 and 3

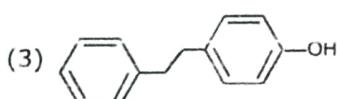
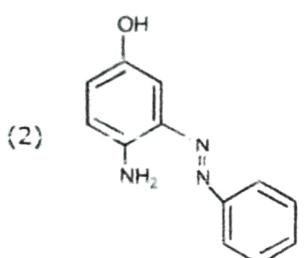
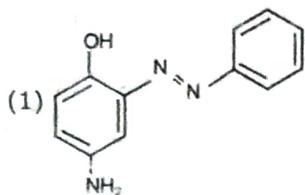
- 64.** Reduction potential of hydrogen electrode at $p_{\text{H}_2} = 10 \text{ atm}$ and $[\text{H}^+] = 10^{-2} \text{ M}$ will be :

- (1) -0.1 V
- (2) -0.2 V
- (3) -1.5 V
- (4) -0.15 V

65. Consider the reaction



here X is



(4) None of these

66. Which of the following ion is diamagnetic?

- (1) Nd^{3+}
- (2) La^{3+}
- (3) Tb^{3+}
- (4) Er^{3+}

67. The resistance of a deci normal solution of a salt occupying a volume between two platinum electrodes 1.80 cm apart and 5.4 cm^2 in area was found to be 50 ohm. Calculate the equivalent conductance of the solution-

- (1) $77.77 \text{ ohm}^{-1} \text{ cm}^2 \text{ equiv}^{-1}$
- (2) $55.66 \text{ ohm}^{-1} \text{ cm}^2 \text{ equiv}^{-1}$
- (3) $44.44 \text{ ohm}^{-1} \text{ cm}^2 \text{ equiv}^{-1}$
- (4) $66.66 \text{ ohm}^{-1} \text{ cm}^2 \text{ equiv}^{-1}$

68. In aqueous solution Eu^{2+} ion acts as

- (1) An oxidizing agent
- (2) A reducing agent
- (3) An acid
- (4) All of these

69. The reaction $\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Zn(s)}$ has a electrode potential of -0.76 V . This means.

- (1) Zn cannot replace hydrogen from acids
- (2) Zn is reducing agent
- (3) Zn is oxidizing agent
- (4) Zn^{2+} is a reducing agent

70. Aniline does not undergo Friedel-Crafts reaction because

- (A) It forms salt with the Lewis acid catalyst, AlCl_3 .
- (B) Nitrogen of aniline acquires negative charge.
- (C) Nitrogen of aniline acquires positive charge.
- (D) Nitrogen acts as a strong deactivating group in the further reaction.

Choose the correct answer from the options given below :

- (1) (A), (B) and (D) only
- (2) (A), (B) and (C) only
- (3) (A), (C) and (D) only
- (4) (B), (C) and (D) only

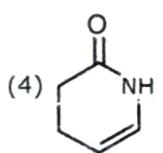
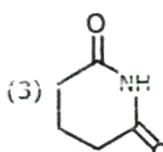
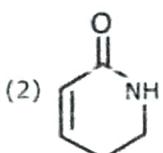
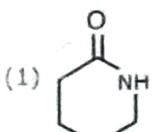
71. Transition elements form complexes because of:

- (1) Small cation size
- (2) Vacant d-orbitals
- (3) Large ionic charge
- (4) All are correct

72. Among the following the strongest base is :-

- (1) $\text{NH}_2 - \underset{\parallel}{\text{C}} - \text{NH}_2$
- (2) $\text{NH}_2 - \underset{\parallel}{\text{C}} - \text{NH}_2$
- (3) $\text{Ph} - \text{NH}_2$
- (4) $\text{CH}_3 - \text{NH} - \text{CH}_3$

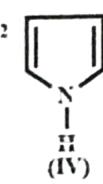
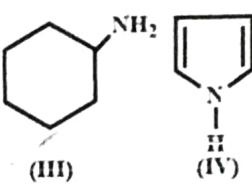
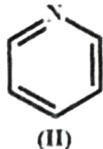
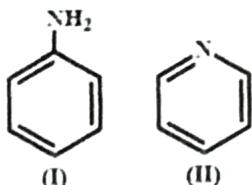
73. Which is most basic in given compounds ?



74. Which one of the following has strongest metallic bonding?

- (1) Fe
- (2) Sc
- (3) V
- (4) Cr

75. The decreasing order of basicity of the following amines is :



- (1) (II) > (III) > (IV) > (I)
- (2) (I) > (III) > (IV) > (II)
- (3) (III) > (II) > (I) > (IV)
- (4) (III) > (I) > (II) > (IV)

76. The actinoids showing +7 oxidation state are:

- (1) U, Np
- (2) Pu, Am
- (3) Np, Pu
- (4) Am, Cm

77. Nessler's reagent is used to detect

- (1) CrO_4^{2-}
- (2) PO_4^{3-}
- (3) MnO_4
- (4) NH_4^+

78. H_2S is passed through a solution of cation in HCl medium to precipitate cation of -

- (1) II-A group of cation analysis
- (2) II-B group of cation analysis
- (3) IV group of cation analysis
- (4) Both II-A and II-B gps.

79. Other things being the same, the E_{cell} of the Daniell cell may be increased by-

- (1) Keeping low temperature
- (2) Using large copper electrode
- (3) Using small zinc electrode
- (4) Decreasing the conc. of Cu^{2+}

80. Three faraday of electricity is passed through aqueous solutions of AgNO_3 , NiSO_4 and CrCl_3 kept in three vessels using inert electrodes. The ratio in mol in which the metals Ag, Ni and Cr will be deposited is

- (1) 1 : 2 : 3
- (2) 2 : 3 : 6
- (3) 6 : 3 : 2
- (4) 3 : 2 : 6

81. How many faraday are needed for the reduction of 20 mL of 0.5 M solution of KMnO_4 in acid medium ?

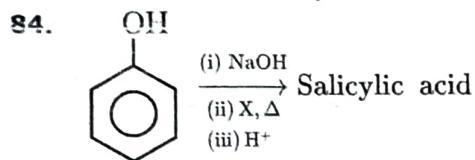
- (1) 5×10^{-2} faraday
- (2) 2×10^{-2} faraday
- (3) 3×10^{-2} faraday
- (4) 4×10^{-2} faraday

82. The transition metal present in vitamin B_{12} is:

- (1) Fe
- (2) Co
- (3) Ni
- (4) Mn

83. Which of the following expression correctly represents the equivalent conductance at infinite dilution of $\text{Al}_2(\text{SO}_4)_3$. Given that $\Lambda_{\text{Al}^{3+}}^\circ$ and $\Lambda_{\text{SO}_4^{2-}}^\circ$ are the equivalent conductances at infinite dilution of the respective ions : -

- (1) $\Lambda_{\text{Al}^{3+}}^\circ + \Lambda_{\text{SO}_4^{2-}}^\circ$
- (2) $(\Lambda_{\text{Al}^{3+}}^\circ + \Lambda_{\text{SO}_4^{2-}}^\circ) \times 6$
- (3) $\Lambda_{\text{Al}^{3+}}^\circ + \frac{1}{2} \Lambda_{\text{SO}_4^{2-}}^\circ$
- (4) $2\Lambda_{\text{Al}^{3+}}^\circ + 3\Lambda_{\text{SO}_4^{2-}}^\circ$



X in the above reaction is

- (1) CHCl_3
- (2) CO
- (3) CH_3COOH
- (4) CCl_4

85. The electronic configuration of actinoids cannot be assigned with degree of certainty because of
- (1) Overlapping of inner orbitals
 - (2) Free movement of electrons over all the orbitals
 - (3) Small energy difference between 5f and 6d levels
 - (4) None of the above

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

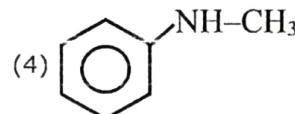
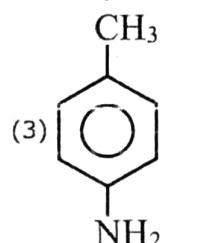
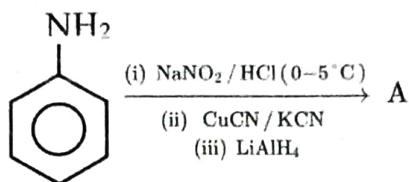
Assertion A : In equation $\Delta_r G = -nFE_{\text{cell}}$ value of $\Delta_r G$ depends on n.

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:

- (1) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**.
- (2) **A** is true but **R** is false.
- (3) **A** is false but **R** is true.
- (4) Both **A** and **R** are true and **R** is the correct explanation of **A**.

87. The correct structure of A is



88. The tendency to show complex formation is maximum in:

- (1) s-block elements
- (2) p-block elements
- (3) d-block elements
- (4) All have equal tendency

89. It is because of the inability of ns^2 electrons of the valence shell to participate in bonding that

- (1) Sn^{2+} is oxidizing while Pb^{2+} is reducing
- (2) Sn^{2+} and Pb^{2+} are both oxidizing and reducing
- (3) Sn^{4+} is reducing while Pb^{4+} is oxidizing
- (4) Sn^{2+} is reducing while Pb^{4+} is oxidizing

90. Match the column I with column II

	Column-I	Column-II
(A) Benzene sulphonyl chloride	(p)	Zwitter ion
(B) Sulphanilic acid	(q)	Hinsberg reagent
(C) Alkyl diazonium salts	(r)	Dyes
(D) Aryl diazonium salts	(s)	Conversion to alcohol

- (1) A-(p), B-(q), C-(r), D-(s)
- (2) A-(q), B-(p), C-(r), D-(s)
- (3) A-(p), B-(q), C-(s), D-(r)
- (4) A-(q), B-(p), C-(s), D-(r)

BIOLOGY

[BIOLOGY]

- 91.** Identify the correct match from the following column-I, II and III :-

Column-I	Column-II	Column-III
1. Eurythermal	a. Able to tolerate narrow range of temperature	i. 99% Animals
2. Stenothermal	b. A stage of suspended development	ii. Thermoregulation
3. Conformers	c. Body temp changes with ambient temp	iii. Zooplanktons
4. Diapause	d. Able to tolerate wide range of temp	iv. Microthermal

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

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

• (3) 1-d-ii, 2-a-iv, 3-c-i, 4-b-iii

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

- 92.** Match the list-I with list-II and select **correct** answer :

LIST-I	LIST-II
A Seeds and birds	i. Ammensalism
B Copepods and fishes	ii. Commensalism
C Parthenium and other plants	iii. Predation
D Branacles and whale	iv. Parasitism

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

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

• (3) A-iii, B-iv, C-i, D-ii

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

- 93.** Hibernation in bear and aestivation in fishes are examples of which of the following

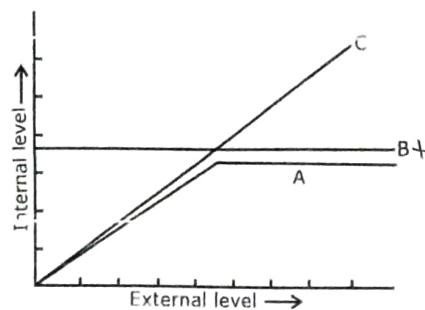
(1) Migration

(2) Regulation

(3) Conform

• (4) Suspend

- 94.** Identify the lines present in the given graph A, B and C.



(1) A - Partial regulators, B - Regulators, C - Endotherms

(2) A- Partial regulators, B - Ectotherms, C - Endotherms

• (3) A - Partial regulators, B - Regulators, C - Conformers

(4) A - Conformers, B - Ectotherms, C - Partial regulators

- 95.** The process of growth is maximum during:-

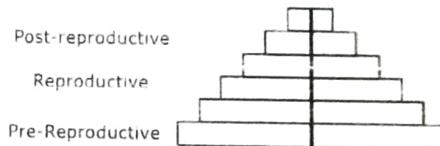
(1) Lag phase

(2) Senescence

(3) Dormancy

• (4) Log phase

- 96.** The age pyramid for human population is shown below.



Which of the following conclusion can be drawn from the given age pyramid?

(1) It represents that the population is young and growing

(2) It is a pyramid of declining population

• (3) It shows that the population is stable

(4) It shows that the population size is fluctuating

- 97.** Mutualism and proto-cooperation are

• (1) Positive interactions

(2) Negative interactions

(3) Both of these

(4) None of these

98. The prickly pear cactus became unusually abundant after its introduction in Australia, because it -

- (1) Had no coevolved herbivore
- (2) Had no secondary compounds
- (3) Formed new mycorrhizal association
- (4) Lost its thorn

99. A relationship in which the parasitic bird (Cuckoo) lays its egg in the nest of its host (Crow) and lets the host incubate them, is known as :-

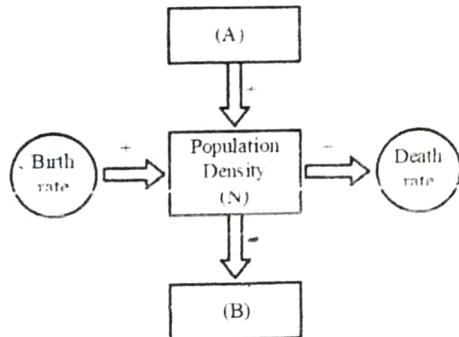
- (1) Commensalism
- (2) Mutualism
- (3) Brood parasitism
- (4) Antagonism

100. Match the following column-

Column-I	Column-II
A. Epiphytes	1. Cattle egret
B. Grazing cattle	2. Orchid on mango tree
C. Sea anemone	3. Clown fish

- (1) A-1, B-2, C-3
- (2) A-1, B-3, C-2
- (3) A-2, B-1, C-3
- (4) A-2, B-3, C-1

101. Box 'A' and 'B' respectively represents -



- (1) A – Immigration, B – Mortality
- (2) A – Emigration, B – Natality
- (3) A – Immigration, B – Emigration
- (4) A – Immigration, B – Migration

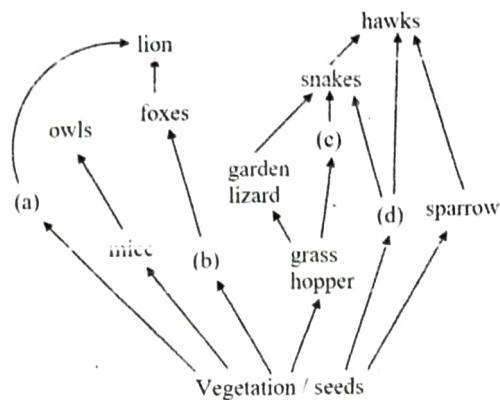
102. Mac Arthur showed that five closely related species of warblers living on the same tree were able to avoid competition and co-exist due to :

- (1) Abundant resources
- (2) Extinction of some other species
- (3) Behavioural differences in their foraging activities
- (4) Mutualism among them

103. If '+' sign is assigned to beneficial interaction, '-' sign to detrimental and '0' sign to neutral interaction, then the population interaction represented by '+', '-' refers to-

- (1) parasitism
- (2) mutualism
- (3) amensalism
- (4) commensalism

104. Identify the likely organisms (a), (b) (c) and (d) in the food web shown below-



- (1) (a)-squirrel (b)- cat (c)-rat (d)-pigeon
- (2) (a)-deer (b)-rabbit (c)-frog (d)- rat
- (3) (a)-dog (b)-squirrel (c)-bat (d)-deer
- (4) (a)-rat (b)-dog (c)-tortoise (d)- crow

105. In relation to Gross primary productivity and Net primary productivity of an ecosystem. Which one of the following statements is correct?

- (1) Gross primary productivity and Net primary productivity are one and same.
- (2) There is no relationship between Gross primary productivity and Net primary productivity
- (3) Gross primary productivity is always less than Net primary productivity.
- (4) Gross primary productivity is always more than Net primary productivity.

106. Which one of the following ecosystem types has the highest annual net primary productivity?

- (1) Temperate deciduous forest
- (2) Tropical rain forest
- (3) Tropical deciduous forest
- (4) Temperate evergreen forest

107. The correct order of the process of decomposition is

- (1) Catabolism - Fragmentation - Leaching - Humification - Mineralization
- (2) Catabolism - Fragmentation - Humification - Leaching - Mineralization
- (3) Fragmentation - Humification - Catabolism - Leaching - Mineralization
- (4) Fragmentation - Leaching - Catabolism - Humification - Mineralization

108. Which of the followings are functional attributes/ features of ecosystem:-

- (a) Stratification
 - (b) Dominance
 - (c) Energy flow
 - (d) Productivity
 - (e) Decomposition
- (1) a & b
 - (2) a, b, d & e
 - (3) c, d & e
 - (4) b, c & d

109. The transfer of energy through a terrestrial ecosystem is depicted by energy pyramids which of the following statement is true?

- (1) Ecological efficiency is highest for top consumers
- (2) About 10% of the energy from one trophic level is incorporated in to biomass of the next level
- (3) The energy lost as the heat in respiration is 10% of the available energy of each trophic level.
- (4) Only 25% of the energy in one trophic level is passed on the next level

110. Food webs are 3-D web of interrelations in which several food chains are interlinked. It helps to provide :

- (1) Alternate pathways for flow of energy
- (2) More variety and quality of food at each trophic level
- (3) Stability to ecosystem
- (4) All of these

111. Match list-I with list-II and select **correct** answer

List - I	List - II
(a) Primary consumer	(i) Phytoplankton
(b) Primary producer	(ii) Small fish
(c) Secondary consumer	(iii) Zooplankton
(d) Tertiary consumer	(iv) Fish eating bird

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

112. Pyramid of biomass of forest system is -

- (1) Inverted
- (2) upright
- (3) Irregular
- (4) regular

113. How many of the following statements are true about predators :

- A. They catch, kill and eat their prey
 - B. They are prey specific
 - C. They overexploit their prey leads to their extinction
 - D. All herbivores are predators
 - E. Acts as conduit for energy transfer
- (1) Two
 - (2) Four
 - (3) Three
 - (4) Five

114. Which of the following is omnivorous?

- (1) Frog
- (2) Lion
- (3) Deer
- (4) Man

115. Consider the following

- (a) Productivity
- (b) Decomposition
- (c) Energy flow
- (d) Nutrient cycling

A shallow water body (as an ecosystem) have:-

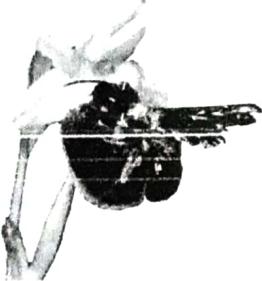
- (1) a and b
- (2) b and c
- (3) a, b and c
- (4) All a, b, c, d

116. Among the ecosystem mentioned below, where can one find maximum biodiversity?

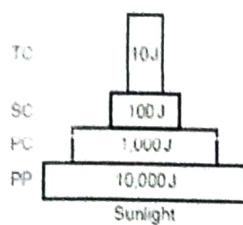
- (1) Mangroves
- (2) Desert
- (3) Coral reefs
- (4) Alpine meadows

117. 'Rivet Popper' hypothesis was proposed by:

- (1) David Tillmann
- (2) Alexander Van Humboldt
- (3) Paul Ehrlich
- (4) Norman Mayer

- 118.** Biodiversity is determined by :
- Number of individuals in an area
 - Species richness
 - Evenness
 - Both (2) and (3)
- 119.** Mark the correct option with respect to biodiversity hot spots.
- Ex-situ conservation
 - Cover more than 2% of the earth's land area
 - Regions with accelerated habitat loss
 - High frequency of ubiquitous species
- 120.** How many national parks have been developed in India :-
- 103
 - 90
 - 448
 - 14
- 121.** Which of the following is not an example of in-situ conservation ?
- Biosphere Reserves
 - National Parks
 - Wildlife Sanctuaries
 - Botanical gardens
- 122.** The following figure shows :
- 
- Fig flower is pollinated by moth
 - Yucca flower is pollinated by wasp
 - Orchid (ophrys) flower is pollinated by bee
 - Fig flower is pollinated by wasp
- 123.** The carrying capacity of a population means:-
- The rate at which the density of individuals increase overtime.
 - The maximum number of individuals which can be supported in a given environment
 - The proportion of individuals which are most responsible for population growth
 - The minimum number of individuals necessary to avoid extinction of the population
- 124.** Which of the following organisms have evolved reproductive strategy of breeding many times during their life time?
- Birds
 - Bamboo
 - Pacific salmon fish
 - All
- 125.** Direct food relation between two species of animals in which one animal kills and feeds on another is referred to as-
- Predation
 - Symbiosis
 - Parasitism
 - Scavenging
- 126.** Seals have a thick layer of fat (blubber) below their skin that act as an :
- Thermostat
 - Capacitor
 - Resistor
 - Insulator
- 127.** Association of cattle egret and grazing cattle represents
- Commensalism
 - Protocooperation
 - Mutualism
 - Amensalism
- 128.** The study of Interaction between living organisms and environment is called
- Ecosystem
 - Phytology
 - Phytogeography
 - Ecology
- 129.** Amount of living material present in different trophic levels at a given time is called
- Standing quality
 - Standing state
 - GPP
 - Standing crop

- 130.** The given ecological pyramid represents pyramid of energy in an ecosystem. What must be the amount of energy in the form of light available to this ecosystem :



- 10,000 J
- 1,00,000 J
- 1,000,000 J
- 10,000,000 J

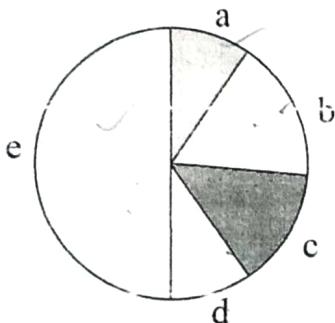
- 131.** Which of the following is **correct** for humus :

- It is a dark coloured crystallised substrate.
- It is highly resistant to microbial hydrolysis.
- It is rich in organic and inorganic nutrients.
- More than one option are correct

- 132.** In a terrestrial ecosystem such as forest, maximum energy is in which trophic level?

- T_1
- T_2
- T_3
- T_4

- 133.** Recognise figure and find correct match.



(1)

a	b	c	d	e
Fishes	Amphibians	Reptiles	Bird	Mammals

(2)

a	b	c	d	e
Mammals	Reptiles	Bird	Amphibians	Fishes

(3)

a	b	c	d	e
Mammals	Bird	Reptiles	Amphibians	Fishes

(4)

a	b	c	d	e
Amphibians	Fishes	Mammals	Reptiles	Bird

- 134.** Which of the following statement is **correct**?

- Species diversity, in general increases from poles to the equator
- Conventional taxonomic methods are equally suitable for higher plants and microorganisms
- India's share of global species diversity is about 18%
- There are about 25000 species of plants in India

- 135.** Scared groves found in several regions in India are an example of-

- in situ conservation
- ex situ conservation
- Reintroduction
- Restoration

- 136.** How many statements are correct

- Ascariasis is caused by intestinal parasite ascaris.
 - Ascariasis and amoebiasis both are transmitted through contaminated food and water.
 - Symptoms of ascariasis include constipation, abdominal pain, cramps and stool with excess mucus and blood.
 - House flies act as Mechanical carriers and serve to transmit the parasite from faeces of infected person to food and food products in amoebiasis disease.
- a, c are correct
 - b, c are correct
 - a, b, d are correct
 - c, d are correct

- 137.** What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism?
- The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.
 - It may get integrated into the genome of the recipient.
 - It may multiply and be inherited along with the host DNA.
 - The alien piece of DNA is not an integral part of chromosome.
 - It shows ability to replicate.

Choose the correct answer from the options given below:

- B and C only
- A and E only
- A and B only
- D and E only

- 138.** The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorized as
- Heterotrophic bacteria
 - Cyanobacteria
 - Chemosynthetic autotrophs
 - Archaeabacteria

- 139.** Which of the following is a correct statement regarding vaccination-
- Hepatitis-B vaccine is produced from YEAST.
 - Snakebites are treated with preformed antibodies against the venom.
 - A preparation of weakened pathogen is injected in TETANUS.
 - Antitoxin is a preparation containing antibodies against the toxin.

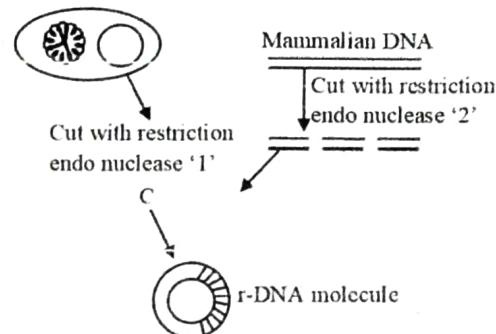
- 140.** Match the column I with column II with respect of the nomenclature of enzyme EcoR I and select the correct answer from codes given below.

Column - I	Column - II
A E	1 Ist in order of isolation
B CO	2 Name of genus
C R	3 Name of species
D I	4 Name of strain

- A-3 ; B-4 ; C-1 ; D-2
- A-2 ; B-3 ; C-4 ; D-1
- A-2 ; B-1 ; C-4 ; D-3
- A-2 ; B-3 ; C-1 ; D-4

- 141.** Roquefort cheese are ripened by following special organisms which gives a particular flavour:
- Bacteria
 - Actinomycetes
 - Agaricus
 - Fungi (Penicillium)

- 142.** The basic procedure involved in the synthesis of recombinant DNA molecule is depicted below. The mistake in the procedure is :



- Enzyme polymerase is not included
- The mammalian DNA is shown double stranded
- Only one fragment is inserted
- Two different restriction enzymes are used

- 143.** Human immuno deficiency virus (HIV) has a protein coat and a genetic material which is:
- single stranded DNA
 - single stranded RNA
 - double stranded RNA
 - double stranded DNA

- 144.** Industrial production of ethanol from starch is brought about by a certain species of:-
- Azotobacter
 - Lactobacillus
 - Saccharomyces
 - Penicillium

- 145.** Where does contact inhibition not operate ?
- Mature tissues
 - Cancer cells
 - Innervated cells
 - Non-innervated cells

146. Which of the following is not a vectorless method of gene transfer?

- (1) Electroporation
- (2) Biolistics
- (3) Microinjection
- (4) 'Disarmed pathogen'

147. 'A' is obtained by acetylation of 'B'. Identify 'A' and 'B'.

- (1) A-Morphine, B-Heroin
- (2) A-Heroin, B-Cocaine
- (3) A-Charas, B-Morphine
- (4) A-Heroin, B-Morphine

148. Given below are two statements :

Statement I : Restriction endonucleases recognise specific sequence to cut DNA known as palindromic nucleotide sequence

Statement II : Restriction endonucleases cut the DNA strand a little away from the centre of the palindromic site to produce sticky ends.
In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both statement I and statement II are incorrect
- (2) Statement I is correct but statement II is incorrect
- (3) Statement I is incorrect but statement II is correct
- (4) Both statement I and statement II are correct

149. Which of the following statements are correctly describing allergy.

- (i) Exaggerated immune response.
- (ii) Sudden sneezing, watery eyes, running nose and difficulty in breathing
- (iii) IgE antibodies are found in blood
- (iv) Symptoms reduce on administering anti-Histamines, adrenaline and steroids.

(1) 1,2,3

(2) 2,3,4

(3) 1,3,4

(4) 1,2,3,4

150. If Bam HI is used during formation of recombinant DNA with PBR322 then non-recombinant bacteria will grow on

- (1) The medium contain tetracycline alone
- (2) The medium contain ampicillin alone
- (3) The medium contain both ampicillin and tetracycline
- (4) None of these

151. Which of the following will occur in vertebrate host of Plasmodium?

- (a) Formation of motile zygote
- (b) Formation of gametocytes
- (c) Formation of sporozoites
- (d) Release of Haemozoin
- (e) Recurrent fever

(1) a, c, d

(2) a, b, c, d, e

(3) b, d and e

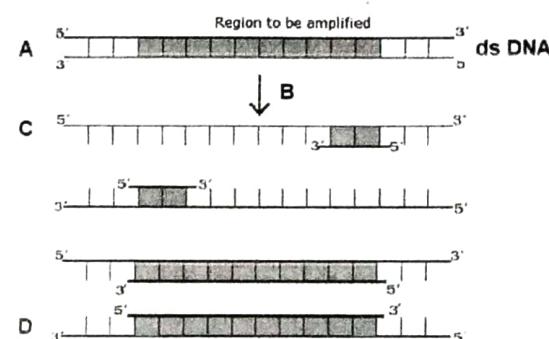
(4) d and e only

152. Rop genes in pBR322 codes for-

- (1) Ampicillin resistance
- (2) Antibiotic resistance
- (3) Tetracycline resistance

- (4) Proteins involved in replication of plasmid

153. The figure below shows three steps (A, B, C & D) of Polymerase Chain Reaction (PCR). Select the option giving correct identification together with what it represents ?



(1) **B**-Denaturation at a temperature of about 94°C separating the two DNA strands.

(2) **A**-Denaturation at a temperature of about 50°C.

(3) **C**-extension in the presence of thermolabile DNA polymerase.

(4) **D**-Annealing with two sets of primers

154. Find out the **incorrect** statement -

- (1) H₂L₂ represents antibody molecule
- (2) Incubation period for AIDS is usually 5-10 years
- (3) Macrophage acts as factory of HIV
- (4) T killer cells are included in physical barrier of innate immunity.

155. AIDS is described through following statements. Which one is the correct option :-

- (i) Deficiency of immune system
- (ii) Acquired during lifetime of an individual.
- (iii) It is caused by a retrovirus.
- (iv) It was first reported in 1989

- (1) 1,2 are correct
- (2) 1,2,3 are correct
- (3) 1,2,3,4 are correct
- (4) Only 2 is correct

156. The cutting out of separated bands of DNA from the agarose gel is called

- (1) Elution
- (2) Polymerisation
- (3) Electrophoresis
- (4) Annealing

157. Which of the following radiations cause DNA damage leading to malignant tumor showing metastasis:

- A. X-ray
 - B. Some non-ionising radiations
 - C. UV rays
 - D. Some ionising radiations
- (1) B and D only
 - (2) A, C and D only
 - (3) Only A and B
 - (4) All of these

158. Most commonly used bioreactor are -

- (1) Simple stirred tank type
- (2) Sparged stirred tank type
- (3) (1) & (2) both
- (4) Batch culture type

159. Assertion (A) : Heroin is generally taken by snorting and injection.

Reason (R) : Heroin is a stimulant and fastens up the body functions.

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true statement but (R) is false.
- (4) Both (A) and (R) are false.

160. Recombinant host cells in which foreign DNA is present in the coding sequence of enzyme β -galactosidase will produce ?

- (1) Blue coloured colonies
- (2) White coloured colonies
- (3) Pink coloured colonies
- (4) No colonies

161. Statement I :- Virus like streptococcus pneumoniae and Haemophilus influenzae are responsible for the disease pneumonia in human

Statement II :- Some of the human disease are caused by protozoans like malaria.

- (1) Statement I is correct but Statement II is false
- (2) Statement I is incorrect but Statement II is true
- (3) Both Statement I and Statement II are true
- (4) Both Statement I and Statement II are false

162. Which of the following is used for tissue culture which is free from virus-

- (1) Complete plant
- (2) Root of plant
- (3) Shoot of plant
- (4) Shoot apex

163. Which of the following is an autoimmune disorder?

- (1) Cancer
- (2) Hepatitis
- (3) Asthma
- (4) Rheumatoid arthritis

164. Assertion :- Flavr Savr, a transgenic tomato which remains fresh and retains their flavour for long time.

Reason:- Production of polygalactouronase enzyme, which degrades pectin is reduced in Flavr Savr.

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
- (3) If assertion is true but reason is false.
- (4) If both assertion and reason are false.

165. The only way to stop the spread of HIV infection is through

- (1) Regular treatment of infected persons
- (2) Isolation of infected persons
- (3) Prevention
- (4) Avoiding direct contact with infected person

166. Which is the competitively inhibiting enzyme responsible for synthesis of cholesterol:

- (1) Cyclosporin A
- (2) Streptokinase
- (3) Statin
- (4) Lipase

167. Some blue-green algae can be used as biofertilizer as they are :

- (1) Photosynthetic
- (2) Surrounded by mucilage
- (3) Capable of fixing nitrogen
- (4) Both (1) and (3)

168. Given diagram shows flowering branch of



- (1) Datura stramonium
- (2) Cannabis sativa
- (3) Papaver somniferum
- (4) Atropa Belladonna

169. The primary function of the lymphoid system is

- (1) Circulation of nutrients
- (2) Transport of hormones
- (3) Production, maintenance and distribution of lymphocytes
- (4) Production, maintenance and distribution of plasma

170. Widal test is for a person who is suffering from:-

- (1) Leprosy
- (2) Diphtheria
- (3) Typhoid
- (4) Tuberculosis

171. If there is microscopic study of tissue for cancer detection, it is called:-

- (1) Biopsy
- (2) MRI
- (3) CT scan
- (4) Radiotherapy

172. Read the following statements and choose the correct option:

Statement (A): Pneumonia pathogen infects alveoli of the lungs whereas common cold pathogen affects nose and respiratory passage but not the lungs.

Statement (B): Macrophages and B-lymphocytes, both act as HIV factory.

- (1) Only statement A is correct.
- (2) Only statement B is correct
- (3) Both statements A and B are correct.
- (4) Both statements A and B are incorrect.

173. First restriction endonuclease to be isolated from bacteria was in

- (1) BamH I, 1970
- (2) Hind III, 1960
- (3) Hind II, 1968
- (4) Eco RI, 1968

174. A psychological and emotional attachment towards drug usage is known as-

- (1) Habituation
- (2) Dependence
- (3) Psychotherapy
- (4) Tolerance

175. Assertion :- Gene gun method is a direct gene transfer method.

Reason :- In this method foreign gene directly introduce in target cell without involving vector DNA

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
- (3) If assertion is true but reason is false.
- (4) If both assertion and reason are false.

176. Which of the following explains the role of heat shock during transformation:-

- (1) Decrease efficiency of transformation
- (2) Separate rDNA from bacterial cell wall
- (3) Increase efficiency of transformation process
- (4) To decrease functioning of bacterial cell

177. After completion of biosynthetic stage, the product has to be subjected through a series of processes before it is ready to marketing as a finished product. This series of processes is called.

- (1) Upstream processing
- (2) Downstream processing
- (3) Elution
- (4) Insertional Inactivation

178. Assertion :- The milk of 1st transgenic cow, 'Rosie' is far better than natural cow milk.

Reason :- It produces human protein -alpha lactalbumin enriched milk.

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
- (3) If assertion is true but reason is false.
- (4) If both assertion and reason are false.

179. Given below are two statements:

Statement-I : About 30 recombinant therapeutics have been approved for human use the world over.

Statement-II : In India, 12 of these are recently being marketed.

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

- (1) Both Statement-I and Statement-II are incorrect.
- (2) Statement-I is correct but statement-II is incorrect.
- (3) Statement-I is incorrect but Statement-II is correct.
- (4) Both Statement-I and Statement-II are correct.

180. Over 95 percent of all transgenic animals are:

- (1) Transgenic rabbit
- (2) Transgenic sheep
- (3) Transgenic mice
- (4) Transgenic fish

MOTION

Answer Key [CODE - 27395]

NEET PATTERN TEST Brahmastra Semi Major Test-04 (New pattern)

13th NEET - Phase 12 : KOTA

Date: 16-Feb-2025			Duration: 3 Hours			Max Marks: 720	
Physics - Section A							
1.(2)	2.(1)	3.(4)	4.(4)	5.(2)	6.(3)	7.(1)	8.(4)
9.(1)	10.(1)	11.(1)	12.(3)	13.(3)	14.(4)	15.(2)	16.(3)
17.(3)	18.(4)	19.(2)	20.(4)	21.(1)	22.(4)	23.(1)	24.(3)
25.(1)	26.(2)	27.(4)	28.(4)	29.(2)	30.(2)	31.(2)	32.(2)
33.(3)	34.(2)	35.(2)	36.(3)	37.(4)	38.(4)	39.(4)	40.(1)
41.(3)	42.(1)	43.(3)	44.(1)	45.(3)			
Chemistry - Section A							
46.(4)	47.(4)	48.(2)	49.(2)	50.(1)	51.(2)	52.(3)	53.(2)
54.(3)	55.(4)	56.(3)	57.(4)	58.(4)	59.(3)	60.(3)	61.(2)
62.(3)	63.(4)	64.(4)	65.(1)	66.(2)	67.(4)	68.(2)	69.(2)
70.(3)	71.(4)	72.(2)	73.(2)	74.(4)	75.(3)	76.(3)	77.(4)
78.(4)	79.(1)	80.(3)	81.(1)	82.(2)	83.(1)	84.(4)	85.(3)
86.(4)	87.(2)	88.(3)	89.(4)	90.(4)			
Biology - Section A							
91.(3)	92.(3)	93.(4)	94.(3)	95.(4)	96.(1)	97.(1)	98.(1)
99.(3)	100.(3)	101.(3)	102.(3)	103.(1)	104.(2)	105.(4)	106.(2)
107.(4)	108.(3)	109.(2)	110.(4)	111.(2)	112.(2)	113.(3)	114.(4)
115.(4)	116.(3)	117.(3)	118.(4)	119.(3)	120.(2)	121.(4)	122.(3)
123.(2)	124.(1)	125.(1)	126.(4)	127.(1)	128.(4)	129.(4)	130.(3)
131.(4)	132.(1)	133.(3)	134.(1)	135.(1)	136.(3)	137.(1)	138.(1)
139.(1)	140.(2)	141.(4)	142.(4)	143.(2)	144.(3)	145.(2)	146.(4)
147.(4)	148.(4)	149.(4)	150.(3)	151.(3)	152.(4)	153.(1)	154.(4)
155.(2)	156.(1)	157.(4)	158.(3)	159.(3)	160.(2)	161.(2)	162.(4)
163.(4)	164.(1)	165.(3)	166.(3)	167.(3)	168.(1)	169.(3)	170.(3)
171.(1)	172.(1)	173.(3)	174.(2)	175.(1)	176.(3)	177.(2)	178.(1)
179.(4)	180.(3)						