NEET

NEET ACE TEST SERIES

(NATS)

TEST-17

CLASS 11ᵀᴴ + 12ᵀᴴ

Full Syllabus Test 09

Duration : 3 Hours 20 Minutes   **M.Marks : 720**

Physics	:	**Complete Class 11ᵗʰ + 12ᵗʰ Syllabus**
Chemistry	:	**Complete Class 11ᵗʰ + 12ᵗʰ Syllabus**
Botany	:	**Complete Class 11ᵗʰ + 12ᵗʰ Syllabus**
Zoology	:	**Complete Class 11ᵗʰ + 12ᵗʰ Syllabus**

Instructions

1. **The test is of 3 hours 20 min. duration.**
2. **The test booklet consists of 200 questions. The maximum mark is 720.**
3. **There are four Sections in the Question Paper, Sections I, II, III, and IV consisting of Section I (Physics), Section II (Chemistry), Section III (Botany) and Section IV (Zoology) have 50 Questions in each Subject and each subject is divided into two Sections, Section A consists of 35 questions (all questions compulsory) and Section B consists of 15 Questions (Any 10 questions are compulsory).**
4. **There is only one correct response for each question.**
5. **Each correct answer will give 4 marks while 1 Mark will be deducted for a wrong MCQ response.**
6. **No student is allowed to carry any textual material, printed, or written, bits of paper, pager, mobile phone, any electronic device, etc. Inside the examination room/hall.**
7. **On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator on duty in the Room/Hall. However, the Candidates are allowed to take away this Test Booklet with them.**

Physics

SECTION – A

1. When a resistance of 2 ohm is connected across the terminals of a cell, the current is 0.5 A. When the resistance is increases to 5 ohms, the current becomes 0.25 A The e.m.f. of the cell is.
   (1) 1.0 V
   (2) 1.5 V
   (3) 2.0 V
   (4) 2.5 V

2. An earth's satellite is moving in a circular orbit with a uniform speed v. If the gravitational force of the earth suddenly disappears, the satellite will
   (1) Vanish into outer space
   (2) Continue to move with velocity v in original orbit
   (3) Fall down with increasing velocity
   (4) Fly off tangentially from the orbit with velocity v

3. **Statement I:** Microwaves have more energy than the radio waves.
   Statement II: Energy of electromagnetic waves is shared equally by the electric and magnetic fields.
   Choose the correct option.
   (1) Both statement I and II are correct.
   (2) Both statement I and II are incorrect.
   (3) Statement I is correct but statement II is incorrect.
   (4) Statement II is correct but statement I is incorrect.

4. Four similar point masses (each of mass m) are placed on the circumference of a ring of mass M and radius R. The M.I. of the system about the normal axis passing through the centre O will be.
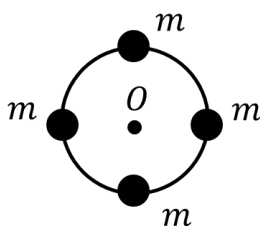
   (1) $MR^2 + 4mR^2$
   (2) $\frac{1}{2}MR^2 + 4mR^2$
   (3) $\frac{8}{5}MR^2 + 4mR^2$
   (4) None of these

5. A box contains N molecules of a gas. If the number of molecules is doubled, then the pressure will.
   (1) Decrease
   (2) Be same
   (3) Be doubled
   (4) Get tripled

6. A resistant of 300 Ω and an inductance of $\frac{1}{\pi}$ henry are connected in series to a A.C. voltage of 20 volts and 200 Hz frequency. The phase angle between the voltage and current is.
   (1) $\tan^{-1}\left(\frac{4}{3}\right)$
   (2) $\tan^{-1}\left(\frac{3}{4}\right)$
   (3) $\tan^{-1}\left(\frac{3}{2}\right)$
   (4) $\tan^{-1}\left(\frac{2}{3}\right)$

7. A 110 V, 60 W lamp is run from a 220 V AC mains using a capacitor in series with the lamp, instead of a resistor then the voltage across the capacitor is about.
   (1) 110 V
   (2) 190 V
   (3) 220 V
   (4) 311 V

8. The wavelength of the most energetic X-ray emitted when a metal target is bombarded by electrons having kinetic energy 100 keV approximately.
   (1) 12 Å
   (2) 4 Å
   (3) 0.31 Å
   (4) 0.124 Å

9. A parallel plate capacitor has rectangular plates of $400\ cm^2$ area and are separated by a distance of 2 mm with air as the medium. What charge will appear on the plates if a 200-volt potential difference is applied across the capacitor?
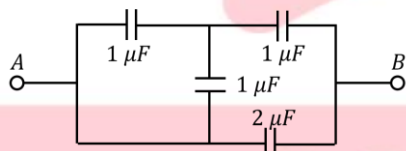   (1) $3.54 \times 10^{-6}\ C$
   (2) $3.54 \times 10^{-8}\ C$
   (3) $3.54 \times 10^{-10}\ C$
   (4) $1771.8 \times 10^{-13}\ C$

10. A parallel plate air capacitor has a capacitance C. When it is half filled with a dielectric of dielectric constant 5, the percentage increase in the capacitance will be.
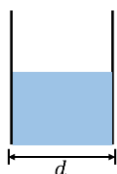

    (1) 400%
    (2) 66.6%
    (3) 33.3%
    (4) 200%

11. The equivalent capacitance between points A and B of the circuit shown will be:


    (1) $\frac{2}{3}\mu F$
    (2) $\frac{5}{3}\mu F$
    (3) $\frac{8}{3}\mu F$
    (4) $\frac{7}{3}\mu F$

12. An object of mas m is sliding down a hill of arbitrary shape and after traveling a certain horizontal path stops because of friction. The work done that a force must perform to return the object to its initial position along the same path would be.
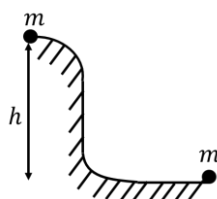
    (1) 0
    (2) mgh
    (3) $2\ mgh$
    (4) None of these

13. In the circuit shown in figure, the power which is dissipated as heat in the $6\,\Omega$ resistor is $6\,W$. What is the value of resistance R in the circuit?
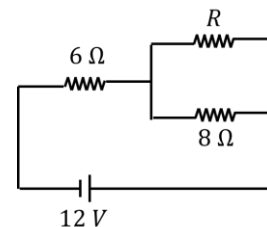
    (1) $6\,\Omega$
    (2) $10\,\Omega$
   (3) $13\,\Omega$
    (4) $24\,\Omega$

14. If fore $F = 50 - 20t$, then impulse in interval $[0, t]$.
    (1) $50t - 10t^2$
    (2) $50t - 10$
    (3) $50 - t^2$
    (4) $25\ t^2$

15. The potential difference between the terminals of a cell is found to be 3 volts when it is connected to a resistance of value equal its internal resistance. The e.m.f of the cell is.
    (1) $3\ V$
    (2) $6\ V$
    (3) $1.5\ V$
    (4) $4.5\ V$

16. Five equal resistance each of resistance R are connected as shown in the Figure. A battery of voltage V is connected between A and B. The current flowing in AFCEB will be.
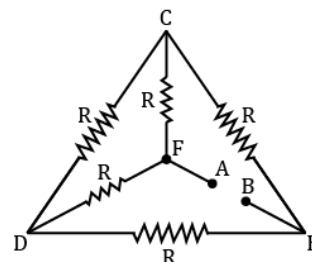
(1) $\dfrac{V}{R}$

(2) $\dfrac{V}{2R}$

(3) $\dfrac{2V}{R}$

(4) $\dfrac{3V}{R}$

17. If intensity of each wave in the observed interference pattern in Young's double slit experiment is I_0. Then for some point P where the phase difference is ϕ, intensity I will be.

(1) $I = I_0 \cos \phi$

(2) $I = I_0 \cos^2 \phi$

(3) $I = I_0 (1 + \cos \phi)$

(4) $I = 2I_0 (1 + \cos \phi)$

18. A photon of energy $4\,eV$ is incident on a metal surface whose work function is $2\,eV$. The minimum reverse potential to be applied for stopping the current is.

(1) $2\,V$

(2) $4\,V$

(3) $6\,V$

(4) $8\,V$

19. If the mass of a microscopic particle as well as its speed are halved, the de Broglie wavelength associated with the particle will.

(1) Increased by a factor more than 2

(2) Increase by a factor of 2

(3) Decrease by a factor of 2

(4) Decrease by a factor more than 2

20. Electric charge is uniformly distributed over a long straight wire of radius 1 mm. The charge per cm length of the wire is Q coulombs. A cylindrical surface of radius 50 cm and length 1 m encloses the wire symmetrically as shown in fig. The total flux passing through the cylindrical surface is.
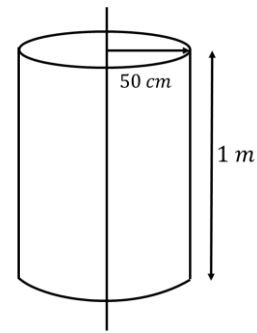
(1) $\dfrac{Q}{\epsilon_0}$

(2) $\dfrac{100\,Q}{\epsilon_0}$

(3) $\dfrac{10\,Q}{\pi\,\epsilon_0}$

(4) $\dfrac{100\,Q}{\pi\epsilon_0}$

21. **Assertion:** Only microwaves are used in radar.

Reason: Because microwaves have very small wavelength.

(1) If both the assertion and the reason are true and the reason is a correct explanation of the assertion

(2) If both the assertion and reason are true but the reason is not a correct explanation of the assertion

(3) If the assertion is true but the reason is false

(4) If both the assertion and reason are false

22. Water drops fall at regular intervals from a tap 6 m above the ground. The third drop is leaving the tap at the instant the first drop touches the ground. How far above the ground is the second drop at that instant?

(1) $1.25\,m$

(2) $2.50\,m$

(3) $3.75\,m$

(4) $4.5\,m$

23. Linear density of a string is $1.5 \times 10^{-4} kg/m$ and wave equation is $y = 0.021 \sin(x + 30\,t)$. Find the tension in the string where x in meter, t in sec.

(1) $1.35 \times 10^{-2}\,N$

(2) $1.35 \times 10^{-1}\,N$

(3) $1.35 \times 10^{-3}\,N$

(4) None

24. **Statement I:** When two coils wound on each other, the mutual induction between the coils is maximum.
Statement II: Acceleration of a magnet falling through a copper ring decreases. Choose the correct option.
   (1) Both statement I and II are correct.
   (2) Both statement I and II are incorrect.
   (3) Statement I is correct but statement II is incorrect.
   (4) Statement II is correct but statement I is incorrect.

25. 25 W, 200 V and 100 W, 200 V bulbs are connected in series to a source of 400 Voltas. Which bulb will fuse?
   (1) 25 W
   (2) 100 W
   (3) Both will fuse at the same time
   (4) None of the bulbs fuse

26. A force F is given by $F = at + bt^2$, where t is time. The dimensions of a and b are.
   (1) $[M\,L\,T^{-3}]$ and $[M\,L\,T^{-4}]$
   (2) $[M\,L\,T^{-4}]$ and $[M\,L\,T^{-3}]$
   (3) $[M\,L\,T^{-1}]$ and $[M\,L\,T^{-2}]$
   (4) $[M\,L\,T^{-2}]$ and $[M\,L\,T^{0}]$

27. The length of a rod is $(11.05 \pm 0.05)\,cm$. What is the sum of length of two such rods.
   (1) $(22.1 \pm 0.05)cm$
   (2) $(22.10 \pm 0.05)cm$
   (3) $(22.1 \pm 0.15)cm$
   (4) $(22.10 \pm 0.10)cm$

28. If a car covers $2/5^{th}$ of total distance with v_1 speed and $3/5^{th}$ distance with v_2 speed then the average speed is.
   (1) $\frac{1}{2}\sqrt{v_1 v_2}$
   (2) $\frac{v_1 + v_2}{2}$
   (3) $\frac{2v_1 + v_2}{v_1 + v_2}$
   (4) $\frac{5v_1 v_2}{3v_1 + 2v_2}$

29. The resistance R of a wire is given by the relation $R = \frac{\rho\ell}{\pi r^2}$. Percentage error in the measurement of ρ, ℓ and r is 1%, 3% and 2% respectively. Then the percentage error in the measurement of R is.
   (1) 6%
   (2) 9%
   (3) 8%
   (4) 10%

30. One centimeter on the main scale of vernier calipers is divided onto ten equal parts. If 20 division of vernier scale coincide with 16 small division of the main scale, the least count of the calipers is.
   (1) $0.01\ cm$
   (2) $0.02\ cm$
   (3) $0.05\ cm$
   (4) $0.005\ cm$

31. Two elastic bodies P and Q having equal masses are moving along the same line with velocities of 20 m/s and 15 m/s respectively. Their respective velocities after the elastic collision will be in m/s.
   (1) 15 and 20
   (2) 5 and 20
   (3) 20 and 15
   (4) 20 and 5

32. When the angle of incident on a material is 60°, the reflected light is completely polarized. The velocity of the refracted ray inside the material is (in ms^{-1}).
   (1) 3×10^8
   (2) $\sqrt{2} \times 10^8$
   (3) $\sqrt{3} \times 10^8$
   (4) 0.5×10^8

33. The magnifying power of a simple microscope is 6. The focal length of its lens in meters will be, if least distance of distinct vision is 25 cm.
   (1) 0.05
   (2) 0.06
   (3) 0.25
   (4) 0.12

5

34. The angle of a glass prism is 4.50° and its refractive index is 1.52. The angle of minimum deviation will be.
   (1) 1.5
   (2) 2.3
   (3) 4.5
   (4) 2

35. An arrow is shot into the air. Its range is 100 meters and its time of flight is $5\,s$. If the value of g is assumed to be $10\,m/s^2$, then the horizontal component of the velocity of arrow is.
   (1) $40\,m/s$
   (2) $20\,m/s$
   (3) $31.25\,m/s$
   (4) $12.5\,m/s$

SECTION – B

36. A thermodynamic system is taken through the cyclic process ABCDA as shown in figure. Heat rejected by the gas during the cycle is:
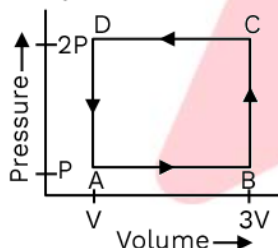

   (1) 2 PV
   (2) -2 PV
   (3) $\frac{1}{2}PV$
   (4) PV

37. What is the reading of micrometer screw gauge shown in figure. Circular scale has 100 division:
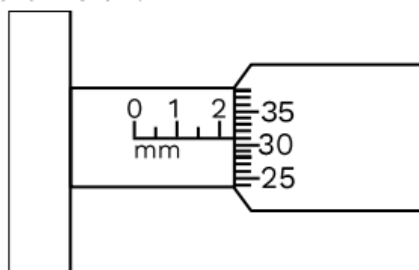

   (1) 2.31 mm
   (2) 2.29 mm
   (3) 2.36 mm
   (4) 2.41 mm

38. When light of frequency twice the threshold is incident on the metal plate, the maximum velocity of emitted electron is V_1. When the frequency of incident radiation is increased to 5 times the threshold value, the maximum velocity of emitted electron becomes V_2. If $V_2 = X V_1$, the value of x will be____:
   (1) 0.2
   (2) 4.0
   (3) 2
   (4) 0.4

39. A chain of mass m and length ℓ is held on a frictionless table in such a way that its $\frac{2\ell}{5}$ part is hanging below the edge of table. Find work done to pull the hanging part of chain:
   (1) $\frac{2mg\ell}{25}$
   (2) $\frac{mg\ell}{50}$
   (3) $\frac{mg\ell}{25}$
   (4) $\frac{4mg\ell}{25}$

40. A sphere of mass M rolls without slipping on an inclined plane of inclination θ. What should be the minimum coefficient of friction, so that the sphere rolls down without slipping?
   (1) $\frac{2}{5}\tan\theta$
   (2) $\frac{2}{7}\tan\theta$
   (3) $\frac{5}{7}\tan\theta$
   (4) $\tan\theta$

41. Ship A is moving at a speed of 3 m/s towards East and ship B towards North with a speed of 4m/s. If ship A is chosen as frame of reference, the direction and magnitude of velocity of ship B will be:
   (1) 5 m/s; 53° Noarth of West
   (2) 5 m/s; 37° Noarth of East
   (3) 5 m/s; 37° East of Sout
   (4) 5 m/s; 53° Sout of West

6

42. A point charge of $+12\mu C$ is at a distance 6 cm vertically above the center of a square of side 12 cm as shown in figure. The magnitude of the electric flux through the square will be ____ x $10^3 Nm^2/C$:
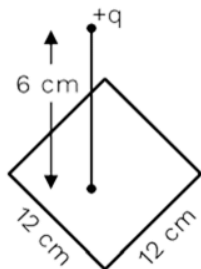
(1) 200
(2) 226
(3) 144
(4) 720

43. In the given figure, a battery of emf E is connected across a conductor PQ of length 'l' and different area of cross-sections having radii r_1 and $r_2 (r_2 < r_1)$:
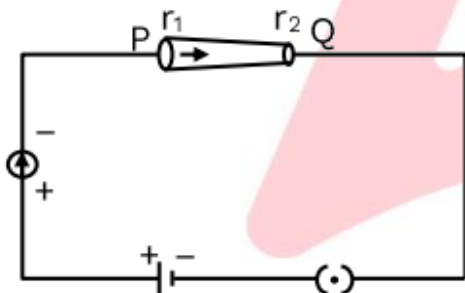

Choose the correct option as one moves from P to Q:
(1) Drift velocity of electron increases.
(2) Electric field decreases.
(3) Electron current decreases.
(4) All of these

44. Hydrogen atom from excited state comes to the ground by emitting a photon of wavelength λ. The value of principal quantum number 'n' of the excited state will be: (R: Rydberg constant)-

(1) $\sqrt{\dfrac{\lambda R}{\lambda - 1}}$

(2) $\sqrt{\dfrac{\lambda R}{\lambda R - 1}}$

(3) $\sqrt{\dfrac{\lambda}{\lambda R - 1}}$
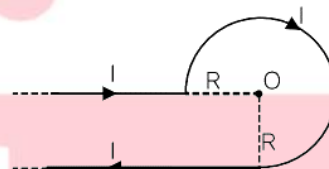
(4) $\sqrt{\dfrac{\lambda R^2}{\lambda R - 1}}$

45. A parallel plate capacitor has plate area $100\ m^2$ and plate separation of 10m. The space between the plates is filled up to a thickness 5m with a material of dielectric constant of 10. The resultant capacitance of the system is x pF.
The value of $\varepsilon_0 = 8.85 \times 10^{-12} Fm^{-1}$.
The value of x to the nearest integer is:
(1) 441
(2) 161
(3) 108
(4) 532

46. An incompressible liquid flow through a horizontal tube as shown in the figure. Then the velocity 'v' of the fluid is:
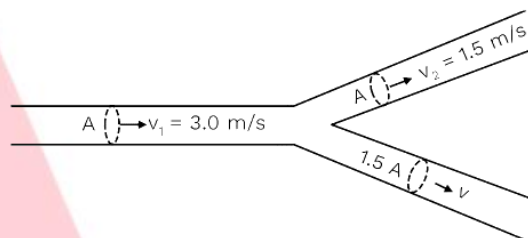
(1) 3.0 m/s
(2) 1.5 m/s
(3) 1.0 m/s
(4) 2.25 m/s

47. Magnetic field at the center O due to the given structure is:

(1) $\dfrac{\mu_0 I}{4R}\left[\dfrac{3}{2} + \dfrac{1}{\pi}\right] \odot$

(2) $\dfrac{\mu_0 I}{2R}\left[3 + \dfrac{1}{\pi}\right] \otimes$

(3) $\dfrac{\mu_0 I}{4R}\left[\dfrac{3}{2} + \dfrac{1}{\pi}\right] \otimes$

(4) $\dfrac{\mu_0 I}{4R}\left[3 + \dfrac{2}{\pi}\right] \odot$

48. The amplitude of electric field, at a distance r from a point source of power P, is (Source efficiency is 100%):

(1) $\sqrt{\dfrac{P}{3\pi r^2 C \varepsilon_0}}$

(2) $\sqrt{\dfrac{P}{4\pi r^2 C \varepsilon_0}}$

(3) $\sqrt{\dfrac{P}{2\pi r^2 C \varepsilon_0}}$

(4) $\dfrac{P}{2\pi r^2 C \varepsilon_0}$

49. 10,000 electrons are passing per minute through a tube of radius 1 cm. The resulting current is:
    (1) 10000 A
    (2) $0.26 \times 10^{-16} A$
    (3) $10^{-9} A$
    (4) $0.5 \times 10^{-19} A$

50. Curved surfaces of a plano-convex lens of refractive index μ_1 and a Plano-concave lens of refractive index μ_2 have equal, radius of curvature as shown in figure. Find the ratio of radius of curvature to the focal length of the combined lenses:
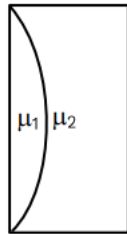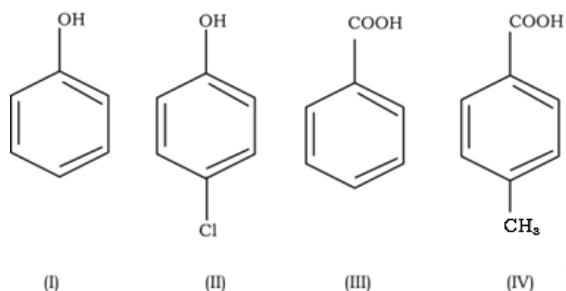

    (1) $\dfrac{1}{\mu_2 - \mu_1}$
    (2) $\mu_1 - \mu_2$
    (3) $\dfrac{1}{\mu_1 - \mu_2}$
    (4) $\mu_2 - \mu_1$

Chemistry

51. The correct acidity order of the following is:

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

52. Which of the following element has nearest atomic radius as Ag:
    (1) Pt
    (2) Cu
    (3) Au
    (4) Hg

53. A solution has pOH equal to 13 at 298 K. the solution will be:
    (1) Highly acidic
    (2) Highly basic
    (3) Moderately basic
    (4) Unpredictable

54. The oxidation states of S atom in $S_4O_6^{2-}$ from left to right respectively are
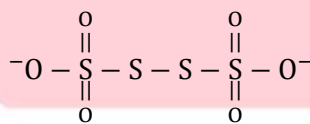
    (1) +6, 0, 0, +6
    (2) +3, +1, +1, +3
    (3) +5, 0, 0, +5
    (4) +4, +1, +1, +4

55. The value of ΔG for the process
    $H_2O(s) \rightarrow H_2O(\ell)$ at 1 atm and 260 K is:
    (1) < 0
    (2) = 0
    (3) > 0
    (4) Unpredictable

56. The RBC deficiency is deficiency disease of
    (1) Vitamin B_6
    (2) Vitamin B_1
    (3) Vitamin B_2
    (4) Vitamin B_{12}

57. With 63 gm of oxalic acid how many litres of $\frac{N}{10}$ solution can be prepared
    (1) 100 litre
    (2) 10 litre
    (3) 14 litre
    (4) 1000 litre

58. Calculate the relative lowering of vapour pressure for a solution which is prepared by mixing 60 of gm urea and 360 gm of H_2O. Given vapour pressure of pure solvent P^o = 35 mm of Hg.
    (1) 0.0476
    (2) 0.0212
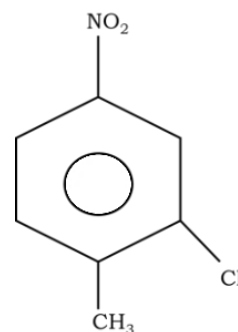   (3) 0.1757
    (4) 0.0005

59. Which of the following statements are correct?
    (A) The pH of mixture of 0.1 M H_2SO_4 400 ml and 0.1 M NaOH 400 ml is about 1.3.
    (B) The Ionic product of water is temperature dependent.
    (1) Both A and B are incorrect.
    (2) Both A and B are correct.
    (3) Only B is correct.
    (4) Only A is correct.

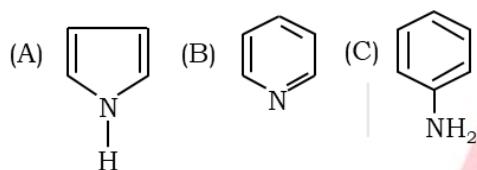60. The correct IUPAC name of the following compound is.

(1) 1-chloro-2-methyl-5-Nitro-Benzene

(2) 3-chloro-1-methyl-NitroBenzene

(3) 2-chloro-1-methyl-4-NitroBenzene

(4) 5-chloro-4-methyl-NitroBenzene

61. Among the ligands $NH_3, en, CN^{\ominus}$ and CO the correct order of decreasing field strength is:

(1) $CO < NH_3 < en < CN^{\ominus}$

(2) $NH_3 > en > CO > CN^-$

(3) $CO > CN^- > en > NH_3$

(4) $en > CN^- > NH_3 > CO$

62. Choose the incorrect statement:

(A) [pyrrole structure with N-H] (B) [pyridine structure with N] (C) [aniline structure with NH_2]

(1) A is more basic than C

(2) B is more basic than A

(3) B is more basic than C

(4) All are aromatic bases

63. Correct order of oxidizing power

(1) $Cl_2 > F_2 > Br_2 > I_2$

(2) $Cl_2 > F_2 > I_2 > Br_2$

(3) $F_2 > Cl_2 > Br_2 > I_2$

(4) $F_2 > Cl_2 > I_2 > Br_2$

64. Which d-Block element show +6 Oxidation State?

(1) Ti

(2) V

(3) Cr

(4) Cu

65. Which of the following can decolourized Acidic $KMnO_4$ solution?

(1) I_2

(2) $NaNO_3$

(3) $NaNO_2$

(4) None of the above

66. An electron with values 4, 1, 0 and +1/2 for the set of four quantum numbers n, l, m, s respectively belongs to ....

(1) $4s$ orbital

(2) $4p$ orbital

(3) $4d$ orbital

(4) $4f$ orbital

67. **Assertion:** $TeCl_4$ does not have a tetrahedral structure.

Reason: Te in $TeCl_4$ has two lone pair.

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion.

(3) If assertion is true but reason is false.
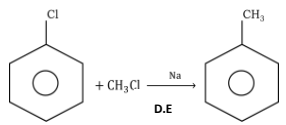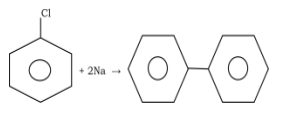
(4) If the assertion and reason both are false.

68. The minimum values of uncertainties involved in the determination of both the position and velocity of a particle are respectively 1×10^{-10} m and 1×10^{-10} ms^{-1}. Then, the mass (in kg) of the particle is
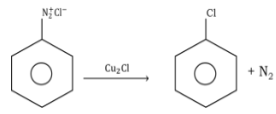
(1) 5.270×10^{-15}

(2) 5.270×10^{-20}

(3) 2.270×10^{-16}

(4) 5.270×10^{-10}

69. Electrolytic conduction differs from metallic conduction in that in the case of electrolytic conduction

(1) The resistance increases with increasing temperature

(2) The resistance decreases with increasing temperature

(3) The flow of current does not generate heat

(4) The resistance is independent of the length of the conductor

70. Match List I with List II.

	List – I		List – II
A	[chlorobenzene + CH_3Cl $\xrightarrow{Na, D.E}$ toluene]	1	Fittig reaction
B	[chlorobenzene + 2Na → biphenyl]	2	Wurtz Fittig reaction

C		3	Finkelstein reaction
D	$C_2H_5Cl + NaI \rightarrow C_2H_5I + NaCl$	4	Sandmeyer reaction

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

71. Correct order of dipole moment
(1) $CH_3F > CH_3Cl > CH_3Br > CH_3I$
(2) $CH_3Cl > CH_3Br > CH_3I > CH_3F$
(3) $CH_3Cl > CH_3F > CH_3Br > CH_3I$
(4) $CH_3Cl > CH_3I > CH_3Br > CH_3F$

72. Which one of the following have no unpaired electron?
(1) Ce^{4+}
(2) Pr^{+4}
(3) Lu^{+3}
(4) Gd^{+3}

73. **Assertion:** $Cu[Hg(SCN)_4]$ & $Hg[Co(SCN)_4]$ are isomer.
   Reason: $SCN^{\ominus}$ is ambidente ligand.
   (1) Both assertion and reason are true and the reason is the correct explanation of the assertion.
   (2) Both assertion and reason are true but reason is not the correct explanation of the assertion.
   (3) Assertion is true but reason is false.
   (4) Assertion is false and reason is true.

74. Calculate pH of 0.02 M NH₄Cl solution? Given k_b of NH₄OH = 10^{-5}:
   (1) 5.35
   (2) 6.34
   (3) 10.6
   (4) None of these

75. Which of the following is correct order for Electron Affinity?
   (1) Br > F > I
   (2) Br > Cl > F
   (3) F > Br > I
   (4) Cl > F > Br

76. The process used for refining of low boiling metals is
   (1) Zone refining
   (2) Distillation process
   (3) Electrolytic refining
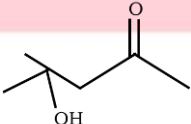   (4) Liquation process

77. Amylopectin is composed of
   (1) $\alpha - D -$ glucose, $C_1 - C_4$ and $C_4 - C_6$ linkages
   (2) $\alpha - D -$ glucose, $C_1 - C_4$ and $C_2 - C_6$ linkages
   (3) $\beta - D -$ glucose, $C_1 - C_4$ and $C_2 - C_6$ linkages
   (4) $\beta - D -$ glucose, $C_1 - C_4$ and $C_1 - C_6$ linkages

78. **Assertion:** Acetophenone and benzophenone can be distinguished by iodoform test.
   Reason: Acetophenone & benzophenone both are carbonyl compounds.

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

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

   Assertion: can be easily reduced using Zn–Hg/HCl is

   Reason: Zn – Hg/HCl is used to reduce carbonyl group to $-CH_2-$ group.
   In the light of the above statements, choose the correct answer from the options given below.

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion.

(3) If assertion is true but reason is false.

(4) If the assertion and reason both are false.

80. In the presence of a dilute base C_6H_5CHO and CH_3CHO react together to give a product. The product is

(1) $C_6H_5CH_3$

(2) $C_6H_5CH_2CH_2OH$

(3) $C_6H_5CH_2OH$

(4) $C_6H_5CH = CHCHO$

81. A hydrocarbon having volume of 10 ml at STP completely burns with a sufficient amount of O_2 having volume of 55 ml. The liberated CO_2 has volume of 40 ml. What will be the formula of hydrocarbon?

(1) C_4H_4

(2) C_4H_6

(3) C_4H_8Cl

(4) C_4H_8

82. Which one is most reactive towards Nucleophilic addition reaction?

(1)

(2)

(3)

(4)
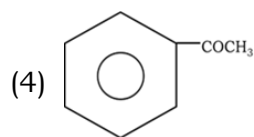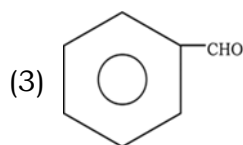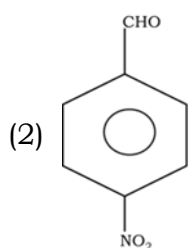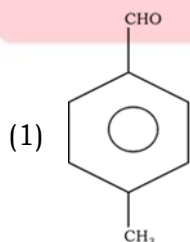
83. The structure of the major product formed in the following reaction

(1)

(2)

(3)

(4)
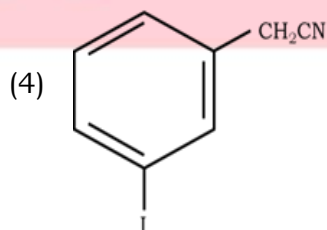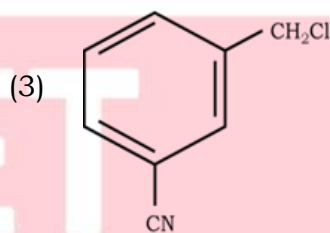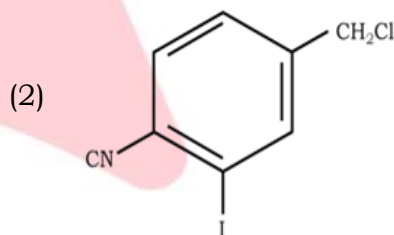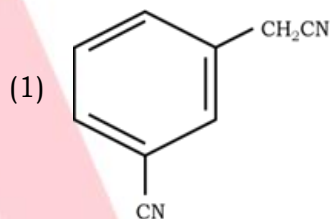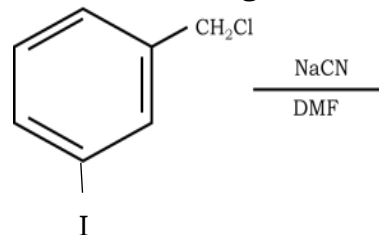
84. What should be ΔH and ΔS for process to be spontaneous reaction at all temperatures:

(1) $\Delta H > 0$; $\Delta S > 0$

(2) $\Delta H < 0$, $\Delta S > 0$

(3) $\Delta H < 0$; $\Delta S < 0$

(4) $\Delta H > 0$, $\Delta S < 0$

85. In a set of reactions, ethyl benzene yielded a product D
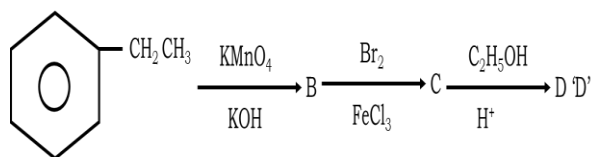
would be:

(1)

(2)

(3)

(4)

SECTION – B

86. **STATEMENT – 1** Elevation in boiling point will be high if the molal elevation constant of the liquid is high.

STATEMENT – 2 Elevation in boiling point is a colligative property.

(1) Both the statements are TRUE and STATEMENT – 2 is the correct explanation of STATEMENT - 1

(2) Both the statements are TRUE but STATEMENT – 2 is NOT the correct explanation of STATEMENT - 1

(3) STATEMENT-1 is TRUE and STATEMENT – 2 is FALSE

(4) STATEMENT – 1 is FALSE and STATEMENT – 2 is TRUE

87. Match the following

	Column I		Column II
(1)	Contact Process	(A)	NH_3
(2)	Haber's Process	(B)	F
(3)	Only one oxo Acid	(C)	Cl
(4)	Deacon's Process	(D)	H_2SO_4

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

88.
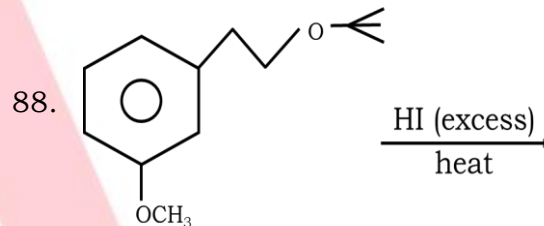
(1)

(2)

(3)

(4)

89. The gas evolved wen methylamine reacts with nitrous acid is:

(1) NH_3
(2) N_2
(3) H_2
(4) C_2H_6

13

90.

What is major product (X):

(1)

O-COCH$_3$

(2)

Cl, COCH$_3$

(3)

Cl, COCH$_3$

(4)

O-COCH$_3$, COCH$_3$
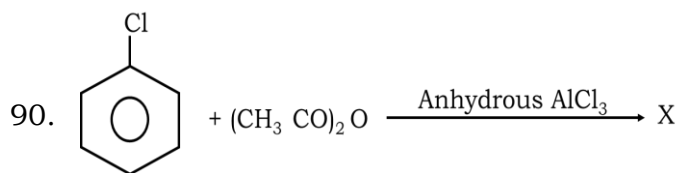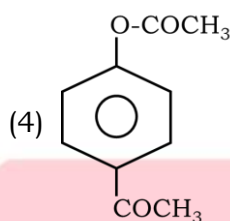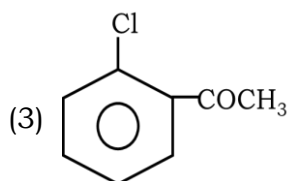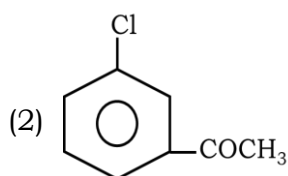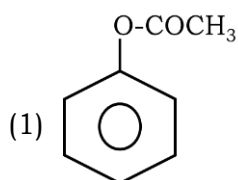
91. In a mixture of A and B, components show positive deviation when:
   (1) A – B interaction is stronger than A – A and B – B interaction
   (2) A – B interaction is weaker than A – A and B – B interaction
   (3) ΔV mix < 0, ΔS mix > 0
   (4) ΔV mix = 0, ΔS mix > 0

92. **Assertion:** Au, Pt are noble and are soluble in Aqua Regia.
   Reason: Due to formation chloropltanic Acid & Chloro Auric Acid they become soluble.

(1) Assertion and Reason both are correct statements and reason is correct explanation for assertion.
(2) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
(3) Assertion is correct statement but reason is wrong statement.
(4) Assertion is wrong statement but reason is correct statement.

93. Which of the following gives a soluble complex on reaction with benzene sulphonyl chloride (which of the following compounds after reacting with benzene sulphonyl) chloride soluble in alkali solution):
   (1) $CH_3\ CH_2\ CH_2 - NH_2$
   (2) $CH_3\ CH_2\ - NH - CH_3$
   (3) $CH_3\ CH_2 - OH$
   (4) $(CH_3)_3\ N$

94. Mark the correct increasing order of reactivity of the following compounds with HBr/HCl.

(a)   (b)   (c)
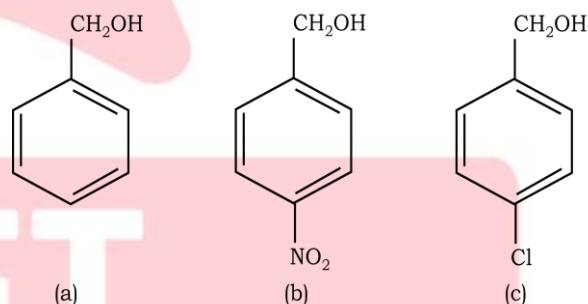
(1) a < b < c
(2) b < a < c
(3) b < c < a
(4) c < b < a

95. The pH of 0.1 M solution of the following salts increases in order:
   (1) $NaCl < NH_4Cl < NaCN < HCl$
   (2) $NaCN < NH_4Cl < NaCl < HCl$
   (3) $HCl < NaCl < NaCN < NH_4Cl$
   (4) $HCl < NH_4Cl < NaCl < NaCN$

14

96. Which of the following reactions does not involved oxidation-reduction?
    (1) $2Rb + 2H_2O \rightarrow 2RbOH + H_2$
    (2) $2CuI_2 \rightarrow 2CuI + I_2$
    (3) $NH_4Cl + NaOH \rightarrow NaCl + NH_3 + H_2O$
    (4) $3Mg + N_2 \rightarrow Mg_3N_2$

97. If the maximum concentration of $PbCl_2$ in water is 0.01 M at 298 K, its maximum concentration in 0.1 M NaCl will be:
    (1) 4×10^{-3} M
    (2) 0.4×10^{-4} M
    (3) 4×10^{-2} M
    (4) 4×10^{-4} M

98. True statement about N_3^- is
    (1) It is linear structure
    (2) It is *sp* hybridised
    (3) It is a pseudo Halogen
    (4) All to these

99. On heating ammonium dichromate and barium azide separately, we get
    (1) N_2 in both cases
    (2) N_2 with ammonium dichromate and NO with barium azide
    (3) N_2O with ammonium dichromate and N_2 with barium azide
    (4) N_2O with ammonium dichromate and N_2O with barium azide

100. **Assertion:** NH_3 molecule can form four Hydrogen Bond.
     Reason: One lone pair and three hydrogens are directly attached with oxygen atom.
     (1) Assertion and Reason both are correct statements and reason is correct explanation for assertion.
     (2) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
     (3) Assertion is correct statement but reason is wrong statement.
     (4) Assertion is wrong statement but reason is correct statement.

Botany

SECTION – A

101. Consider the following matching pair:
    -
    A. PPLO   - 0.1 micrometer
    B. RBC   - 7 nanometer
    C. 70 s ribosome   -   15-20 millimeter
    D. Mitochondria   - 100 meter
    How many are **correctly** matched?
    (1) Only A
    (2) Only A and C
    (3) Only A and B
    (4) All are correct

102. Consider the following characteristics-
    I.   Thick parenchymatous pericycle
    II. Small or inconspicuous pith
    III. Endodermal cells have a deposition of waxy material suberin
    Above characteristics are seen in T.S of-
    (1) Dicot stem
    (2) Dicot root
    (3) Monocot stem
    (4) Monocot root

103. erigynous ovary is present in.
    (1) Cucumber
    (2) Rose
    (3) Sesbania
    (4) Lily

104. Contractile vacuole is meant for.
    (1) Storage
    (2) Excretion and osmoregulation
    (3) Digestion
    (4) Respiration

105. Match **column I** with **column II** and select the correct option from the codes given below.

	Column I		Column II
A.	Agaricus	(i)	Aseptate
B.	Aspergillus	(ii)	Basidiospore
C.	Yeast	(iii)	Conidia
D..	Albugo	(iv)	Non filamentous

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

106. The scientific name of mango is written as *Mangifera indica* Linn. Which of the following statements is **correct** regarding this?
    (1) Linn. signifies Latin Language
    (2) The name should be written in reverse with *indica* preceding *Mangifera*
    (3) Linn. Signifies the taxonomist Linnaeus
    (4) *indica* is a generic name

107. **Assertion:** Passive transport across the cell membrane does not require energy.
    Reason: Molecules move across the membrane by simple diffusion along the concentration gradient.
    (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.

108. Mark the **incorrect** statement-
    (1) Potato spindle tuber disease caused by viroids.
    (2) Prions are similar in size to viruses.
    (3) Spore of slime mould is dispersed by air current
    (4) Deuteromycetes have conidia and aseptate hyphae

109. Read the following statements (A-E) and answer the question which follows them:
  A. Yeast cell divide in 90 min
  B. In G_2 phase amount of DNA is 4C in diploid cell
  C. ER, Golgi bodies and nucleolus disappear in metaphase
  D. Regeneration of nuclear membrane occurs in Prophase
  E. In Anaphase I, homologues chromosome separated
  How many of the above statements are **correct**?
  (1) Four
  (2) One
  (3) Two
  (4) Three

110. Consider the following matching pairs-
  A. Zygotene – Recombinase active
  B. Anaphase – Homologous pair separate
  C. Diplotene – Chiasmata visible
  D. Metaphase – Kinetochore appear
  How many are **correctly** matched?
  (1) Only A
  (2) Only A and B
  (3) Only C and D
  (4) All are correct

111. Sedimentation coefficient for ribosome is
  (1) Measure of size directly.
  (2) Indirect measure of size and density
  (3) Measure of mass
  (4) Measure of bonds

112. Centriole duplication occur in S-phase in:
  (1) Dividing E. coli
  (2) Dividing animal cell
  (3) Dividing both plant and animal cell
  (4) Dividing virus

113. Part of endomembrane system involve in sorting of vesicle is -
  (1) Golgi bodies
  (2) Endoplasmic reticulum
  (3) Nucleus
  (4) Ribosome

114. Induction of rapid cell division and delay in leaf senescence is caused by-
  (1) Auxin
  (2) Cytokinin
  (3) Gibberellin
  (4) Ethylene

115. Match column I with column II and select the **correct** option from the codes given below.

	Column I		Column II
A.	Mannitol	(i)	*Psilotum*
B.	Gemma bud	(ii)	*Pinus*
C.	Prothallus	(iii	*Marchantia*
D.	Mycorrhizae	(iv)	*Fucus*

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

116. In anaphase II of meiosis two .... separated
  (1) Homologues chromosome
  (2) Sister chromatids
  (3) Non-homologous chromosome
  (4) Two centrioles separated

117. Laminarin starch and Chlorophyll c is a feature of -
  (1) Polysiphonia
  (2) Moss
  (3) Kelp
  (4) Chara

118. The given diagram is L.S. of an embryo of grass. Identify A, B, C and D
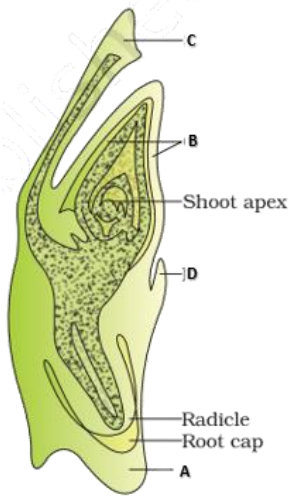
(1) A- Coleoptile, B- Coleorhiza, C- Epiblast, D- Scutellum
(2) A- Scutellum, B- Coleoptile, C- Coleorhiza, D- Epiblast
(3) A- Coleorhiza, B- Coleoptile, C- Scutellum, D- Epiblast
(4) A- Epiblast, B- Coleoptile, C- Scutellum, D- Coleorhiza

119. Match column I with column II and select the **correct** option from the codes given below.

	Column I		Column II
A.	Apocarpous	(i)	China rose
B.	Syncarpous	(ii)	Lotus
C.	Opposite phyllotaxy	(iii)	Tomato
D.	Alternate phyllotaxy	(iv)	Calotropis

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

120. Location of UTR (untranslated region) is
(1) At 5' end of tRNA
(2) At 5'end of mRNA after start codon
(3) At 3'end of mRNA after stop codon
(4) At 3' end of rRNA

121. Primary acceptor of PS II transfers its electron to hydrogen carrier in noncyclic photophosphorylation, that hydrogen carrier is -
(1) Plastocyanin
(2) Plastoquinone
(3) Phaeophytin
(4) Ferredoxin

122. Genetic code which has dual function like initiator and normal codon is.
(1) Methionine
(2) AUG
(3) UGG
(4) UAA

123. Colourblind men cannot have -
(1) Colourblind daughter
(2) Colourblind son
(3) Carrier daughter
(4) Daughter with both X-chromosome normal

124. All are the features of enzyme, **except**
(1) It decreases activation energy
(2) Involves in physical and chemical change
(3) Enzymatic reactions occur at very high temperature and pressure
(4) Shows maximum activity at optimum PH and temperature

125. Non-polymeric biomolecule present in acid insoluble pool is
(1) Palmitic acid
(2) Aspartic acid
(3) Glucose
(4) Starch

126. Read the following statements (1-4) and answer the question which follows them:
    1. Axial flower and green pods are dominant trait in Mendel's experiment in Pea Plant
    2. F2 generation in Mirabilis plant have three phenotypes.
    3. Blood group is an example of Dominance, co-dominance and multiple allele
    4. PKU is an example of polygenic inheritance

    How many of the above statements are **correct**?
    (1) Only 1 and 2
    (2) Only 2 and 3
    (3) Only 1, 2 and 3
    (4) All are correct

127. Read the given statements and select the **correct** option.
    Statement-A: In Euphorbia and Citrus, stem modified for photosynthesis
    Statement-B: Alstonia have Whorled phyllotaxy.
    (1) Both statements A and B are correct
    (2) Statement A is correct but Statement B is incorrect
    (3) Statement A is incorrect but Statement B is correct
    (4) Both statements A and B are incorrect.

128. Split gene is a feature of.
    (1) E. coli
    (2) Virus
    (3) Streptococcus
    (4) Plant cell

129. **Assertion:** Pyramid of biomass in sea is generally inverted.
    Reason: The biomass of fishes far exceeds that of phytoplanktons.
    (1) Both assertion and reason are true and reason is the correct explanation of assertion.
    (2) Both assertion and reason are true but reason is not the correct explanation of assertion.
    (3) Assertion is true but reason is false
    (4) Both assertion and reason are false.

130. Read the following **statements** (A-D) and answer the question which follows them:
    A. RNA polymerase involve in transcription of tRNA and rRNA in prokaryotes
    B. Gene for dystrophin protein is largest in human
    C. YAC and BAC not used in human genome project
    D. UTR in translation is for efficient translation

    How many of the above statements are **correct?**
    (1) Four
    (2) One
    (3) Two
    (4) Three

131. Read the following **statements** (1-4) and answer the question which follows them:
    1. IPM (integrated pest management) is for ecological sensitive area.
    2. Organic farmer does not use any chemical pesticide
    3. Nucleopolyhedrovirus shown to have negative impacts on non-target insects
    4. In paddy fields, fungi serve as an important biofertilizer.

How many of the above statements are **correct?**

(1) Only 1 and 2
(2) Only 2 and 3
(3) Only 1, 2 and 3
(4) All correct

132. Length of DNA present around octamer in nucleosome in chromatin of human cell is
(1) 200nm
(2) 100 base pair
(3) 200 base pair
(4) 34 nm

133. Immunosupressive agent Cyclosporin A is obtained from
(1) *Streptococcus*
(2) *E. coli*
(3) *Monascus*
(4) *Trichoderma*

134. **Assertion:** Operon model of control possible only in prokaryotes.
Reason: Prokaryotes structural genes show polycistronic.
(1) Both assertion and reason are true and reason is the correct explanation of assertion.
(2) Both assertion and reason are true but reason is not the correct explanation of assertion.
(3) Assertion is true but reason is false
(4) Both assertion and reason are false.

135. Read the following statements (A-D) and answer the question which follows them:
A. Edible part of coconut is endosperm
B. Pea & bean is non-endospermous
C. Mango and citrus show apomixis
D. Long viability of pollen observed in Rosaceae and Solanaceae.

How many of the above statements are **correct**?

(1) Four
(2) One
(3) Two
(4) Three

136. Match **column I** with **column II** and select the correct option from the codes given below.

	Column I		Column II
A.	Long viability of pollen	(i)	Rosaceae
B.	Water pollination	(ii)	Orchids
C.	Insect pollination	(iii)	Water hyacinth
D.	Large number tiny seed	(iv)	Zoostera

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

137. The biosynthesis of ribosomal RNA occurs in
(1) Golgi apparatus
(2) Microbodies
(3) Nucleolus
(4) Ribosomes

138. DNA is less reactive as it is
(1) Catalytic active
(2) Have uracil
(3) Have thymine and catalytic inactive
(4) Single stranded

139. Match column I with column II and select the correct option from the codes given below.

	Column I		Column II
A.	Exon	(i)	Present in processed mRNA
B.	Cistron	(ii)	Code for polypeptide
C.	Lac I gene	(iii)	Efficient translation
D.	UTR	(iv)	Repressor

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

140. Which is difference in Mitochondria and Plastids
(1) Double membrane
(2) Single double stranded circular DNA
(3) Involve in protein synthesis
(4) Cristae present

141. The rate of production of organic matter during photosynthesis is called-
(1) Standing crop
(2) Productivity
(3) Gross primary productivity
(4) Net primary productivity

142. **Assertion:** Enzyme substrate complex is reversible.
Reason: Enzyme activity is maximum at optimum temperature.
(1) Both assertion and reason are true and reason is the correct explanation of assertion
(2) Both assertion and reason are true but reason is not the correct explanation of assertion.
(3) Assertion is true but reason is false.
(4) Both assertion and reason are false.

143. Mark the **correct** statement
(1) Mitochondria can divide by fission
(2) Lysine and Phenylalanine is non-essential amino acid
(3) Cotton fibre and paper pulp is made up of starch
(4) Recombinase enzyme active in prophase -II

144. In sewage treatment plant, the BOD test measures the rate of uptake of oxygen by micro-organisms in a sample of water and thus-
(1) BOD is a direct measure of the organic matter present in the water.
(2) BOD is an indirect measure of the organic matter present in the water.
(3) BOD is a direct measure of the inorganic matter present in the water.
(4) BOD is an indirect measure of the inorganic matter present in the water.

145. Consider the following **matching** pairs.
A. Standing crop - Living material biomass
B. Herbivore - Second tropic level
C. Secondary Carnivore - Third tropic level
D. Detritus food chain - Start with producer

How many are **correctly** matched?
(1) Only A
(2) Only A and C
(3) Only A and B
(4) All are correct

146. **Assertion:** The possibility of a female becoming a haemophilic is extremely rare

    Reason: Mother of haemophilic female has to be at least carrier and the father should be haemophilic.
    (1) Both assertion and reason are true and reason is the correct explanation of assertion.
    (2) Both assertion and reason are true but reason is not the correct explanation of assertion.
    (3) Assertion is true but reason is false.
    (4) Both assertion and reason are false.

147. Some amino acids are coded by more than one codon, hence the code is
    (1) Degenerate
    (2) Universal
    (3) Triplet
    (4) Initiator

148. **Statement-A:** RQ for fats and protein is less than 1

    Statement-B: In lactic acid fermentation, no CO_2 evolved.
    (1) Both statements A and B are correct
    (2) Statement A is correct but statement B is incorrect
    (3) Statement A is incorrect but statement B is correct
    (4) Both statements A and B are incorrect

149. Infoldings of plasma membrane in bacteria meant for respiration is-
    (1) Chromatophore
   (2) Mesosome
    (3) Flagella
    (4) Pilli

150. Which of the following is **not** salient feature of human genome project.
    (1) Less than 2 per cent of the genome codes for proteins
    (2) The human genome contains 3164.7 million bp
    (3) Chromosome 1 has most genes (2968), and the Y has the fewest (231)
    (4) The average gene consists of 1000 bases, but sizes vary greatly

Zoology

SECTION – A

151. Stirred-tank bioreactors have been designed for
    (1) ensuring anaerobic conditions in the culture vessel.
    (2) addition of preservatives to the product.
    (3) availability of oxygen throughout the process.
    (4) purification of the product.

152. Identify the human development stage show below as well as the related right place of its occurrence in a normal pregnant woman, and select the right option for the two together
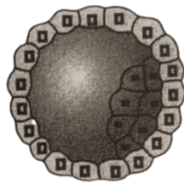
	Developmental stage	Site of Occurrence
(1)	Blastocyst	Uterine wall
(2)	8-celled morula	Starting point of fallopian tube
(3)	Late Morula	Middle part of fallopian tube
(4)	Blastula	End part of fallopian tube

153. **Assertion:** The processes include separation and purification, which are collectively referred to as downstream processing
    Reason: The downstream processing and quality control testing are same for all products
    (1) If both assertion and reason are true and reason is a correct explanation of assertion
    (2) If both assertion and reason are true but reason is not a correct explanation of assertion
    (3) If assertion is true but reason is false
    (4) If both assertion and reason are false

154. Match column I with column II and select the correct option from the codes given below.

Column-I	Column-II
A. Cleavage	(i) Fertilisation
B. Morula	(ii) Mitotic divisions
C. Polyspermy	(iii) Endometrium
D. Implantation	(iv) 8-16 blastomere

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

155. Genes involved in cancer are
    (1) Regulator gene
    (2) Tumor gene
    (3) Oncogenes
    (4) Suppressor genes

156. Animals belonging to phylum chordate are fundamentally characterized by the presence of structures noted as A, B, C and D.
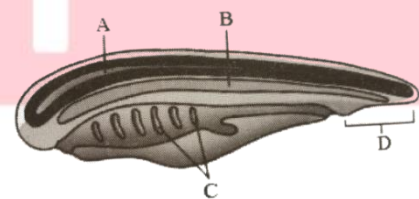
    Identify them and select the
    (1) A-Notochord, B-Nerve cord, C-Gill slits, D-Post-anal part
    (2) A-Notochord, B-Notochord, C-Gill slits, D-Post-anal part
    (3) A-Nerve cord, B-Notochord, C- Gill slits, D- Post-anal part
    (4) A-Nerve cord, B-Gill slits, C-Notochord, D-Post-anal part

157. The property of to emit light is shown by
(1) *Fasciola*
(2) *Ctenoplana*
(3) *Gorgonia*
(4) *Meandrina*

158. Which of the following statement is correct?
(1) The descending limb of loop of Henle is impermeable to water.
(2) The ascending limb of loop of Henle is permeable to water.
(3) The descending limb of loop of Henle is permeable to electrolytes.
(4) The ascending limb of loop of Henle is impermeable to water.

159. **Statement I:** Tertiary structure of a protein gives a 2-dimensional view of a protein.

   Statement II: Tertiary structure is necessary for the many biological activities of proteins.
(1) Both statements I and II are correct.
(2) Statemen I is correct but statement II is incorrect.
(3) Statement I is incorrect but statement II is correct
(4) Both statements I and II are incorrect.

160. Which of the following statement is false for uterus?
(1) It is also called womb and its shape is like an inverted pear
(2) It is supported by ligaments attached to the pelvic wall
(3) It opens into oviducts through cervix whose cavity is called cervical canal
(4) It is bound by three layers, outer perimetrium, middle myometrium and inner endometrium

161. Colostrum contains?
(1) IgG
(2) IgA
(3) IgM
(4) IgE

162. Which part of *cannabis sativa* is used to obtain cannabinoids?
(1) Flowers
(2) Latex
(3) Leaves
(4) Inflorescence

163. Select the incorrect match.
(1) Rosie – α-lactalbumin rich milk
(2) α-1-antitrypsin – Treatment of emphysema
(3) ELISA – Antigen-gene interaction
(4) Golden rice – Overcome vitamin A deficiency

164. Select the correct statement related to human evolution
(1) Homo erectus was discovered in Java in 1991
(2) Homo erectus had a large brain around 1600 cc
(3) It appears to parallel evolution of human brain and language
(4) None of these

165. Complete the following analogy Vertebrates: Brain: Cockroach: _____
(1) Lower-oesophageal ganglion
(2) Supra-oesophageal ganglion
(3) Nephrocytes
(4) Ommatidia

166. Which of the following statements is false about pancreas?
(1) Pancreas acts as both exocrine and endocrine glands
(2) Endocrine pancreas consists of "Islets of Langerhans"
(3) There are about 1-2 million islets of Langerhans representing only 1-2% of pancreatic tissue
(4) Pancreas secretes only insulin

167. Safest investigation technique used for cancer detection for internal organs
    (1) MRI
    (2) CT scan
    (3) X-ray
    (4) All of these

168. Neurons are excitable cells because their membranes are in a :
    (1) Depolarised state
    (2) Polarized state
    (3) Repolarized state
    (4) None of the above is correct

169. Which of the following has popularize the PCR (Polymerase Chain Reaction)?
    (1) Easy availability of DNA template
    (2) Availity of synthetic primers
    (3) Availability of cheap deoxyribonucleotides
    (4) Availability of 'Thermostable' DNA polymerase

170. Read the name of organism given in the box below.
    Aptenodytes, Columba, Neophron, Pavo
    How many organisms given in the box belongs to class aves?
    (1) 4
    (2) 3
    (3) 2
    (4) 1

171. The somatic neural system relays impulses
    (1) From CNS to involuntary organs
    (2) From CNS to skeletal muscles
    (3) From PNS to smooth muscles
    (4) From PNS to voluntary organs

172. Which of the following pairs of animals represent bony fishes?
    (1) *Exocoetus* and *Torpedo*
    (2) *Trygon* and *Torpedo*
    (3) *Clarias* and *Exocoetus*
    (4) *Betta* and *lchythyophis*

173. **Statement-A:** If the total amount of adenine in eukaryotic ds DNA is 30% then total pyrimidine content is 50%.
    Statement-B: Nitrogenous bases do not form part of backbone in DNA.
    Select the correct option.
    (1) Statement A is incorrect
    (2) Statement B is incorrect
    (3) Both statement A and B are incorrect
    (4) Both statement A and B are correct

174. Layers of uterus from outside to inside are:
    (1) Myometrium, Endometrium and Promethium
    (2) Perimetrium, Endometrium and Myometrium
    (3) Perimetrium, Myometrium and Endometrium
    (4) Endometrium, Myometrium and Perimetrium

175. Read the following statement A and B.
    (A) Lamprey belongs to the class cyclostomata.
    (B) Cranium and vertebral column of *Petromyzon* are bony.
    Choose the correct option.
    (1) Statement A is correct but B is incorrect
    (2) Statement A is incorrect but B is correct
    (3) Both statements are correct
    (4) Both statements are incorrect

176. Which among the following is not a part of Hind brain?
    (1) Pons
    (2) Cerebral aqueduct
    (3) Cerebellum
    (4) Medulla

177. Which among the following is not true regarding lymph:
    (1) it is colourless fluid
    (2) It act as a carrier for nutrients
    (3) It contains specialized lymphocytes
    (4) Fats can't get absorbed through lymph

178. Match the column I to Column II and find the incorrect match.

Column I	Column II
Hormone	**Disease**
(1) Exopthalamic goitre	P. Grave's disease
(2) Hypothyroidism	Q. Cretinism
(3) Deficiency of Iodine	R. Hypothyroidism
(4) TCT	S. Na^+ level in blood

179. Read the following four statements (a) – (d):
    (a) The first transgenic buffalo Rosie produced milk which was human alpha lactalbumin enriched.
    (b) Restriction enzymes are used in isolation of DNA from other macro molecules.
    (c) Downstream processing is one of the steps of rDNA technology.
    (d) Disarmed pathogen vectors are also used in transfer of rDNA into the host.
   Which are the two statements that are not true?
    (1) Statements (a) and (c)
    (2) Statements (a) and (b)
    (3) Statements (b) and (c)
    (4) Statements (c) and (d)

180. **Statement-I:** The new life forms arises from the pre-existing life forms according to Pasteur.
    Statement-II: Selection of useful variation by nature is termed as natural selection.
    (1) Both statement I and II are correct
    (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 II are incorrect.

181. The return of ventricles from excited to normal state is represented in ECG by the wave labelled _____.
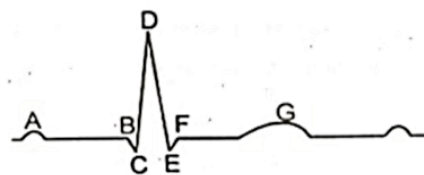
Choose the option that fills the blank correctly.
    (1) B
    (2) E
    (3) F
    (4) G

182. Match the items given in Column I with those in Column II and select the correct option given below:

	Column I		Column II
a.	Tricuspid valve	i.	Between left atrium and left ventricle
b.	Bicuspid valve	ii.	Between right ventricle and pulmonary artery
c.	Semilunar valve	iii.	Between right atrium and right ventricle

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

183. Arrange the given steps of respiration in the sequence of event they occur.
    (i) Diffusion of gases O_2 and CO_2 across the alveolar membrane.
    (ii) Transport of gases by the blood.
    (iii) Utilization of O_2 by the cells for catabolic reactions and the resultant release of CO_2.
    (iv) Pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out.
    (v) Diffusion of O_2 and CO_2 between the blood and tissue.
    Choose the correct option

(1) IV → I → II → V → III

(2) III → II → V → I → IV

(3) V → IV → III → II → I

(4) V → IV → III → I → II

184. The three chemically distinct components of a nucleotide are
(1) Heterocyclic compound, monosaccharide, phosphoric acid
(2) Homocyclic compound, disaccharides, phosphoric acid
(3) Heterocyclic compound, monosaccharides, sulphuric acid
(4) Heterocyclic compound, polypeptide, phosphoric acid.

185. Islet of Langerhans of Pancreas ha two types of cells

A-Cells→ Secretes Insulin → Causes − D
B − cells → Secretes − C → Causes − E

(1) A-α;B-β; C-Glucagon; D-Hyperglucemia, E-Hypoglycemia
(2) A-β; B-α; C-cortisol; D-Hypoglycemia, E-Hyperglycemia
(3) A-β; B-α; C-Cortisol; D-Hypoglycemia; E- Hypoglycemia
(4) A-β; B-α; C- Glucagon; D-Hypoglycemia; E- Hyperglycemia

SECTION – B

186. The double helix model for the structure of DNA proposed by Watson and Crick was based on
(1) Visible light spectrum analysis
(2) Chromatography
(3) X-ray diffraction data
(4) Autoradiography

187. Synaptic cleft is a gap between
(1) Axon and cyton
(2) Pre-synaptic and post-synaptic membrane
(3) Synapse and neuromuscular junction
(4) PNS and CNS

188. Which layer of cranial meninges is in contact with the brain tissue
(1) Pia mater
(2) Dura mater
(3) Arachnoid
(4) All of these

189. In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by:
(1) p^2
(2) $2pq$
(3) pq
(4) q^2

190. Which one of the following options gives the correct matching of a disease with its causative organism and mode of infection?

	Disease	Causative	Mode of organism infection
(1)	Typhoid	Salmonella typhi	With inspired air
(2)	Pneumonia	Streptococcus pneumoniae	Droplet infection
(3)	Elephantiasis	Wuchereria bancrofti	With infected water and food
(4)	Malaria	Plasmodium vivax	Bite of male anopheles mosquito

191. Common cold differs from pneumonia in that
(1) Pneumonia is a communicable disease whereas the common cold is a nutritional deficiency disease
(2) Pneumonia can be prevented by a live attenuated viral vaccine whereas the common cold has no effective vaccine
(3) Pneumonia is caused by a virus while the common cold is caused by the bacterium Haemophilus influenzae
(4) Pneumonia pathogen infects alveoli whereas the common cold affects nose and respiratory passage but not the lungs

192. Diseases are broadly grouped into infectious and non-infectious diseases. In the list given below, identify the infectious diseases.
    (i) Cancer
    (ii) Influenza
    (iii) Allergy
    (iv) Small pox
    (1) i and ii
    (2) ii and iii
    (3) iii and iv
    (4) ii and iv

193. **Assertion:** SAN is also known as pacemaker of heart
    Reason: SAN generate the maximum number of action potentials and is responsible for initiating and maintaining the rhythmic contractile activity of the heart.
    (1) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
    (2) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
    (3) If Assertion is True but the Reason is False.
    (4) If both Assertion & Reason are False.

194. Which of the following is not a secondary metabolite?
    (1) Curcumin
    (2) Morphine
    (3) Anthocyanin
    (4) Lecithin

195. Which of the following health disorder includes symptoms of fever, chills, cough, headache, gray or bluish lips and finger's nails?
    (1) Filariasis
    (2) Typhoid
    (3) Pneumonia
    (4) Malaria

196. Match List – I with List - II

	List-I		List-II
(A)	Terpenoides	(I)	Codeine
(B)	Lectins	(II)	Diterpenes
(C)	Alkaloids	(III)	Ricin
(D)	Toxins	(IV)	Concanavalin A

Choose the correct answer from the options given below:

	(A)	(B)	(C)	(D)
(1)	II	IV	III	I
(2)	II	I	IV	III
(3)	II	III	I	IV
(4)	II	IV	I	III

197. The gap between meiosis I and meiosis II is not characterized with
    (1) Centriole duplication in animal cells
    (2) RNA synthesis
    (3) Protein synthesis
    (4) DNA replication

198. Bivalent or a tetrad is formed in
    (1) Zygotene
    (2) Diplotene
    (3) Leptotene
    (4) Diakinesis

199. Amongst the following, which one has least number of nucleotides in its genome?
    (1) $\emptyset \times 174$ bacteriophage
    (2) E. coli
    (3) Human
    (4) Lambda phage

200. **Assertion:** PTH is a hypercalcaemic hormone.
    Reason: PTH increases blood calcium level.
    (1) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
    (2) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
    (3) If Assertion is True but the Reason is False.
    (4) If both Assertion & Reason are False.