_____

Important Instructions for the test:

1. The Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars on OFFICE Copy carefully with **blue/black** ball point pen only.

2. The test is of 3 hours duration and the Test Booklet contains 200 multiple-choice questions (four options with a single correct answer) from Physics, Chemistry and Biology (Botany and Zoology). 50 questions in each subject are divided into two Sections (A and B) as per details given below : (a) Section A shall consist of 35 (Thirty-five) Questions in each subject (Question Nos – 1 to 35, 51 to 85, 101 to 135 and 151 to 185). All questions are compulsory. (b) Section B shall consist of 15 (Fifteen) questions in each subject (Question Nos – 36 to 50, 86 to 100, 136 to 150 and 186 to 200). In Section B, a candidate needs to attempt any 10 (Ten) questions out of 15 (Fifteen) in each subject. Candidates are advised to read all 15 questions in each subject of Section B before they start attempting the question paper. In the event of a candidate attempting more than ten questions, the first ten questions answered by the candidate shall be evaluated.

3. 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 scores. The maximum marks are 720.

4. **Use Blue/Black Ball Point Pen** only for writing particulars on this page/marking responses on Answer Sheet.

5. Rough work is to be done in the space provided for this purpose in the Test Booklet only.

6. On completion of the test, the candidate must hand over the Answer Sheet (ORIGINAL and OFFICE Copy) to the Invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.

7. Do not make any stray marks on the Answer Sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet/ Answer Sheet.

8. Use of white fluid for correction is NOT permissible on the Answer Sheet.

9. No candidate, without special permission of the centre Superintendent or Invigilator, would leave his/her seat.

10. The candidates should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and sign (with time) the Attendance Sheet twice. Cases, where a candidate has not signed the Attendance Sheet second time, will be deemed not to have handed over the Answer Sheet and dealt with as an Unfair Means case

11. The candidates will write the Correct Test Booklet Code as given in the Test Booklet/Answer Sheet in the Attendance Sheet.

Neelesh Sir (9898966050)

Physics

SECTION : A

1. The dimensional formula for angular momentum is
(1) $[M^0 L^2 T^{-2}]$
(2) $[ML^2 T^{-1}]$
(3) $[MLT^{-1}]$
(4) $[ML^2 T^{-2}]$

2. Match List-I with List-II

List-I	List-II
(Electromagnetic waves)	**(Wavelength)**
(a) AM radio waves	(i) 10^{-10} m
(b) Microwaves	(ii) 10^2 m
(c) Infrared radiations	(iii) 10^{-2} m
(d) X-rays	(iv) 10^{-4} m

Choose the correct answer from the options given below
(1) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)
(2) (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)
(3) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
(4) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)

3. A particle covers half of its total distance with speed $v1$ and the rest half distance with speed $v2$. Its average speed during the complete journey is
(1) $\dfrac{v_1 v_2}{v_1 + v_2}$

(2) $\dfrac{2v_1 v_2}{v_1 + v_2}$

(3) $\dfrac{2v_1^2 v_2^2}{v_1^2 + v_2^2}$

(4) $\dfrac{v_1 + v_2}{2}$

4. A stone tied with a string, is rotated in a vertical circle. The minimum speed with which the string has to be rotated
(1) is independent of the mass of the stone
(2) is independent of the length of the string
(3) decreases with increasing mass of the stone
(4) decreases with increasing length of the strin

5. A small sphere is attached to a cord and rotates in a vertical circle about a point O. If the average speed of the sphere is increased, the cord is most likely to break at the orientation when the mass is at
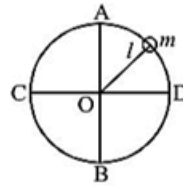

(1) bottom point B
(2) the point C
(3) the point D
(4) top point A

6. The angular speed of a fly wheel moving with uniform angular acceleration changes from 1200rpm to 3120rpm in 16 seconds. The angular acceleration in rad/s2 is :
(1) 2π
(2) 4π
(3) 12π
(4) 104π

7. An ideal gas undergoes four different processes from the same initial state as shown in the figure below. Those processes are adiabatic, isothermal, isobaric and isochoric. The curve which represents the adiabatic process among 1, 2, 3 and 4 is
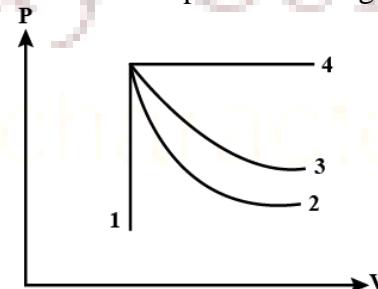

(1) 1
(2) 2
(3) 3
(4) 4

8. A 5000 kg rocket is set for vertical firing. The exhaust speed is 800 ms–1. To give an initial upward acceleration of 20 ms–2, the amount of gas ejected per second to supply the needed thrust will be (g = 10 ms^{-2})

(1) 127.5 kg s^{-1}
(2) 187.5 kg s^{-1}
(3) 185.5 kg s^{-1}
(4) 137.5 kg s^{-1}

9. A body of mass 1 kg is thrown upwards with a velocity 20 m/s^{-1}. It momentarily comes to rest after attaining a height of 18 m. How much energy is lost due to air friction? (g = 10 m/s^{-2})
(1) 30 J
(2) 40 J
(3) 10 J
(4) 20 J

10. In a rectangle ABCD (BC =2AB). The moment of inertia is minimum along axis through
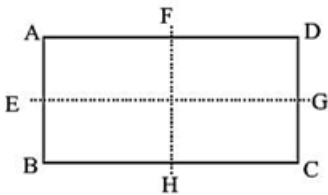
(1) BC
(2) BD
(3) HF
(4) EG

11. A small mass attached to a string rotates on a frictionless table top as shown. If the tension in the string is increased by pulling the string causing the radius of the circular motion to decrease by a factor of 2, the kinetic energy of the mass

(1) remain constant
(2) increase by a factor of 2
(3) increase by a factor of 4
(4) decrease by a factor of 2

12. The escape velocity of a sphere of mass m is given by (G= Universal gravitational constant; M= Mass of the earth and Re = Radius of the earth)

(1) $\sqrt{\dfrac{GM}{R}}$

(2) $\sqrt{\dfrac{2GM}{R_e}}$

(3) $\sqrt{\dfrac{2GMm}{R_e}}$

(4) $\sqrt{\dfrac{2GM+R_e}{R_e}}$

13. The potential energy of a satellite, having mass m and rotating at a height of 6.4×10^6 m from the earth surface, is
(1) $- mgRe$
(2) $- 0.67 \ mgRe$
(3) $- 0.5 \ mgRe$
(4) $- 0.33 \ mgRe$

14. The compressibility of water is 4×10^{-5} per unit atmospheric pressure. The decrease in volume of 100 cm^3 of water under a pressure of 100 atmosphere will be
(1) 0.4 cm^3
(2) 4×10^{-5} cm^3
(3) 0.025 cm^3
(4) 0.004 cm^3
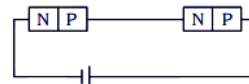
15.


In the given circuits (a), (b) and (c), the potential drop across the two *p-n* junctions are equal in
(1) Circuit (a) only
(2) Circuit (b) only
(3) Circuit (c) only
(4) Both circuits (a) and (c)

Neelesh Sir (9898966050)

16. An ideal carnot engine, whose efficiency is 40% receives heat at 500 K. If its efficiency is 50%, then the intake temperature for the same exhaust temperature is
(1) 600 K
(2) 700 K
(3) 800 K
(4) 900 K

17. An ideal gas from state A to state B via three different processes as indicated in the P-V diagram.
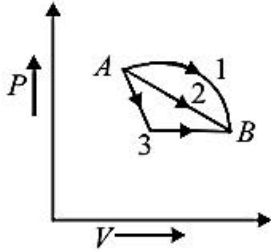
If Q_1, Q_2, Q_3 indicates the heat a absorbed by the gas along the three process and ΔU_1, ΔU_2, ΔU_3 Indicate the change in internal energy along the three process respectively, then
(1) $Q_1 > Q_2 > Q_3$ and $\Delta U_1 = \Delta U_2 = \Delta U_3$
(2) $Q_3 > Q_2 > Q_1$ and $\Delta U_1 = \Delta U_2 = \Delta U_3$
(3) $Q_1 = Q_2 = Q_3$ and $\Delta U_1 > \Delta U_2 > \Delta U_3$
(4) $Q_3 > Q_2 > Q_1$ and $\Delta U_1 > \Delta U_2 > \Delta U_3$

18. The composition of two simple harmonic motions of equal periods at right angle to each other and with a phase difference of S results in the displacement of the particle along
(1) circle
(2) figures of eight
(3) straight line
(4) ellipse

19. In case of a forced vibration, the resonance wave becomes very sharp when the
(1) quality factor is small
(2) damping force is small
(3) restoring force is small
(4) applied periodic force is small

20. 5. A biconvex lens has radii of curvature, 20 cm each. If the refractive index of the material of the lens is 1.5, the power of the lens is
(1) +2 D
(2) +20 D
(3) +5 D
(4) Infinity

21. In a sinusoidal wave, the time required for a particular point to move from maximum displacement to zero displacement is 0.170 sec. The frequency of the wave is
(1) 1.47 Hz
(2) 0.36 Hz
(3) 0.73 Hz
(4) 2.94 Hz

22. Two identical piano wires kept under the same tension T have a fundamental frequency of 600 Hz. The fractional increase in the tension of one of the wires which will lead to occurrence of 6 beats/s when both the wires oscillate together would be
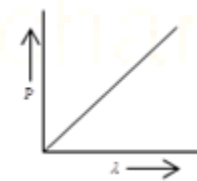(1) 0.02
(2) 0.03
(3) 0.04
(4) 0.01

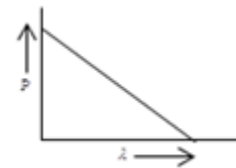23. The graph which shows the variation of the de Broglie wavelength (λ) of a particle and its associated momentum (p) is
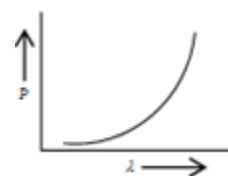(1)

(2)

(3)

(4)

Neelesh Sir (9898966050)
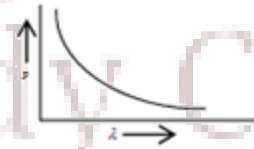
24. As the temperature increases, the electrical resistance
(1) Increases for both conductors and semiconductors
(2) Decreases for both conductors and semiconductors
(3) Increases for conductors but decreases for semiconductors
(4) Decreases for conductors but increases for semiconductors

25. A current of 2 A, passing through a conductor produces 80 Jof heat in 10 seconds. The resistance of the conductor in ohm is
(1) 0.5
(2) 2
(3) 4
(4) 20

26. In electrolysis, the amount of mass deposited or liberated at an electrode is directly proportional to
(1) square of electric charge
(2) amount of charge
(3) square of current
(4) concentration of electrolyte

27. Kirchhoff's first and second laws for electrical circuits are consequences of
(1) conservation of electric charge and energy respectively
(2) conservation of electric charge
(3) conservation of energy and electric charge respectively
(4) conservation of energy

28. A wire of resistance 4 Ω is stretched to twice its original length. The resistance of stretched wire would be
(1) 4 Ω
(2) 8 Ω
(3) 16 Ω
(4) 0 Ω

29. For protecting a sensitive equipment from the external electric arc, it should be
(1) wrapped with insulation around it when a current is passing through it
(2) placed inside an iron can

(3) surrounded with fine copper sheet
(4) placed inside an aluminium can

30. If the number of turns per unit length of a coil of solenoid is doubled, the self-inductance of the solenoid will
(1) remain unchanged
(2) be halved
(3) be doubled
(4) become four times

31. A spherical ball is dropped in a long column of a highly viscous liquid. The curve in the graph shown, which represents the speed of the ball (v) as a function of time (t) is
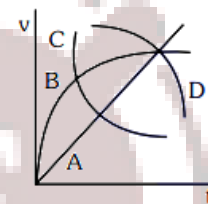
(1) A
(2) B
(3) C
(4) D

32. Which of the following, is the longest wave?
(1) X-rays
(2) γ -rays
(3) microwaves
(4) radiowaves

33.A ray is incident at an angle of incidence i on one surface of a prism of small angle A and emerges normally from the opposite surface. If the refractive index of the material of prism is P, the angle of incidence is nearly equal to

(1) $\frac{A}{\mu}$

(2) $\frac{A}{2u}$

(3) μA

(4) $\frac{\mu A}{2}$

34.A convex lens is dipped in a liquid whose refractive index is equal to the refractive index of the lens. Then its focal length will
(1) remain unchanged

(2) become zero

(3) become infinite

(4) become small, but non-zero

35.The Young's double slit experiment is performed with blue and with green light of wavelengths 4360Åand 5460Årespectively. If x is the distance of 4th maxima from the central one, then

(1) y(blue) = y(green)

(2) y (blue) > y (green)

(3) y (blue) < y (green)

(4) y(blue)/y(green)=5460/3260

SECTION : B

36. When light of wavelength 300 nm (nanometer) falls on a photoelectric emitter, photoelectrons are liberated. For another emitter, however, light of 600 nm wavelength is sufficient for creating photoemission. What is the ratio of the work functions of the two emitters?
(1) 1: 2
(2) 2: 1
(3) 4: 1
(4) 1: 4

37. A 5 watt source emits monochromatic light of wavelength 5000 Å. When placed 0.5 m away, it liberates photoelectrons from a photosensitive metallic surface. When the source is moved to a distance of 1.0 m, the number of photoelectrons liberated will be reduced by a factor of
(1) 8
(2) 16
(3) 2
(4) 4

38. In terms of Bohr radius a0, the radius of the second Bohr orbit of a hydrogen atom is given by
(1) $4\alpha_0$
(2) $8\,\alpha_0$
(3) $\sqrt{2}\,\alpha_0$
(4) $2\,\alpha_0$

39. An electron in the hydrogen atom jumps from excited state n to the ground state. The wavelength so emitted illuminates a photosensitive material having work function 2.75 eV. If the stopping potential of the photoelectron is 10 V, the value of n is
(1) 3
(2) 4
(3) 5
(4) 2

40. The binding energy per nucleon is maximum in case of
(1) $_{2}^{4}He$
(2) $_{26}^{56}Fe$
(3) $_{56}^{141}Ba$
(4) $_{92}^{235}U$

41. Solar energy is mainly caused due to
(1) gravitational contraction
(2) burning of hydrogen in the oxygen
(3) fission of uranium present in the Sun
(4) fusion of protons during synthesis of heavier elements

42. The power obtained in a reactor using U^{235} disintegration is 1000 kW. The mass decay of U^{235} per hour is
(1) 10 microgram
(2) 20 microgram
(3) 40 microgram
(4) 1 microgram

43. The dimensions [$MLT^{-2} A^{-2}$] belong to the
(1) Magnetic flux
(2) Self inductance
(3) Magnetic permeability
(4) Electric permittivity

44. In the case of a common emitter transistor amplifier, the ratio of the collector current to the emitter current I_c /I_e o s0.96. the current gain of the amplifier is
(1) 6
(2) 48
(3) 24
(4) 12

45. The number of beta particles emitted by a radioactive substance is twice the number of alpha particles emitted by it. The resulting daughter is an
(1) isomer of parent
(2) isotone of parent
(3) isotope of parent
(4) isobar of parent

46. A parallel plate capacitor has a uniform electric field '$\vec{E}$' in the space between the plates. If the distance between the plate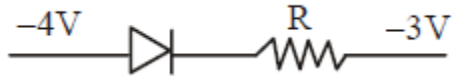s is 'd' and the area of each plate is 'A', the energy stored in the capacitor is (ϵ_0= permittivity of free space)
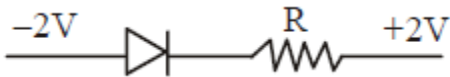(1) $\frac{E^2 Ad}{\epsilon_0}$
(2) $\frac{1}{2}\epsilon_0 E^2$

(3) $\epsilon_0 EAd$

(4) $\frac{1}{2}\epsilon_0 E^2 Ad$

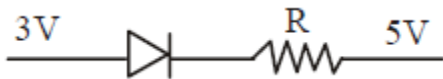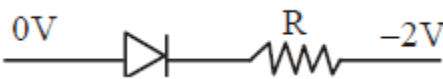47. Which one of the following represents forward bias diode

(1)

-4V ▷|— R ∿∿ -3V

(2)

-2V ▷|— R ∿∿ +2V

(3)

3V ▷|— R ∿∿ 5V

(4)

0V ▷|— R ∿∿ -2V

48. An electron is accelerated through a potential difference of 10,000 V. Its de Broglie wavelength is, (nearly) : (me $= 9 \times 10^{-31}$ kg)
(1) 12.2×10^{-13} m
(2) 12.2×10^{-12} m
(3) 12.2×10^{-14} m
(4) 12.2 nm

49. The de-Broglie wavelength of a neutron in thermal equilibrium with heavy water at a temperature T (Kelvin) and mass m ,
(1) $\frac{2h}{\sqrt{3mkT}}$
(2) $\frac{h}{\sqrt{3mkT}}$
(3) $\frac{2h}{\sqrt{mkT}}$
(4) $\frac{h}{\sqrt{mkT}}$

50. A long solenoid of diameter 0.1 m has 2×10^4 turns per meter. At the centre of the solenoid, a coil of 100 turns and radius 0.01 m is placed with its axis coinciding with the solenoid axis. The current in the solenoid reduces at a constant rate to 0A from 4 A in 0.05 s. If the resistance of the coil is $10\pi^2\Omega$.

the total charge flowing through the coil during this time is
(1) 16 μC
(2) 32 μC
(3) 16 πμC
(4) 32 πμC

Neelesh Sir (9898966050)
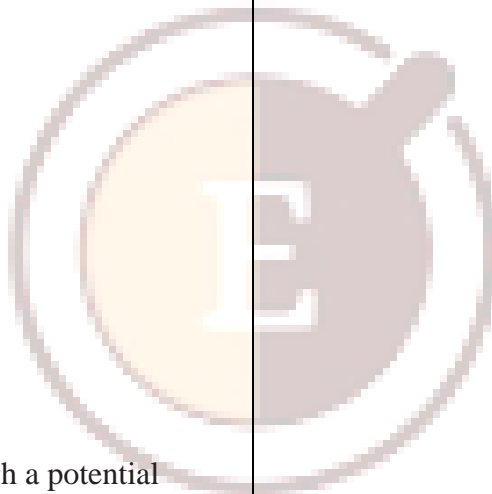
Chemistry

SECTION A

51. At S.T.P. the density of CCl_4 vapours in g/L will be nearest to:
(1) 6.87
(2) 3.42
(3) 10.26
(4) 4.57

52. An element, X has the following isotopic composition:
^{200}X: 90 %
^{199}X: 8.0%
^{202}X: 2.0%
The weighted average atomic mass of the naturally occuring element X is closest to
(1) 201 amu
(2) 202 amu
(3) 199 amu
(4) 200 amu

53. Maximum number of electrons in a subshell of an atom is determined by the following:
(1) $2l + 1$
(2) $4l - 2$
(3) $2n^2$
(4) $4l + 2$

54. The element, with atomic number 998, will be
(1) alkali
(2) noble gas
(3) lanthanide
(4) transition element

55. Which of the following order is wrong?
(1) $NH_3 < PH_3 < AsH_3$ – Acidic
(2) $Li < Be < B < C$ – First IP
(3) $Al_2O_3 < MgO < Na_2O < K_2O$ – Basic
(4) $Li^+ < Na^+ < K^+ < Cs^+$ – Ionic radius

56. Which of the following bonds will be most polar?
(1) N– Cl
(2) O– F
(3) N– F
(4) N– N

57. The number of unpaired electrons in a paramagnetic diatomic molecule of an element with atomic number 96 is
(1) 3
(2) 4
(3) 1
(4) 2

58. pH of a saturated solution of $Ca(OH)_2$ is 9. The solubility product (K_{sp}) of $Ca(OH)_2$ is:
(1) 0.5×10^{-15}
(2) 0.25×10^{-10}
(3) 0.125×10^{-15}
(4) 0.5×10^{-10}

59. If the rate constant for a first order reaction is k, the time (t) required for the completion of 99% of the reaction is given by:
(1) $t = 0.693/k$
(2) $t = 6.909/k$
(3) $t = 4.606/k$
(4) $t = 2.303/k$

60. The IUPAC name of an element with atomic number 119 is
(1) ununoctium
(2) ununennium
(3) unnilennium
(4) unununnium

61. Which statement regarding polymers is not correct?
(1) Thermosetting polymers are reusable
(2) Elastomers have polymer chains held together by weak intermolecular forces
(3) Fibers possess high tensile strength
(4) Thermoplastic polymers are capable of repeatedly softening and hardening on heating and cooling respectively.

62. At 298 K, the standard electrode potentials of Cu^{2+}/Cu, Zn^{2+}/Zn, Fe^{2+}/Fe and Ag^+/Ag are 0.34 V, –0.76 V, –0.44 V and 0.80 V, respectively.
On the basis of standard electrode potential, predict which of the following reaction cannot occur?
(1) $2CuSO_4(aq) + 2Ag(s) \rightarrow 2Cu(s) + Ag_2SO_4(aq)$
(2) $CuSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Cu(s)$

Neelesh Sir (9898966050)

(3) $CuSO_4(aq) + Fe(s) \rightarrow FeSO_4(aq) + Cu(s)$
(4) $FeSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Fe(s)$
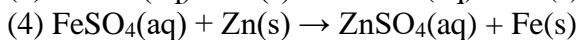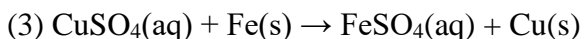
63. The solubility of product of CuS, Ag_2s and HgS are 10^{-31} , 10^{-44}, 10^{-54} respectively. The solubililties of these sulphides are in the order
(1) $Ag_2 S> HgS> CuS$
(2) $Ag_2 S> CuS> HgS$
(3) $HgS> Ag_2 S> CuS$
(4) $CuS> Ag_2 S> HgS$

64. Which of the following pairs constitutes a buffer?
(1) NaOHand NaCl
(2) HNO_3 and NH_4NO_3
(3) HCl and KCl
(4) HNO_2 and $NaNO_2$

65. Which of the following groups of ions makes the water hard?
(1) Sodium and bicarbonate
(2) Magnesium and chloride
(3) Potassium and sulphate
(4) Ammonium and chloride.

66. The alkali metals form salt-like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hydrides decreases in which of the following orders?
(a) CsH> RbH> KH> NaH> LiH
(b) KH> NaH> LiH> CsH> RbH
(c) NaH> LiH> KH> RbH> CsH
(d) LiH> NaH> KH> RbH> CsH

67. Which one of the following is present as an active ingredient in bleaching powder for bleaching action?
(1) $CaOCl_2$
(2) $Ca(OCl)_2$
(3) CaO_2Cl
(4) $CaCl_2$

68. Cyclic hydrocarbon 'A' has all the carbon and hydrogen atoms in a single plane. All the carbon carbon bonds have the same length, less than 1.54 Å, but more than 1.34 Å. The C– C– C bond angle will be
(1) 109° 28'
(2) 100°
(3) 180°

(4) 120°

69. Name of the compound given below is
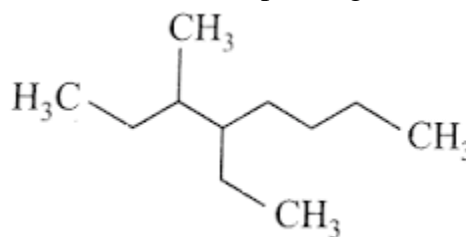
(1) 5-ethyl-6-methyloctane
(2) 4-ethyl-3-methyloctane
(3) 3-methyl-4-ethyloctane
(4) 2,3Diethyl heptane

70. In the hydrocarbon

$$\overset{6}{CH_3} - \overset{5}{CH} = \overset{4}{CH} - \overset{3}{CH_2} - \overset{2}{C} \equiv \overset{1}{CH}$$
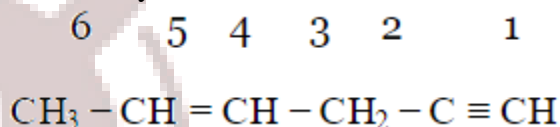
The state of hybrization of carbons 1, 3 and 5 are in the following sequence:
(1) sp^2 , sp, sp^3
(2) sp, sp^3 , sp^2
(3) sp, sp^2 , sp^3
(4) sp^3, sp^2, sp

71. Among the given compounds, the most susceptible to nucleophilic attack at the carbonyl group is:
(1) CH_3COOCH_3
(2) CH_3CONH_2
(3) $CH_3COOCOCH_3$
(4) CH_3COCI

72. A hydrocarbon Aon chlorination gives Bwhich on heating with alcoholic potassium hydroxide changes into another hydrocarbon C. The latter decolourises Baeyer's reagent and on ozonolysis forms formaldehyde only. Ais
(1) Ethane
(2) Butane
(3) Methane
(4) Ethene

73. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives 'X' and reaction in presence of light gives 'Y'. Thus, 'X' and 'Y' are:
(1) X= Benzal chloride,

Y= o – Chlorotoluene
(2) X= m – Chlorotoluene,
Y= p – Chlorotoluene
(3) X= o –and p – Chlorotoluene,
Y= Trichloromethyl – benzene
(4) X= Benzyl chloride,
 Y= m – Chlorotoluene

74. In the presence of platinum catalyst, hydrocarbon A adds hydrogen to form n-hexane. When hydrogen bromide is added to A instead of hydrogen, only a single bromo compound is formed. Which of the following is A?
(a) $CH_3 — CH_2 — CH = CH— CH_2 — CH_3$
(b) $CH_3 — CH_2 — CH_2 — CH = CH— CH_3$
(c) $CH_3 — CH = CH— CH_2 — CH_2 — CH_3$
(d) $CH_2 = CH— CH_2 — CH_2 — CH_2 — CH_3$

75. Given below are two statements
Statement I: In the coagulation of a negative sol, the flocculating power of the three given ions is in the order.
$Al^{3+} > Ba^{2+} > Na^+$
Statement II: In the coagulation of a positive sol, the flocculating power of the three given salts is in the order
$NaCl > Na_2SO_4 > Na_3PO_4$
In the light of the above statements, choose the most appropriate answer from the options given below
(1) Statement I is incorrect but Statement II is correct.
(2) Both Statement I and Statement II are correct.
(3) Both Statement I and Statement II are incorrect.
(4) Statement I is correct but Statement II is incorrect.

76. Which of the following statement is not correct about diborane?
(1) Both the Boron atoms are sp^2 hybridised.
(2) There are two 3-centre-2-electron bonds.
(3) The four terminal B-H bonds are two centre two electron bonds.
(4) The four terminal Hydrogen atoms and the two Boron atoms lie in one plane.

77. For the reduction of silver ions with copper metal, the standard cell potential was found to be +0.46 V at 25^0C. The value of standard Gibbs energy, ΔG^0 will be (F =96500 C mol^{-1})
(1) – 89.0 kJ
(2) – 89.0 J
(3) – 44.5 kJ
(4) – 98.0 kJ

78. What mass of 95% pure $CaCO_3$ will be required to neutralise 50 mL of 0.5 M HCl solution according to the following reaction?
$CaCO_{3(s)} + 2HCl_{(aq)} \rightarrow CaCl_{2(aq)} + CO_{2(g)} + 2H_2O_{(l)}$
[Calculate upto second place of decimal point]
(1) 9.50 g
(2) 1.25 g
(3) 1.32 g
(4) 3.65 g
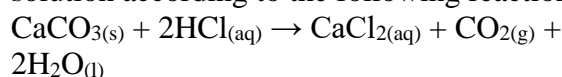
79. During dialysis
(1) only solvent molecules can diffuse
(2) solvent molecules, ions and colloidal particles can diffuse
(3) all kinds of particles can diffuse through the semi-permeable membrane
(4) solvent molecules and ions can diffuse

80.Bleaching powder reacts with a few drops of dilute HCl to give
(1) chlorine
(2)hypochlorous acid
(3)calcium oxide
(4)oxygen

81. Amongst the following which one will have maximum 'lone pair - lone pair' electron repulsions?
(1) XeF_2
(2) ClF_3
(3) IF_5
(4) SF_4

82 .The correct order of increasing bond angles in the following species are:
(1) $Cl_2O < ClO_2 < ClO_2^-$
(2) $ClO_2 < Cl_2O < ClO_2^-$
(3) $Cl_2O < ClO_2^- < ClO_2$
(4) $ClO_2^- < Cl_2O < ClO_2$

83. Actinides
(1) Are all synthetic elements

(2) Include element 104

(3) Have any short lived isotopes

(4) Have variable valency

84. In which of the following pairs are both the ions coloured in aqueous solutions?

(1) Sc^{3+}, Ti^{3+}

(2) Sc^{3+}, Co^{2+}

(3) Ni^{2+}, Cu^{+}

(4) Ni^{2+}, Ti^{3+}

85. Choose the correct statement:

(1) Both diamond and graphite are used as dry lubricants.

(2) Diamond and graphite have two dimensional network.

(3) Diamond is covalent and graphite is ionic.

(4) Diamond is sp^3 hybridised and graphite is sp^2 hybridized.
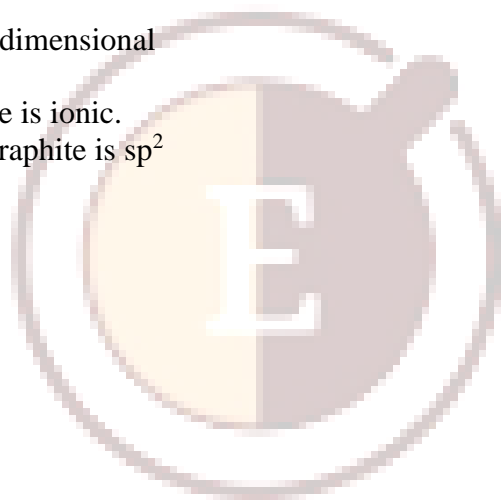
SECTION : B

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

Assertion (A):
In a particular point defect, an ionic solid is electrically neutral, even if few of its cations are missing from its unit cells.

Reason (R):
In an ionic solid, Frenkel defect arises due to dislocation of cation from its lattice site to interstitial site, maintaining overall electrical neutrality.

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

(1) (A) is not correct but (R) is correct
(2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
(3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(4) (A) is correct but (R) is not correct

87. Zerevitinov's determination of active hydrogen in a compound is based upon its reaction with
(1) Na
(2) CH_3MgI
(3) Zn
(4) Al

88. The stablest among the following is
(1) $CH_3CH(OH)_2$
(2) $ClCH_2CH(OH)_2$
(3) $(CH_3)_2 C(OH)_2$
(4) $CCl_3 CH(OH)_2$

89. Acetaldehyde reacts with
(1) Electrophiles only
(2) Nucleophiles only
(3) Free radicals only
(4) Both electrophiles and nucleophiles

90. The catalyst used in Rosenmund's reduction is

(1) $HgSO_4$
(2) $Pd/BaSO_4$
(3) anhydrous $AlCl_3$
(4) anhydrous $ZnCl_2$

91. Match List-I with List-II

List-I	List-II
(a) Li	(i) absorbent for carbon dioxide
(b) Na	(ii) electrochemical cells
(c) KOH	(iii) coolant in fast breeder reactors
(d) Cs	(iv) photoelectric cell

Choose the correct answer from the options given below :

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

92. Electrolytic reduction of nitrobenzene in weakly acidic medium gives
(1) N-Phenylhydroxylamine
(2) Nitrosobenzene
(3) Aniline
(4) p-Hydroxyaniline

93. Number of ATP molecules produced from 1 glucose in aerobic respiration.
(1) 38
(2) 32
(3) 30
(4) 28

94. Which of the following hormones contains iodine?
(1) Testosterone
(2) Adrenaline
(3) Thyroxine
(4) Insulin

95. Match List-I with List-II.

List – I (Hydrides)	List – II (Nature)
(a) MgH_2	(i) Electron precise
(b) GeH_4	(ii) Electron deficient
(c) B_2H_6	(iii) Electron rich
(d) HF	(iv) Ionic

Choose the correct answer from the options given below

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

96. Given below are two statements

Statement I: The acidic strength of monosubstituted nitrophenol is higher than phenol because of electron withdrawing nitro group.

Statement II: o-nitrophenol, m-nitrophenol and p-nitrophenol will have same acidic strength as they have one nitro group attached to the phenolic ring.

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

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

97. The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

(1) C_2H_5OH, C_2H_6 , C_2H_5Cl

(2) C_2H_5OH, C_2H_5Cl, C_2H_5ONa

(3) C_2H_5OH, C_2H_5ONa, C_2H_5Cl

(4) C_2H_5Cl, C_2H_6 , C_2H_5OH

98. Which of the following is incorrect statement?

(1) PbF_4 is covalent in nature

(2) $SiCl_4$ is easily hydrolysed

(3) GeX_4 $(X = F, Cl, Br, I)$ is more stable than GeX_2

(4) SnF_4 is ionic in nature

99. Which one of the followings has maximum number of atoms ?

(1) 1 g of O_2 (g) [Atomic mass of O = 16]

(2) 1 g of Li(s) [Atomic mass of Li = 7]

(3) 1 g of Ag(s) [Atomic mass of Ag = 108]

(4) 1 g of Mg(s) [Atomic mass of Mg = 24]

100. The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is :

(1) Chromatography

(2) Crystallisation

(3) Steam distillation

(4) Sublimation

Botany

Section : A

101 What type of placentation is seen in sweet pea?
(1) Axile
(2) Free central
(3) Marginal
(4) Basal

102. How many plants among China rose, Ocimum, sunflower, mustard, Alstonia, guava, Calotropis and Nerium (Oleander) have opposite phyllotaxy?
(1) Two
(2) Three
(3) Four
(4) Five

103. The chief water conducting elements of xylem in gymnosperms are:
(1) vessels
(2) fibres
(3) transfusion tissue
(4) tracheids

104. Hammerling's experiments of Acetabularia involved exchanging
(1) cytoplasm
(2) nucleus
(3) rhizoid and stalk
(4) gametes

105 . The prokaryotic flagella possess
(1) unit membrane enclosed fibre
(2) protein membrane enclosed fibre
(3) '9 + 0' membrane enclosed structure
(4) helically arranged protein molecule

106 . Mineral associated with cytochrome is
(1) Cu
(2) Mg
(3) Fe and Mg
(4) Fe and Cu

107. Gobar gas contains mainly
(1) $CH_4 + CO_2$
(2) $CH_4 + O_2$
(3) $CO_2 + H_2$
(4) $CO_2 + SO_2$

108. The guts of cow and buffalo possess
(1) *Fucus* sp
(2) *Chlorella* sp
(3) Methanogens
(4) Cyanobacteria

109. When one glucose molecule is completely oxidised , it changes
(1) 36 ADP molecules into 36 ATP molecules
(2) 38 ADP molecules into 38 ATP molecules
(3) 30 ADP molecules into 30 ATP molecules
(4) 32 ADP molecules into 32 ATP molecules

110. Length of one turn of the helix in a b-form DNA is approximately
(1) 3.4 nm
(2) 2 nm
(3) 0.34 nm
(4) 20 nm

111. At what stage of the cell cycle are histone proteins synthesized in a eukaryotic cell?
(1) During G-2 stage of prophase
(2) During S-phase
(3) During entire prophase4
(4) During telophase

112. An adaptation for better gaseous exchange in plant leaves is
(1) hair on lower surface
(2) multiple epidermis
(3) waxy cuticle
(4) stomata on lower surface away from direct sun rays.

113. Minerals absorbed by roots move to the leaf through
(1) xylem
(2) phloem
(3) sieve tubes
(4) none of the above

114. Which of the following is a symbiotic nitroger fixer?
(1) Azotobacter
(2) Frankia
(3) Azolla
(4) Glomus

Neelesh Sir (9898966050)

115 . During monsoon, the rice crop of eastern states of India shows lesser yield due to limiting factor of
(1) CO_2
(1) light
(2) temperature
(3) water

116. Fixation of one CO_2 molecule through Calvin cycle requires
(1) 1 ATP and $2NADPH_2$
(2) 2ATP and $2NADPH_2$
(3) 3ATP and $2NADPH_2$
(4) 2ATP and $1NADPH_2$

117. Photoperiodism was first characterised in:
(1) tobacco
(2) potato
(3) tomato
(4) cotton

118. Which of the following is essential for conversion of pyruvic acid into acetyl Co-A?
(1) LAA
(2) NAD
(3) TPP3
(4) All of these

119. Phytochrome is involved in
(1) phototropism
(2) photorespiration
(3) photoperiodism
(4) geotropism

120. Generative cell was destroyed by laser but a normal pollen tube was still formed because
(1) vegetative cell is not damaged
(2) contents of killed generative cell stimulate pollen growth
(3) laser beam stimulates growth of pollen tube
(4) the region of emergence of pollen tube is not harmed

121. In angiosperms, triple fusion is required for the formation of
(1) embryo
(2) endosperm
(3) seed coat
(4) fruit wall

122. Even in absence of pollinating agents seed setting is assured in
(1) Commellina
(2) Zostera
(3) Salvia
(4) Fig

123.An octamer of 4 histones complexed with DNA forms
(1) endosome
(2) nucleosome
(3) mesosome
(4) centromere

124. Nucleosome core is made of
(1) H_1, H_2A, H_2B and H_3
(2) H_1, H_2A, H_2B, H_4
(3) H_1, H_2A, H_2B, H_3 and H_4
(4) H_2A, H_2B, H_3 and H_4

125.The salivary gland chromosomes in the dipteran larvae, are useful in gene mapping because:
(1) these are fused
(2) these are much longer in size
(3) these are easy to stain
(4) They have endoreduplicated chromosomes.

126. When two unrelated individuals or lines are crossed, the performance of F1 hybrid is often superior to both parents. This phenomenon is called:
(1) heterosis
(2) transformation
(3) splicing
(4) metamorphosis

127. The process of translation is
(1) ribosome synthesis
(2) protein synthesis
(3)dNA synthesis
(4) rNA synthesis

128. The eukaryotic genome differs from the prokaryotic genome because
(1) genes in the former case are organized into operons
(2) the DNA is complexed with histones in prokaryotes

(3) repetitive sequences are present in eukaryotes
(4) the DNA is circular and single stranded
in prokaryotes

129. Which one of the following is linked to the discovery of Bordeaux mixture as a popular fungicide?
(1) Bacterial leaf blight of rice
(2) Downy mildew of grapes
(3) Loose smut of wheat
(4) Black rust of wheat

130. The reason why vegetatively reproducing crop plants are best suited for maintaining hybrid vigour is that
(1) once a desired hybrid has been produced there are few chances of losing it
(2) they have a longer life span
(3) they are more resistant to diseases
(4) they can be easily propagated

131. Which one of the following is the most suitable medium for culture of Drosophila melanogaster?
(1) Agar agar
(2) Ripe banana
(3) Cow dung
(4) Moist bread

132 . Diversification in plant life appeared
(1) due to long periods of evolutionary changes
(2) due to abrupt mutations
(3) suddenly on earth
(4) by seed dispersal

133. The most common indicator organism that represents polluted water is
(1) E. coli
(2) P. typhi
(3) C. vibrio
(4) Entamoeba

134 . Which one of the following is non-symbiotic biofertilizer?
(1) Azotobacter
(2) Anabaena
(3) Rhizobium
(4) VAM.

135 .What is a keystone species?

(1) A species which makes up only a small proportion of the total biomass of a community, yet has a huge impact on the community's organization and survival
(2) A common species that has plenty of biomass, yet has a fairly low impact on the community's organization
(3) A rare species that has minimal impact on the biomass and on other species in the community
(4) A dominant species that constitutes a large proportion of the biomass and which affects many other species.

SECTION - B

136. A person with the sex chromosomes XXY suffers from
(1) Down's syndrome
(2) Klinefelter's syndrome
(4) Turner's syndrome
(4) Gynandromorphism

137. Study of inter-relationships between organisms and their environment is
(1) ecology
(2) ecosystem
(3) phytogeography
(4) ethology

138. A and B genes are linked what shall be genotype of progeny in a cross between AB/ab and ab/ab?
(1) AAbb and aabb
(2) AaBb and aabb
(3) AABB and aabb
(4) None of these

139. Bamboo plant is growing in a fir forest then what will be the trophic level of it?
(1) First trophic level (T_1)
(2) Second trophic level (T_2)
(3) Third trophic level (T_3)
(4) Fourth trophic level (T_4)

140. Which one of the following is not used for construction of ecological pyramids?
(1) Number of individuals
(2) Rate of energy flow
(3) Fresh weight
(4) Dry weight

141. Renewable source of energy is
(1) Biomass
(2) Coal
(3) Petroleum
(4) Kerosene

142. Diversification in plant life appeared
(1) due to long periods of evolutionary changes
(2) due to abrupt mutations
(3) suddenly on earth
(4) by seed dispersal

143. Which one of the following is being tried in India as a biofuel substitute for fossil fuels?
(1) Jatropha
(2) Azadirachta
(3) Musa
(4) Aegilops

144. Which one of the following is not correct as regards the harmful effects of particulate matter of the size 2.5 micro meters or less?
(1) It can be inhaled into the lungs
(2) It can cause respiratory problems
(3) It can directly enter into our circulatory system
(4) It can cause inflammation and damage to the lungs

145. Asymptote in a logistic growth curve is obtained when :
(1) K = N
(2) K > N
(3) K < N
(4) The value of 'r' approaches zero

146. Which of the following are found in extreme saline conditions ?
(1) Eubacteria
(2) Cyanobacteria
(3) Mycobacteria
(4) Archaebacteria

147. Select the incorrect match :
(1) Lampbrush chromosomes
       – Diplotene bivalents
(2) Allosomes –   Sex chromosomes
(3) Polytene chromosomes
       – Oocytes of amphibians
(4) Submetacentric chromosomes
       – L-shaped chromosomes

148. Read the following four statements (A-D).
(A) Both, photophosphorylation and oxidative phosphorylation involve uphill transport of protons across the membrane.
(B) In dicot stems, a new cambium originates from cells of pericycle at the time of secondary growth.
(C) Stamens in flowers of Gloriosa and Petunia are polyandrous.
(D) Symbiotic nitrogen-fixers occur in freeliving state also in soil. How many of

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

149. Match Column - I Column - II

| Column - I	Column - II
(a) Saprophyte	(i) Symbiotic association of fungi with plant roots
(b) Parasite	(ii) Decomposition of dead organic materials
(c) Lichens	(iii)Living on living plants or animals
(d) Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the correct answer from the option given below
    (a) (b) (c) (d)
(1) (i) (ii) (iii) (iv)
(2) (iii) (ii) (i) (iv)
(3) (ii) (i) (iii) (iv)
(4) (ii) (iii) (iv) (i)

150. Select the correct route for the passage of sperms in male frogs:
(1) Testes → Vasa efferentia → Kidney → Seminal Vesicle → Urinogenital duct → Cloaca
(2) Testes → Vasa efferentia → Bidder's canal → Ureter → Cloaca
(3) Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca
(4) Testes → Bidder's canal → Kidney → Vasa efferentia → Urinogenital duct → Cloaca
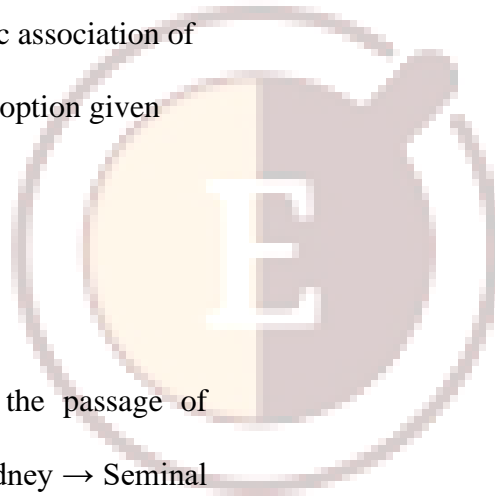
ZOOLGOY

SECTION - A

151. Fish which can be used in biological control of mosquitoes/Larvicidal fish is
(1) Eel
(2) Carp
(3) Cat Fish
(4) Gambusia

152. An egg laying mammal is
(1) Kangaroo
(2) Platypus
(3) Koala
(4) Whale

153. The organisms attached to the substratum, generally, possess
(1) radial symmetry
(2) one single opening of digestive canal
(3) asymmetrical body
(4) cilia on surface to create water current

154. In contrast to Annelids the Platyhelminths show:
(1) Absence of body cavity
(2) Bilaterial symmetry
(3) Radial symmetry
(4) Presence of pseudocoel

155. Pulses are obtained from
(1) Fabaceae
(2) Asteraceae
(3) Poaceae
(4) Solanaceae

156. Which one of the following is correct pairing of a body part and the kind of muscle tissue that present in it?
(1) Biceps of upper arm–Smooth muscle fibres
(2) Abdominal wall–Smooth muscle
(3) Iris–Involuntary smooth muscle
(4) Heart wall–Involuntary unstriated muscle

157. During prolonged fasting, in what sequence are the following organic compounds used up by the body?
(1) First proteins, next lipids and lastly carbohydrates
(2) First carbohydrates, next fats and lastly proteins
(3) First fats, next carbohydrates and lastly proteins
(4) First carbohydrates, next proteins and lastly lipids

158. Carbon dioxide is transported from tissues to respiratory surface by only
(1) plasma and erythrocytes
(2) plasma
(3) erythrocytes
(4) erythrocytes and leucocytes

159. A person with blood group A requires blood. The blood group which can be given is
(1) A and B
(2) A and AB
(3) A and O
(4) A, B, AB and O

160. What is true about leucocytes?
(1) Their sudden fall in number is indication of blood cancer
(2) These are produced in thymus
(3) These are enucleated
(4) These can squeeze out through the capillary walls

161. Which one of the following plasma proteins is involved in the coagulation of blood?
(1) an albumin
(2) serum amylase
(3) a globulin
(4) fibrinogen

162. A terrestrial animal must be able to
(1) excrete large amounts of water in urine
(2) conserve water
(3) actively pump salts out through the skin
(4) excrete large amounts of salts in urine

163. The number of floating ribs in the human body, is
(1) 6 pairs
(2) 5 pairs
(3) 3 pairs
(4) 2 pairs

164. Vagus nerve is
(1) X
(2) IX

(3)VII
(4)V

165. During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric change?
(1) First positive, then negative and continue to be positive
(2) First negative, then positive and continue to be positive.
(3) First positive, then negative and again back to positive
(4) First negative, then positive and again back to negative.

166.Nicotine acts as a stimulant, because it mimics the effect of
(1) thyroxine
(2) acetylcholine
(3) testosterone
(4) dopamine

167. Parkinson's disease (characterized by tremors and progressive rigidity of limbs) is caused by degeneration of brain neurons that are involved in movement control and make use of neurotransmitter
(1) acetylcholine
(2) norepinephrine
(3) dopamine
(4) GABA

168.Meroblastic cleavage is division
(1)horizontal
(2) partial/parietal
(3) total
(4) spiral

169. In humans, at the end of the first meiotic division, the male germ cells differentiate into the
(1) primary spermatocytes
(2) secondary spermatocytes
(3) spermatids
(4) spermatozonia

170.What is the correct sequence of sperm formation?
(1) Spermatogoni as per matocyte, spermatozoa, spermatid

(2) Spermatogoni as per matozoa spermatocyte, spermatid
(3) Spermatogonia, spermatocyte, spermatid, spermatozoa
(4) Spermatid, spermatocyte, spermatogonia, spermatozoa

171. Darwin's finches provide an excellent evidence in favour of evolution. This evidence comes from the field of
(1) Biogeography
(2) Anatomy
(3) Embryology
(4) Palaentology

172. There are two opposing views about origin of modern man. According to one view Homo erectus in Asia were the ancestors of modern man. A study of variation of DNA however suggested African origin of modern man. What kind of observation on DNA, variation could suggest this?
(1) Greater variation in Asia than in Africa
(2) Greater variation in Africa than in Asia
(3) Similar variation in Africa and Asia
(4) Variation only in Asia and no variation in Africa

173.What was the most significant trend in evolution of modern man (Homo sapiens) from his ancestors?
(1) Upright posture
(2) Shortening of jaws
(3) Binocular vision
(4) lncreasing brain capacity

174. Which of the following symptoms indicate radiation sickness?
(1) Red and ulcerated skin
(2) Nausea and loss of hair
(3) Nausea and anaemia
(4) Ulcerated skin, nausea, loss of hair and anaemia

175.Which one of the following is not correctly matched
(1) Glossina palpalis - Sleeping sickness
(2) Culex pipiens - Filariasis
(3) Aedes aegypti - Yellow fever
(4) Anopheles culifacies- Leishmaniasis

176.Common cold is not cured by antibiotics because it is

(1) caused by a virus
(2) caused by a Gram-positive bacterium
(3) caused by a Gram-negative bacterium
(4) not an infectious disease

177.ELISA is used to detect viruses, where
(1) DNA-probes are required
(2) Southern bloting is done
(3) Alkaline phosphatase is the key reagent
(4) Catalase is the key reagent

178. Select the correct statement with respect to diseases and immunisation?
(1) If due to some reason B-and T-lymphocytes are damaged, the body will not produce antibodies against a pathogen
(2) Injection of dead/ inactivated pathogens causes passive immunity
(3) Certain protozoans have been used to mass produce hepatitis B vaccine.
(4) Injection of snake antivenom against snake bite is an example of active immunisation

179. Lathyrism is caused by excessive consumption of
(1) khesari dal
(2) mustard oil
(3) polished rice
(4) mushrooms

180. The infective stage of malarial parasite Plasmodium that enters human body is
(1) merozoite
(2) sporozoite
(3) trophozoite
(4) minuta form

181.Capacitation occurs in :
(1) Epididymis
(2) Vas deferens
(3) Female reproductive tract
(4) Rete testis

182. Artificial selection to obtain cows yielding higher milk output represents :
(1) Directional as it pushes the mean of the character in one direction
(2) Disruptive as it splits the population into two, one yielding higher output and the other lower output

(3) Stabilizing followed by disruptive as it stabilizes the population to produce higher yielding cows
(4) Stabilizing selection as it stabilizes this character in the population

183.Calcium is important in skeletal muscle contraction because it
(1) Binds to troponin to remove the masking of active sites on actin for myosin.
(2) Activates the myosin ATPase by binding to it.
(3) Prevents the formation of bonds between the myosin cross bridges and the actin filament.
(4) Detaches the myosin head from the actin filament.

184. Nissl bodies are mainly composed of
(1) Proteins and lipids
(2) DNA and RNA
(3) Free ribosomes and RER
(4) Nucleic acids and SER

185. Which of the following is a commercial blood cholesterol lowering agent?
(1) Cyclosporin A
(2) Statin
(3) Streptokinase
(4) Lipases

SECTION B

186. Select the correct match of the digested products in humans given in column I with their absorption site and mechanism in column II.

	Column 1	Column 2
(1)	Cholesterol, maltose	Large intestine, active absorption
(2)	Glycine, glucose	small intestine, active absorption
(3)	Fructose, Na+	small intestine, passive absorption
(4)	Glycerol, fatty acids	duodenum, move as chilomicrons

187. In cockroach, the ootheca is formed by the secretion of
(1) phallic gland
(2) collaterail gland
(3) mushroom gland
(4) conglobate gland

188. Which one of the following is categorised as a parasite in true sense?
(1) The female Anopheles bites and sucks blood from humans
(2) Human foetus developing inside the uterus draws nourishment from the mother
(3) Head louse living on the human scalp as well as laying eggs on human hair
(4) The cuckoo (koel) lays its eggs in crow's nest.

189. Identify the correct pair representing the causative agent of typhoid fever and the confirmatory test for typhoid.
(1) Plasmodium vivax / UTI test
(2) Streptococcus pneumoniae / Widal test
(3) Salmonella typhi / Anthrone test
(4) Salmonella typhi / Widal test

190. In Cockroach, ootheca is formed by secretion of
(1) phallic gland
(2) Mushroom gland
(3) Colletial gland
(4) all the above

191. Oxygen haemoglobin dissociation curve will shift to right on decrease of
(1) acidity
(2) Carbon dioxide concentration
(3) both A and B
(4) pH

192. The testes in humans are situated outside the abdominal cavity inside a pouch called scrotum. The purpose served is for?
(1) Escaping any possible compression by the visceral organs
(2) Providing more space for the growth of epididymis
(3) Providing a secondary sexual feature for exhibiting the male sex
(4) Maintaining the scrotal temperature lower than the internal body temperature

193. The malignant tertian malaria is caused by
(1) plasmodium ovale
(2) plasmodium falciparum
(3) plasmodium viax
(4) none of the above

194. Industrial melanism is an example of
(1) Natural selection
(2) Neo Lamarckism
(3) use and disuse theory
(4) none of the above

195.
Assertion : Vasa recta is absent or highly reduced in cortical nephrons
Reason : Cortical nephrons are mainly concerned with concentration of urine
(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

196.
Q. Match List - I with List - II.

List I		List II	
A	Protein	i	C = C double bonds
B	Unsaturated fatty acid	ii	Phosphodiester bonds

List I		List II	
C	Nucleic acid	iii	Glycosidic bonds
D	Polysaccharide	iv	Peptide bonds

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

197. Each organised skeletal muscle in our body is made up of a number of muscle bundles held together by a common collagenous connective tissue layer called _____.
(1) fascicle
(2) fascia
(3) myofibril
(4) sarcolemma

198. Match the following columns and select the correct option :

	Column I		Column II
A	Rods and Cones	i	Absence of photoreceptor cells
B	Blind Spot	ii	Cones are densely packed
C	Fovea	iii	Photoreceptor cells
D	Iris	iv	Visible coloured portion of the eye

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

199. Which of the following hormones is a steroid?
(1) Prostaglandin
(2) Estrogen
(3) Thyroxine
(4) Adrenalie

200. What would be the heart rate of a person if the cardiac output is 5 L, blood volume in the ventricles at the end of diastole is 100 mL and at the end of ventricular systole is 50 mL ?
(1) 100 beats per minute
(2) 125 beats per minute
(3) 50 beats per minute
(4) 75 beats per minute

Neelesh Sir (9898966050)