Sample Paper

Class XII Studying (NEET)
Time: 2 Hours | Max. Marks: 480

घर के पास
सफलता और संस्कार

PHYSICS, CHEMISTRY & BOTANY AND ZOOLOGY

Do not open this Test Booklet until you are asked to do so.

Read carefully the Instructions on the Back Cover of this Test Booklet.

*Important Instructions***:**

1. Immediately fill in the particulars on this page of the Test Booklet with Blue/ Black Ball Point Pen. Use of pencil is strictly prohibited.

2. The Answer Sheet is kept inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully.

3. The test is of **2 hours** duration.

4. The Test Booklet consists of **140** questions. The maximum marks are **480**.

5. There are **four** parts in the question paper A, B, C & D consisting of **Physics, Chemistry, Botany and Zoology** having 35 questions in each part.

6. Each subject will have two sections. **Section A** will be of Multiple - Choice Question (MCQs) in which only one option is correct and **Section B** will be of Multiple - Choice Question (MCQs) in which only one option is correct . In Section B, candidates have to attempt any 10 questions out of 15.

7. Candidates will be awarded four marks for every correct response. ¼ (one fourth) marks will be deducted for indicating incorrect response for section A and section B.

8. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instruction 7 above.

9. Use **Blue/ Black Ball Point Pen only** for writing particulars/ marking responses on the Answer Sheet. **Use of pencil is strictly prohibited.**

10. No candidate is allowed to carry any textual material, printed or written, bits of papers, pager, mobile phone, any electronic device, etc. except the Admit Card inside the examination room/hall.

11. Rough work is to be done in the space provided for this purpose in the Test Booklet only. This space is given at the bottom of each page and two pages at the end of the booklet.

12. On completion of the test, the candidates 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

01. The equivalent capacitance of the combination shown in the figure is
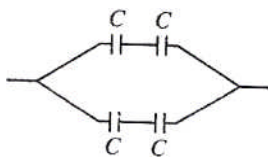
(1) C/2　(2) C　(3) 2C　(4) 4C

02. A parallel plate capacitor of capacitance 100 μF is charged to 500 V. The plate separation is then reduced to half its original value. Then the potential on the capacitor becomes
(1) 250 V　(2) 500 V
(3) 1000 V　(4) 2000 V

03. The work done in rotating an electric dipole of moment p in an electric field E through an angle θ from the direction of the field is
(1) $pE(1-\cos\theta)$　(2) $2pE$
(3) zero　(4) $-pE\cos\theta$

04. A current of 5A is passing through a metallic wire of cross–section area 4×10^{-6} m^2. If the density of the charge carriers in the wire is 5×10^{26}/m^3, the drift velocity of the electrons is
(1) $\dfrac{1}{16}$ m/s　(2) $\dfrac{1}{32}$ m/s

(3) $\dfrac{1}{64}$ m/s　(4) $\dfrac{1}{128}$ m/s

05. Six identical resistors, each of 1 ohm, are connected as shown. The equivalent resistance between A and B is
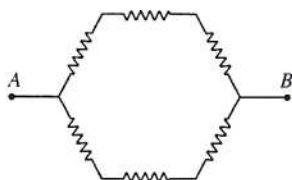
(1) 1 ohm
(2) 1.5 ohm
(3) 2.5 ohm
(4) 3.0 ohm

06. The figure shows the currents in a part of an electrical circuit. The current I is
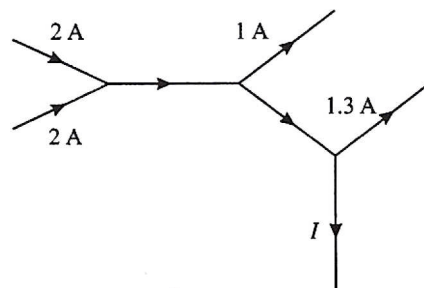
(1) 1.7 A　(2) 3.7 A
(3) 1.3 A　(4) 1.0 A

07. Two circular coils have number of turns in the ratio 1 : 2 and radii in the ratio 2 : 1. If the same current flows through them, the magnetic fields at their centres will be in the ratio
(1) 1 : 1　(2) 1 : 2　(3) 2 : 1　(4) 1 : 4

08. Two charged particles P and Q enter a uniform magnetic field normally with the same speed. Their paths in the field are as shown in the figure. It can be concluded that
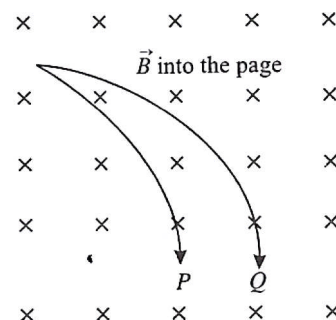
(1) the charge of P is greater than that of Q
(2) the specific charge of P is greater than that of Q
(3) the charge of P is less than that of Q
(4) the specific charge of P is less than that of Q

09. A ring and a disc, having the same mass, roll without slipping with the same linear velocity. If the kinetic energy of the ring is 8 J, that of the disc must be
(1) 2 J　(2) 4 J
(3) 6 J　(4) 16 J

Space for rough work

10. Two uniform circular discs A and B of equal masses and thickness are made of materials of densities d_A and d_B respectively. If their moments of inertia about an axis passing through the centre and normal to the circular face I_A and I_B, respectively, then $I_A/I_B =$

(1) d_B/d_A

(2) d_A/d_B

(3) d_B^2 / d_A^2

(4) d_A^2 / d_B^2

11. A solid sphere and a spherical shell roll down an inclined plane from rest from the same height. The ratio of the times taken by them is

(1) $\sqrt{\dfrac{21}{25}}$ (2) $\dfrac{21}{25}$

(3) $\sqrt{\dfrac{25}{21}}$ (4) $\dfrac{25}{21}$

12. In the given loop, the magnetic field at the centre O is
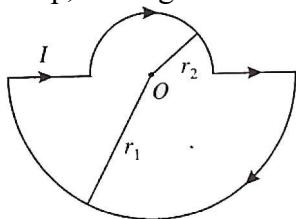
(1) $\dfrac{\mu_0 I}{4}\left(\dfrac{r_1 + r_2}{r_1 r_2}\right)$ out of the paper

(2) $\dfrac{\mu_0 I}{4}\left(\dfrac{r_1 + r_2}{r_1 r_2}\right)$ into the paper

(3) $\dfrac{\mu_0 I}{4}\left(\dfrac{r_1 - r_2}{r_1 r_2}\right)$ out of the paper

(4) $\dfrac{\mu_0 I}{4}\left(\dfrac{r_1 - r_2}{r_1 r_2}\right)$ into the paper

13. A current of 0.1 A circulates around a coil of 100 turns and having a radius equal to 5 cm. The magnetic field set up at the centre of the coil is

(1) $4\pi \times 10^{-5}$ T (2) $8\pi \times 10^{-5}$ T

(3) 4×10^{-5} T (4) 2×10^{-5} T

14. Two identical bar magnets, each of magnetic moment M, are placed perpendicular to each other as shown in the figure. The dipole moment of the combination is
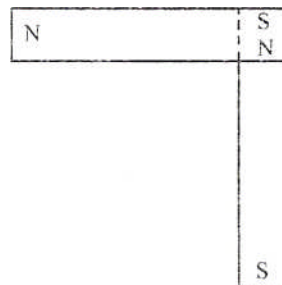
(1) $\sqrt{2}\,M$ (2) $2M$

(3) $M / \sqrt{2}$ (4) $M/2$

15. At a place the angle of dip is 30°. If the horizontal component of earth's magnetic field is B, then the total field strength will be given by

(1) $2B$ (2) $2B / \sqrt{3}$

(3) $\sqrt{2}B$ (4) $\sqrt{3}B$

16. The magnetic field due to a small magnetic dipole of magnetic moment M, at distance r from the centre on the equatorial line is given by
(in SI system)

(1) $\dfrac{\mu_0}{4\pi} \times \dfrac{M}{r^2}$ (2) $\dfrac{\mu_0}{4\pi} \times \dfrac{M}{r^3}$

(3) $\dfrac{\mu_0}{4\pi} \times \dfrac{2M}{r^2}$ (4) $\dfrac{\mu_0}{4\pi} \times \dfrac{2M}{r^3}$

17. The mutual inductance of a pair of coils is 2 H. If the current in one of the coil changes from 10 A to zero in 0.1 s, the emf induced in the other coil is

(1) 2 V

(2) 20 V

(3) 0.2 V

(4) 200 V

Space for rough work

18. The length of a metal rod at 0°C is 0.5m. When it is heated, its length increases by 2.7 mm. The final temperature of the rod is (Coefficient of linear expansion of the metal $= 90 \times 10^{-6}$/°C)

(1) 20° C

(2) 30°C

(3) 40° C

(4) 60° C

19. A 100 g bullet, moving with a speed of 500m/s, enters a block of ice. The mass of ice that melts is

(1) 111.6 g

(2) 74.4 g

(3) 37.2 g

(4) 18.6 g

20. When the current in a coil changes from 2 A to 4 A in 0.05 s, an emf of 8 V is induced in the coil. The coefficient of self–induction of the coil is

(1) 0.1 H

(2) 0.2 H

(3) 0.4 H

(4) 0.8 H

SECTION-B

21. Two spheres of the same size, one of mass 5 kg and the other of mass 10 kg, are dropped simultaneously from a tower. When they are about to touch the ground, they have the same

(1) momentum

(2) kinetic energy

(3) potential energy

(4) acceleration

22. A pump can take out 36000 kg of water per hour from a 100 m deep well. If the efficiency of the pump is 50%, its power is ($g = 10$ m/s^2)

(1) 5 kW

(2) 10 kW

(3) 15 kW

(4) 20 kW

23. A car of mass m is driven with acceleration a along a straight level road against a constant external resistive force R. When the velocity of the car is V, the rate at which the engine of the car is doing work is

(1) RV

(2) maV

(3) (R + ma)V

(4) (ma – R) V

24. An ideal gas is taken around the cycle ABCA as shown in the PV diagram. The net work done by the gas during the cycle is

(1) 12 PV

(2) 6 PV

(3) 3 PV
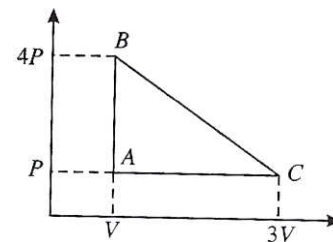
(4) PV

25. If the amount of heat given to a system be 35 J and the amount of work done by the system be – 15 J, then the change in the internal energy of the system is

(1) – 50 J

(2) 20 J

(3) 30 J

(4) 50 J

Space for rough work

26. A system changes from the state (P_1, V_1) to the state (P_2, V_2) as shown in the figure. The work done by the system is
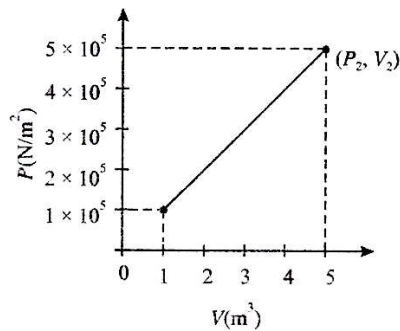
(1) 7.5×10^5 J
(2) 7.5×10^5 ergs
(3) 12×10^5 J
(4) 6×10^5 J

27. The volume of a gas is reduced adiabatically to 1/4 of its volume at 27°C. If $\gamma = 1.4$, the new temperature will be
(1) $300 \times (2)^{0.4}$ K
(2) $300 \times (4)^{1.4}$ K
(3) $300 \times (4)^{0.4}$ K
(4) $300 \times (2)^{1.4}$ K

28. A gas, for which γ is 4/3, is heated at constant pressure. The percentage of heat supplied used for external work is
(1) 25%
(2) 75%
(3) 60%
(4) 40%

29. If the degrees of freedom of a gas are f, the ratio of its two specific heats, C_p/C_v, is given by
(1) $1 - (1/f)$
(2) $1 + (1/f)$
(3) $1 + (2/f)$
(4) $1 - (2/f)$

30. The amount of heat required to raise the temperature of 1 mole of a monatomic gas from 20°C to 30°C at constant volume is H. Then the amount of heat required to raise the temperature of 2 moles of a diatomic gas from 20°C to 25°C at constant pressure is
(1) $\dfrac{7}{3}H$
(2) $2H$
(3) $\dfrac{5}{3}H$
(4) $\dfrac{4}{3}H$

31. A fish looking up through the water sees the outside world contained in a circular horizon. If the refractive index of water is 4/3 and the fish is 12 cm. below the surface, the radius of this circle in cm is–
(1) $36\sqrt{5}$
(2) $4\sqrt{5}$
(3) $36\sqrt{7}$
(4) $36 / \sqrt{7}$

32. In Young's double slit experiment, $\lambda = 500$ nm, d = 1 mm, D = 1 m. Minimum distance from the central maximum for which intensity is half of the maximum intensity is
(1) 2.5×10^{-4} m
(2) 1.25×10^{-4} m
(3) 0.625×10^{-4} m
(4) 0.3125×10^{-4} m

33. If Young's double slit experiment, the slits are 2 mm apart and are illuminated by photons of two wavelengths $\lambda_1 = 12000$ Å and $\lambda_2 = 10000$ Å. At what minimum distance from the common central bright fringe on the screen 2m from the slit will a bright fringe from one interference pattern coincide with a bright fringe from the other?
(1) 6 mm
(2) 4 mm
(3) 3 mm
(4) 8 mm

34. The angular size of the central maxima due to a single slit diffraction is (a $\rightarrow$ slit width)
(1) $\dfrac{\lambda}{a}$
(2) $\dfrac{2\lambda}{a}$
(3) $\dfrac{3\lambda}{2a}$
(4) $\dfrac{\lambda}{2a}$

35. A mica slit of thickness t and refractive index μ is introduced in the ray from the first source S_1. By how much distance of fringes pattern will be displaced?
(1) $\dfrac{d}{D}(\mu - 1)t$
(2) $\dfrac{D}{d}(\mu - 1)t$
(3) $\dfrac{d}{(\mu - 1)D}$
(4) $\dfrac{D}{d}(\mu - 1)$
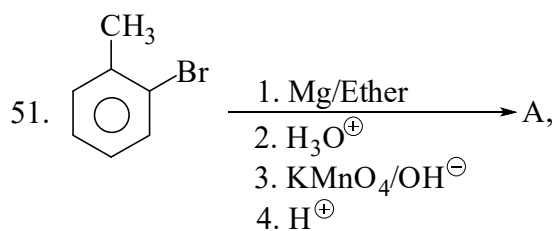
Space for rough work

CHEMISTRY
SECTION-A

36. Number of atoms in 0.2 g molecule Br_3O_8 is (molar mass of Br_3O_8 is 368 g mol^{-1})

    (1) $0.22\ N_A$ (2) $2.2\ N_A$

    (3) $0.2\ N_A$ (4) $\dfrac{0.2}{368} \times 11 N_A$

37. Spectral lines of which series of atomic hydrogen falls in ultraviolet region?

    (1) Lyman   (2) Paschan

    (3) Bracket   (4) Pound

38. Ratio of average speed of oxygen and root mean square speed of CO_2 at same temperature is

    (1) $\sqrt{\dfrac{11}{3}}$ (2) $\sqrt{\dfrac{3}{11\pi}}$ (3) $\sqrt{\dfrac{11}{3\pi}}$ (4) $\sqrt{\dfrac{3\pi}{11}}$

39. Extensive property among the following is

    (1) Pressure

    (2) Density

    (3) Volume

    (4) Vapour pressure

40. Incorrect relation among the following is

    (1) $\Delta H = \Delta U + \Delta(PV)$

    (2) $\Delta U = Q + W$

    (3) $\Delta H = Q_P$

    (4) $\Delta U = Q_P$

41. If Enthalpy of combustions of C(graphite) and CO(g) are x_1 and x_2 kJ mol^{-1} respectively then the enthalpy of formation (in kJ mol^{-1}) of CO(g) will be

    (1) $x_1 + x_2$ (2) $x_1 - x_2$

    (3) $\dfrac{(x_1 + x_2)}{2}$ (4) $\dfrac{(x_1 - x_2)}{2}$

42. 1 L aqueous solution contains 1 mol CH_3COOH and 1 mol CH_3COONa. If 1 L water is added in the above mixture then pH of the solution will be (pK$_a$ (CH_3COOH) = 4.74)

    (1) 4.74   (2) 5.74

    (3) 3.74   (4) 4.44

43. If solubility of $Ca_3(PO_4)_2$ is x then solubility product of $Ca_3(PO_4)_2$ will be

    (1) x^2 (2) $4x^3$

    (3) $27x^4$ (4) $108x^5$

44. Select the compound in which central atom present is in its highest oxidation state

    (1) HNO_2 (2) $H_2S_2O_8$

    (3) H_2S (4) $H_2N_2O_2$

45. Fraction of total octahedral voids present at body centre of fcc unit cell is

    (1) $\dfrac{1}{2}$ (2) 1   (3) $\dfrac{1}{4}$ (4) $\dfrac{1}{8}$

46. The correct order of ionization enthalpy of C, N,O and F is

    (1) F < N < C < O   (2) C < O < N < F

    (3) C < F < N < O   (4) F < O < N < C

47. Hardness of water is due to the presence of salts of

    (1) Na^+ and K^+ (2) Ca^{2+} and Mg^{2+}

    (3) Ca^{2+} and K^+ (4) Ca^{2+} and Na^+

48. The structure of H_2O_2 is

    (1) open book like

    (2) linear

    (3) closed book

    (4) pyramidal

49. The compound with two lone pair of electrons on the central atom is

    (1) BrF_5 (2) ClF_3

    (3) XeF_6 (4) SF_4

Space for rough work

50. The bond is order in peroxide ion (O_2^{2-}) is

    (1) 2.5   (2) 1.5   (3) 2   (4) 1.0

51.

$$\xrightarrow[\substack{\text{2. } H_3O^{\oplus} \\ \text{3. } KMnO_4/OH^{\ominus} \\ \text{4. } H^{\oplus}}]{\text{1. Mg/Ether}} A,$$

Product A is

(1) COOH, OH

(2) OH, CH₃

(3) COOH

(4)

52.

$$\xrightarrow[]{\text{dil } HNO_3} (A) \text{ (Major)} : \text{Product (A) is}$$

(1) OH, NO₂, NO₂

(2) OH, NO₂

(3) OH, NO₂

(4) OH, NO₂

53.

$$\xrightarrow[]{(CH_3CO_2)O} (A) \xrightarrow[H_2SO_4]{HNO_3} (B) \xrightarrow[H_2O]{H^+} (C),$$

C (major product) is

(1) NH₂, NO₂

(2) NH₂, NO₂

(3) NO₂, NO₂

(4) NO₂, NO₂

54.

$$\xrightarrow[H_2O]{Br_2} (A) \xrightarrow[\text{(ii) } H_3PO_2]{\text{(i) } NaNO_2/HCl} (B),$$

Product (B) in this reaction is

(1) Br, Br, Br

(2) Br, Br, Br

(3) Br, Br, Br

(4) Br

Space for rough work

55.
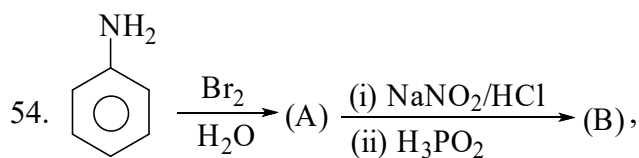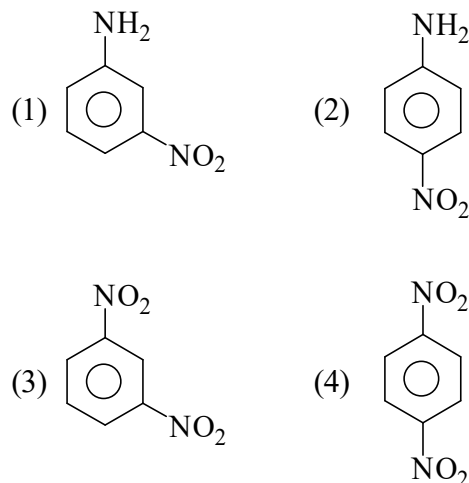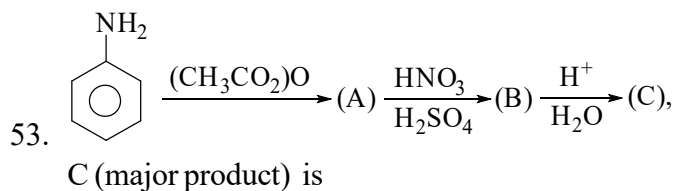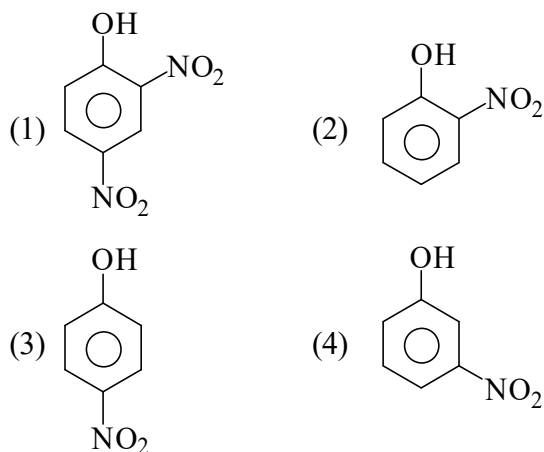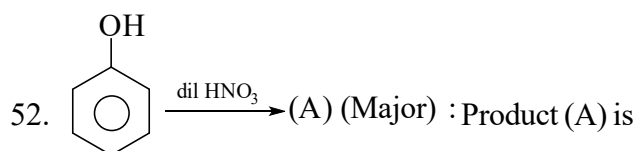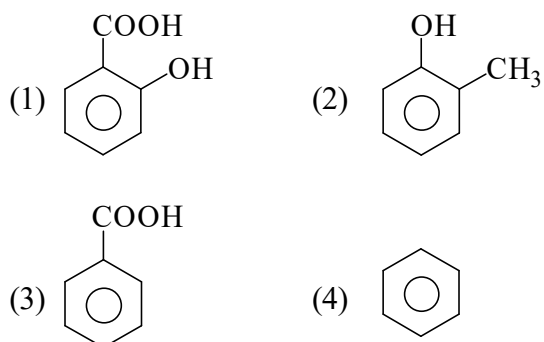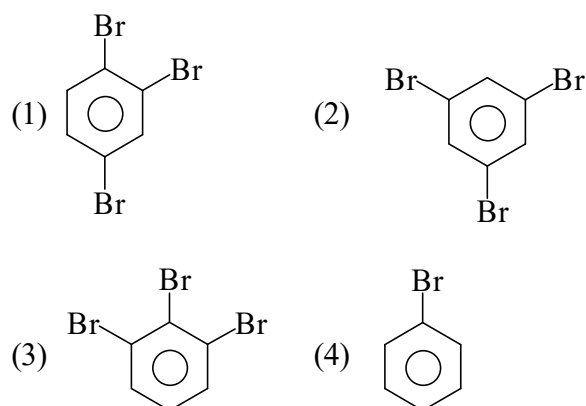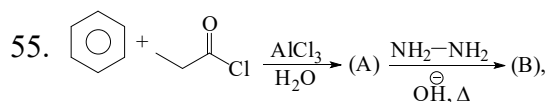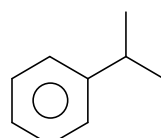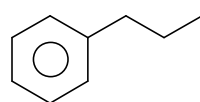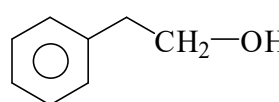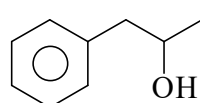
Product (B) in this reaction is :

(1)

(2)

(3)

(4)

SECTION-B

56. The process of setting of colloidal particles is known as
   (1) Electrophoresis
   (2) Brownian movement
   (3) Coagulation
   (4) Peptization

57. Correct formula of cuprite ore is
   (1) Cu_2O (2) Cu_2S
   (3) $CuCO_3.Cu(OH)_2$ (4) $CuFeS_2$

58. Molarity of an aqueous solution of 0.1 mole glucose present in 500 ml solution is
   (1) 0.2 M   (2) 0.5 M
   (3) 0.15 M   (4) 0.8 M

59. pH of an aqueous solution of 0.1 M CH_3COONa is (pK_a of $CH_3COOH = 4.7$)
   (1) 7   (2) 7.5
   (3) 8.85   (4) 11.35

60. Products of electrolysis of aq. solution of $CuSO_4$ using platinum electrodes are
   (1) $H_2(g)$, $O_2(g)$ (2) $H_2(g)$, $SO_2(g)$
   (3) $Cu(s)$, $O_2(g)$ (4) $Cu(s)$, $H_2(g)$

61. Chinnbar is an ore of
   (1) Hg   (2) Cu   (3) Pb   (4) Zn

62. Which of the following is not a property of transition elements?
   (1) Colour   (2) Paramagnetic
   (3) Fixed valence   (4) Catalytic

63. The crystal field stabilization energy (CFSE) and the spin only magnetic moment in Bohr Magneton (BM) for the complex $K_3[Fe(CN)_6]$ are, respectively
   (1) $0.0\Delta_0$ and $\sqrt{35}$BM
   (2) $2.0\Delta_0$ and $\sqrt{3}$BM
   (3) $0.4\Delta_0$ and $\sqrt{24}$BM
   (4) $2.4\Delta_0$ and 0.0BM

64. The correct order of the thermal stability of hydrogen halides (H–X) is
   (1) HI > HBr > HCl > HF
   (2) HF > HCl > HBr > HI
   (3) HCl > HF > HBr > HI
   (4) HI > HCl > HF > HBr

65. XeF_6 on complete hydrolysis given
   (1) XeO_2F_2
   (2) XeO_2
   (3) XeO_3
   (4) XeO_4

Space for rough work

66. What is the correct IUPAC name of the given compound?

$$CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2CH_2CH_2-\underset{\underset{CH_2CH_3}{|}}{CH}-CH_2CH_2CH_3$$
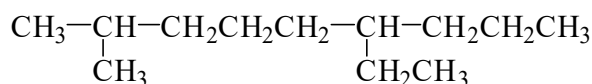
(1) 6–Ethyl–2–methylnonane

(2) 2–Methyl–6–ethylnonane

(3) 2, 6–Ethyl–methyl nonane

(4) None of the above

67. Which of the following is not in accordance to IUPAC system?

(1) $Br-CH_2-CH=CH_2$
1–bromoprop–2–ene

(2) $CH_3-CH_2-\underset{\underset{Br}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_2-\underset{\underset{CH_3}{|}}{CH}CH_3$
4–bromo–2, 4–methyl hexane

(3) $CH_3-\underset{\underset{CH_3}{|}}{CH}-\underset{\overset{|}{CH=CH_2}}{CH}-CH_2-CH_3$
3–Ethyl–4–methyl pentene

(4) $CH_3-\underset{\underset{CH_3}{|}}{HC}-CH_2-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3$
2, 2, 4–Trimethyl pentane
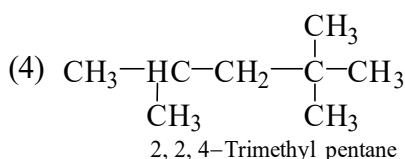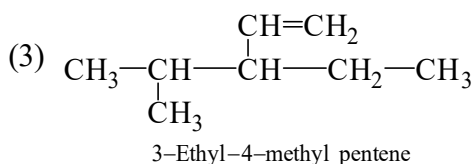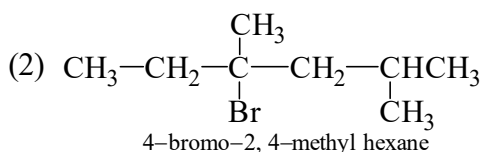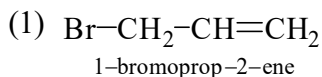
68. The IUPAC name for the following compound is

$H_3C-CH_2-CH_2-\underset{\underset{CH}{|}}{\overset{\overset{CH_3}{|}}{CH}}...$
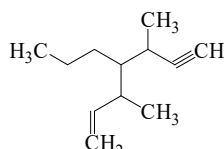
(1) 3–Methyl–4–(3–methylprop–1–enyl)–1–heptyne

(2) 3, 5–Dimethyl–4–propylhept–6–en–1–yne

(3) 3–Methyl–4–(1–methylprop–2–ynyl)–1–heptene

(4) 3, 5–Dimethyl–4–propylhept–1–en–6–yne

69. DU for the structure is
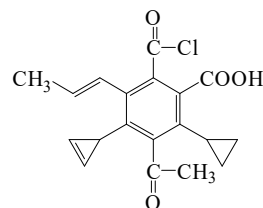
(1) 12 (2) 10 (3) 11 (4) 8

70. How many σ and π bonds are present in $HC\equiv C-CH=CH-CH_3$?
(1) $9\sigma, 4\pi$ (2) $10\sigma, 3\pi$
(3) $6\sigma, 6\pi$ (4) $5\sigma, 5\pi$

BOTANY
SECTION–A

71. Identify A, B, C and D in this figure?
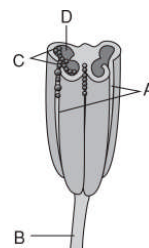
(1) A: Pollen grains, B: Filament (Stalk), C: Line of dehiscence, D: Pollen sacs

(2) A: Line of dehiscence, B: Filament (Stalk), C: Pollen sacs, D: Pollen grains

(3) A: Filament (Stalk), B: Pollen grains, C: Line of dehiscence, D: Pollen sacs

(4) A: Line of dehiscence, B: Pollen sacs, C: Pollen grains, D: Filament (Stalk)

72. What indicates 'A' in the below figure?
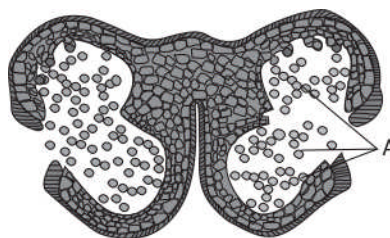
(1) Pollen grains (2) Pollen sacs
(3) Generative cell (4) Vacuoles

Space for rough work

73. Whorl of petals in flower represents
    (1) Gynoecium (2)   Androecium
    (3) Calyx   (4) Corolla

74. Stamens consists of which of the following parts?
    (1) Filament   (2) Style, stigma
    (3) Anther   (4) Both (1) and (3)

75. How many microsporangia are there in each lobe of anther?
    (1) One microsporangia
    (2) Two microsporangia
    (3) Three microsporangia
    (4) Four microsporangia

76. What represents 'A' in the following figure?
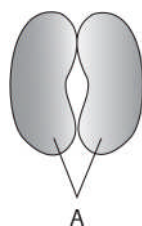
    (1) Cotyledons (2)   Scutellum
    (3) Shoot apex   (4) Radicle

77. An organism's genetic constitution is called its
    (1) Genotype   (2) Phenotype
    (3) Holotype   (4) None of these

78. Which of the following has been used for genetic researches?
    (1) Pisum
    (2) Neurospora
    (3) E. coli
    (4) All of these

79. Mendel is famous for his work on
    (1) Pisum
    (2) Drosophila
    (3) Neurospora
    (4) Oenothera

80. An allele is said to be dominant if
    (1) It is expressed only in heterozygous combination.
    (2) It is expressed only in homozygous combination.
    (3) It is expressed in both homozygous and heterozygous condition.
    (4) It is expressed only in second generation.

81. The dwarfnem in plants of F_2 generation is
    (1) Recessive   (2) Dominant
    (3) Both (1) and (2) (4) None of these

82. Mendel was born in
    (1) 17th century   (2) 18th century
    (3) 19th century   (4) 8th century

83. Which nucleic acid in some viruses can also act as genetic material?
    (1) DNA   (2) RNA
    (3) mRNA   (4) tRNA

84. The process of making RNA from DNA is termed as
    (1) Transaction   (2) Transformation
    (3) Transcription   (4) Transduction

85. The genetic code
    (1) Is a sequence of nucleotides on rRNA.
    (2) Determines the sequence of amino acid in proteins.
    (3) Is universal in biological systems.
    (4) None of the above

86. The process of protein synthesis in biological systems is termed as
    (1) Transaction   (2) Transcription
    (3) Translation   (4) Transformation

87. DNA is a polymer of
    (1) Nucleotides
    (2) Ribonucleotides
    (3) Nucleosides
    (4) Deoxyribonucleotides

Space for rough work

88. DNA has two strands which are _____ to each other.
    (1) Supplementary   (2) Complementary
    (3) Opposite   (4) Perpendicular

89. Green revolution was dependent to a large extent on plant breeding techniques for the development of high yielding and disease resistant varieties in
    (1) Wheat   (2) Maize
    (3) Rice   (4) All of these

90. The entire collection (of plants/seeds) having all the diverse allele for all genes in a given crop is called
    (1) Gene bank
    (2) Tissue culture
    (3) Genetic engineering
    (4) Germplasm collection

SECTION-B

91. Identify the type/level of biodiversity from the following
    (1) Genetic   (2) Species
    (3) Ecological   (4) All of these

92. Which of the following shows maximum genetic diversity?
    (1) Rice
    (2) Mango
    (3) Rauwolfia vomitoria
    (4) Wheat

93. If the present rate of species losses continues, we will lose our biological wealth in how much time?
    (1) Less than one century
    (2) Less than 2 centuries
    (3) Less than 50 years
    (4) Next 20 years

94. Pollution is any undesirable change in physical, chemical or biological characteristics of
    (1) Air   (2) Land
    (3) Water or soil   (4) All of these

95. Agents which cause pollution are known as
    (1) Mutants   (2) Carcinogens
    (3) Pollutants   (4) Allergens

96. Which system of humans and animals are affected mostly by air pollution?
    (1) Respiratory system
    (2) Digestive system
    (3) Circulatory system
    (4) Excretory system

97. Harmful elects of air pollution depends on
    (1) Concentration of pollutants
    (2) Duration of exposure
    (3) Type of organism
    (4) All of these

98. CNG is a better fuel than petrol or diesel because CNG
    (1) Burns efficiently
    (2) Cannot be siphoned off and adulterated
    (3) Non-carcinogenic and non-corrosive
    (4) All of these

99. What happens to sewage water from the point of sewage discharge?
    (1) Dissolved oxygen ↓ eses
    (2) Mortality of fish ↑ eses
    (3) Biological oxygen demand ↑ eses
    (4) All of these

100. World's most problematic aquatic weed is
    (1) Terror of Bengal
    (2) Water hyacinth
    (3) Eichhornia crassipes
    (4) All of these

101. Deforestation causes all of these except
    (1) Soil erosion and loss of biodiversity
    (2) Desertification
    (3) Increase CO_2, concentration in atmosphere
    (4) Undisturbed hydrological cycle

102. Clones are
    (1) Morphologically similar
    (2) Genetically similar
    (3) Both (1) and (2)
    (4) None of these

Space for rough work

103. Sexual reproduction is characterized by
    (1) Two parent participation
    (2) Formation of gametes
    (3) Fusion of gametes
    (4) All of these

104. Asexual reproduction is common among all except
    (1) Unicellular organisms
    (2) Plants with simple organization
    (3) Animals with simple organization
    (4) Animals with complex organization

105. Name an organism where cell division is itself a mode of reproduction?
    (1) Amoeba   (2) E. coli
    (3) Euglena   (4) All of these

ZOOLOGY
SECTION-A

106. Mark the options that fill in the blanks suitably:
    Using _____ vectors, nematode-specific genes were introduced into the host plant for pest resistance.
    (1) Streptococcus
    (2) Bacillus anthracis
    (3) Agrobacterium
    (4) Haemophilus influenzae

107. A temporary endocrine gland in the human body is
    (1) Pineal gland   (2) Corpus albicans
    (3) Corpus luteum   (4) Corpus allatum

108. How many of the following contraceptives have hormones?

LNG 20, Lippes's Loop, Saheli, Multiload, Diaphragm, Norplant, Progestasert.

    (1) Six   (2) Seven
    (3) Five   (4) Three

109. If cardiac output of a person at a time is 6.400 ml and his heart rate is 80 per minute, the stroke volume of the person will be
    (1) 52 mL   (2) 72 mL
    (3) 80 mL   (4) 60 mL

110. During each cardiac cycle, two prominent sounds are produced which can be easily heard by stethoscope. The second heart sound is associated with
    (1) Closing of the atrioventricular valves (2) Opening of the tricuspid valves
    (3) Closing of the semilunar valves
    (4) Opening of the semilunar valves

111. Role of (A) in the regulation of respiratory rhythm is quite insignificant (A) is
    (1) Pneumotaxic centre (2) H^+
    (3) CO_2 (4) O_2

112. A bond which is formed between two monosaccharides, is known as
    (1) Ester bond
    (2) Peptide bond
    (3) Glycosidic bond
    (4) Phosphodiester bond

113. Mark correct respiratory equation?
    (1) IRV = TV + ERV   (2) EC = TLC – RC
    (3) FRC = RV + ERV   (4) RV = TLC + IRV

114. Which of the following statements is correct regarding the given diagram?

    (1) Muscle fibres are unbranched
    (2) Muscle fibres are multinucleated and joined to each other by intercalated discs
    (3) Cells are fusiform in shape
    (4) All cells are functionally single unit

Space for rough work

115. Identify the correct statement and choose the correct options given below-

   i.   Uremia - accumulation of urea in blood

   ii.   Renal calculi - insoluble mass of crystallised salts formed within the kidney

   iii. Glomerulonephritis – inflammation of nephron of kidney

   iv. Kidney transplantation - ultimate method in the correction of renal failures

   (1) i and ii   (2) i and iv

   (3) i, ii, iii and iv   (4) i, ii and iv

116. Find out the incorrect match

   (1) Trygon   –   Sting ray

   (2) Carcharodon   –   Saw fish

   (3) Petromyzon   –   Lamprey

   (4) Myxine   –   Hag fish

117. An autoimmune disorder affecting neuromuscular junction leading to fatigue, weakening and paralysis of skeletal muscle is

   (1) Myasthenia gravis

   (2) Muscular dystrophy

   (3) Tetany

   (4) Arthritis

118. Columns of Bertini are

   (1) Extensions of medulla into cortex of kidney

   (2) Extensions of calyces into pelvis of kidney

   (3) Extensions of pelvis into ureter

   (4) Extensions of cortex in between the medullary pyramids

119. On an average _____ of urea is excreted out per day.

   (1) 40-60 gm

   (2) 10-20 gm

   (3) 25-30 gm

   (4) 30-40 gm

120. Which of the following is **incorrect** match w.r.t. bone and its total number in the adult human body?

   (1) Ribs – 24

   (2) Vertebrae – 20

   (3) Carpals – 8

   (4) Radius – 2

121. Following is a diagrammatic presentation of a standard ECG.
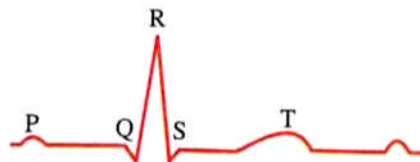
Mark the incorrect statement-

   (1) P-wave represents repolarization of atria

   (2) QRS complex represents depolarization of left ventricle only

   (3) The end of T-wave marks the end of systole

   (4) By counting QRS complexes, one can determine the no heart beats of a person

122. Uric acid is the chief nitrogenous component of the excretory products of

   (1) man

   (2) earthworm

   (3) cockroach

   (4) frog

123. Choose the one which is not a secondary metabolite:

   (1) Morphine

   (2) Rubber

   (3) Amino acids

   (4) Monoterpenes

Space for rough work

124. Match column-I with column-II and choose the correct option.

Column-I		Column-II	
a.	Probe	(i)	Antigen-antibody interaction
b.	ELISA	(ii)	ssDNA/RNA tagged with radioactive molecule
c.	α-1-antitrypsin	(iii)	Produced human protein-enriched milk
d.	First transgenic Cow, Rosie	(iv)	Used to treat emphysema

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

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

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

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

125. Which of the following is the correct route through which impulse travels in human heart?
   (1) AV node $\rightarrow$ SA node $\rightarrow$ Heart muscles $\rightarrow$ Purkinje fibres $\rightarrow$ Bundle of His
   (2) SA node $\rightarrow$ AV node $\rightarrow$ Bundle of His $\rightarrow$ Heart muscles $\rightarrow$ Purkinje fibres
   (3) SA node $\rightarrow$ AV node $\rightarrow$ Bundle of His $\rightarrow$ Purkinje fibres $\rightarrow$ Heart muscles
   (4) Bundle of His $\rightarrow$ SA node $\rightarrow$ AV node $\rightarrow$ Purkinje fibres $\rightarrow$ Heart muscles

126. Gestation period in human is
   (1) 3 months   (2) 7 months
   (3) 9 months   (4) 38 months

127. With the formation of blastocoel, morula is converted to blastula which is called blastocyst in mammals.
   The ectoderm cells will form the ....
   (1) Skeletal system
   (2) Nervous system
   (3) Excretory system
   (4) Respiratory system

128. A young couple married for 5 years is unable to bear a child in spite of not practicing any birth control method. Upon consultation, doctor advised them an assisted reproductive technology involving transfer to gametes into oviducts.
   Identify the technique adopted by the couple.
   (1) ZIFT   (2) IUI   (3) GIFT (4) ICSI

129. Which of the following is hormone releasing IUD?
   (1) Cu–T   (2) LNG–20
   (3) Multiload 375   (4) Implant

130. Which among the following is a venereal disease, caused by a virus, which also gets transmitted by blood contact?
   (1) Gonorrhoea   (2) Syphilis
   (3) Trichomonoiasis   (4) Hepatitis–B

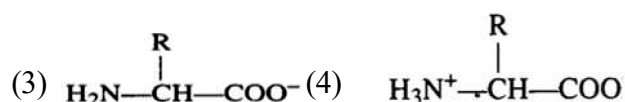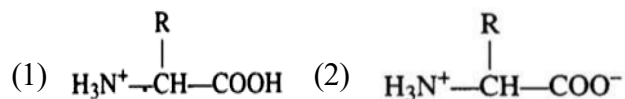131. Which method helps in contraception by temporary absence of coitus?
   (1) Coitus interruptus
   (2) Withdrawal method
   (3) Rhythm method
   (4) Lactational amenorrhea method

132. Find the Zwitterionic form of an amino acid from the following structures:

(1) $H_3N^+—CH—COOH$ (with R on CH) (2) $H_3N^+—CH—COO^-$ (with R on CH)

(3) $H_2N—CH—COO^-$ (with R on CH) (4) $H_3N^+—CH—COO$ (with R on CH)

Space for rough work

133. Match the following with their respective Characteristics:

(A) Aschelminthes	(1) Radial symmetry
(B) Echinoderms	(2) Jointed Appendages
(C) Arthropoda	(3) Psedocoelomates
(D) Coelenterata	(4) Cnidocytes

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

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

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

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

134. Read the following statements carefully, all are correct except-

(1) Angina pectoris – mild chest pain

(2) Atherosclerosis – coronary artery disease

(3) Heart attack – heart muscle damaged by inadequate blood supply

(4) Heart failure – heart stops beating

135. Enlarged thyroid gland, increased basal metabolic rate, protrusion of eye balls and excessive weight loss are characteristic of which disease?

(1) Cretinism

(2) Exopthalmic Goitre

(3) Grave's disease

(4) Both (2) and (3)

136. Which of them are correctly grouped?

(1) Porifera- Spongilla, Euspongia, Sycon

(2) Cnidaria- Physalia, Asterias, Adamsia

(3) Echinodermata – Asterias, Gorgonia, Meandrina

(4) Platyhelminthes- Taenia, Fasciola, Ascaris

137. Which of the following statement about the skeletal muscles is correct?

(1) They are striated muscles

(2) They are voluntary muscles

(3) They are primarily involved in locomotory action

(4) All

138. I. Decreased bone mass and increased chances of fracture.

II. Deficiency of estrogenic is common.

The above characters are associated with

(1) Gout   (2) Osteoporosis

(3) Arthritis   (4) Polio

139. Match the column I and II, and choose the correct combination for the options given-

Column I	Column II
A. Eosinophils	1. 5 to 5.5 million /mm^3
B. Neutrophils	2. 1,500,00 - 3,500,00/mm^3
C. RBC's	3. 0.5 - 1%
D. Platelets	4. 2 - 3%
E. Basophils	5. 60-65%

(1) A-3, B-1, C-4, D-2, E-5

(2) A-1, B-3, C-5, D-5, E-2

(3) A-4, B-5, C-1, D-2, E-3

(4) A-4, B-5, C-3, D-1, E-2

140. The figure given below show a schematic plan of blood circulation in human with labels (A) to (D).

Identify the correct labels with its functions.
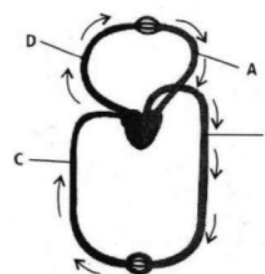
(1) A- Pulmonary vein – takes impure blood from body part

(2) B. Aorta – takes blood from heart to body parts

(3) C. Vena cava – takes blood from body parts to left auricle

(4) D. Pulmonary artery – takes pure blood from heart to lungs

Space for rough work

** घर के पास
सफलता और संस्कार**

ANSWER KEY

PHYSICS

01.	(2)	02.	(1)	03.	(1)	04.	(3)	05.	(2)	06.	(1)	07.	(4)
08.	(2)	09.	(3)	10.	(1)	11.	(1)	12.	(2)	13.	(1)	14.	(1)
15.	(2)	16.	(2)	17.	(4)	18.	(4)	19.	(3)	20.	(2)	21.	(4)
22.	(4)	23.	(3)	24.	(3)	25.	(4)	26.	(3)	27.	(3)	28.	(1)
29.	(3)	30.	(3)	31.	(4)	32.	(2)	33.	(1)	34.	(2)	35.	(2)

CHEMISTRY

36.	(2)	37.	(1)	38.	(3)	39.	(3)	40.	(4)	41.	(2)	42.	(1)
43.	(4)	44.	(2)	45.	(3)	46.	(2)	47.	(2)	48.	(1)	49.	(2)
50.	(4)	51.	(3)	52.	(2)	53.	(2)	54.	(2)	55.	(2)	56.	(3)
57.	(1)	58.	(2)	59.	(3)	60.	(3)	61.	(1)	62.	(3)	63.	(2)
64.	(2)	65.	(3)	66.	(1)	67.	(1)	68.	(4)	69.	(3)	70.	(2)

BOTANY

71.	(2)	72.	(1)	73.	(4)	74.	(4)	75.	(2)	76.	(1)	77.	(1)
78.	(4)	79.	(1)	80.	(3)	81.	(1)	82.	(2)	83.	(2)	84.	(3)
85.	(2)	86.	(3)	87.	(4)	88.	(2)	89.	(4)	90.	(4)	91.	(4)
92.	(1)	93.	(2)	94.	(4)	95.	(3)	96.	(1)	97.	(4)	98.	(4)
99.	(4)	100.	(4)	101.	(4)	102.	(3)	103.	(4)	104.	(4)	105.	(4)

ZOOLOGY

106.	(3)	107.	(3)	108.	(1)	109.	(3)	110.	(3)	111.	(4)	112.	(3)
113.	(3)	114.	(2)	115.	(4)	116.	(2)	117.	(1)	118.	(4)	119.	(2)
120.	(3)	121.	(1)	122.	(3)	123.	(3)	124.	(4)	125.	(3)	126.	(3)
127.	(2)	128.	(3)	129.	(2)	130.	(4)	131.	(3)	132.	(2)	133.	(4)
134.	(4)	135.	(4)	136.	(1)	137.	(4)	138.	(2)	139.	(3)	140.	(2)

For any correction or query related to answer key, contact +91 81262 61333

सिर्फ तैयारी के लिए ज़िन्दगी नहीं
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