दयानंद शिक्षण संस्था, लातूर

"आ नो भद्रा क्रतवो यन्तु विश्वतः"

Dayanand Education Society, Latur.

PCB
(CBSE Board)

: Instructions :

* This question paper set contains 100 questions, each carry 4 marks.
* No negative marking for wrong answer.
* Fill the particulars on Answer Sheet (OMR) with Black or Blue ball point pen. (Do not use Pencil)
* There are four choices for every question out of which only one option is correct.
* Candidate should not carry any printed material, Cell phone and any other electronic device.
* Rough work is to be done on the provided space in question paper.
* Do not fold the answer sheet (OMR)

Wish You All the Best !

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Space for Rough work

PHYSICS

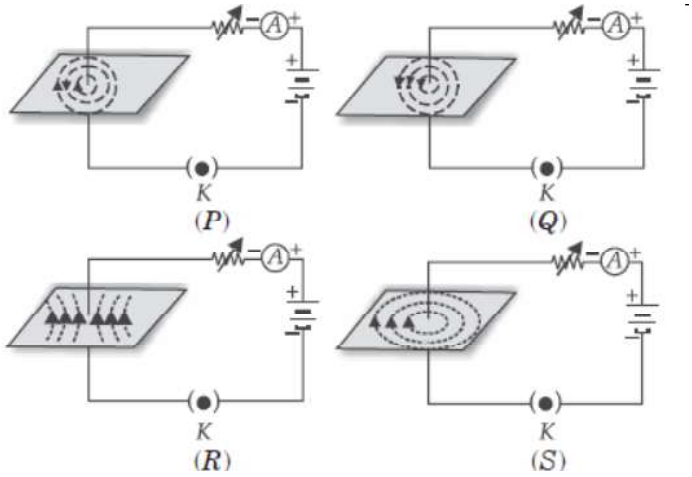
01. The direction of magnetic field around a straight conductor carrying current can be determined by

a) Fleming's left hand rule
b) Lenz's law
c) Right hand thumb rule
d) Fleming's right hadn rule

02. Magnetic field is produced by the flow of current in a straight wire. This phenomenon was discovered by

a) Coulomb b) Oersted c) Faraday d) Maxwell

03. Four students plotted the sketch of the patterns of magnetic field lines representing the magnetic field around a current carrying straight wire as shown in figures A, B, C and D. Which one of the following sketches is correct ?



a) P b) Q c) R d) S

04. Select the correct sequence of light entering the different parts of human eye

a) cornea, lens, iris, pupil, retina
b) pupil, cornea, iris, lens, retina
c) cornea, pupil, iris, lens, retina
d) cornea, iris, pupil, lens, retina

05. Which colour shows maximum deviation when passed through a prism ?

a) Yellow b) Red c) Violet d) Green

Space for Rough work

06. Due to which motion of light does the Tyndall effect occur ?

a) Incidence b) Refraction c) Scattering d) Dispersion

07. The amount of heat produced in a conductor is

a) directly proportional to the current flowing through it

b) inversely proportional to the current flowing through it

c) directly proportional to the square of the current flowing through it

d) inversely proportional to the square of current flowing through it

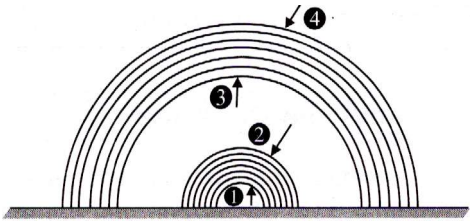
08. Column II gives order of resistivity for materials in column I.

Column – I	**Column – II**
A. Semi-conductor	p) $3\times10^{-3}\,\Omega-m$
B. Conductor	q) $10^{-8}\,\Omega-m$
C. Insulator	r) $10^{16}\,\Omega-m$
D. Super conductor	s) $1\,\Omega-m$

a) A – p, B – s, C – r, D – q b) A – p, B – r, C – s, D – q

c) A – p, B – q, C – s, D – r d) A – s, B – p, c – q, D – r

09. The given figure shows primary and secondary rainbows.



Which of the following options correctly lists the colours of marked rays ?

a) 1 – Violet, 2 – Red, 3 – Red, 4 – Violet b) 1 – Violet, 2 – Red, 3 – Violet, 4 – Red

c) 1 – Red, 2 – Violet, 3 – Violet, 4 – Red d) 1 – Red, 2 – Violet, 3 – Red, 4 – Violet

Space for Rough work

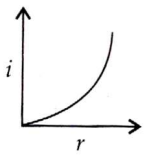
10. Red colour of sun at the time of sunrise and sunset is because

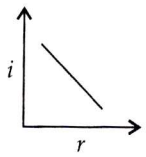
a) Red colour is least scattered
b) Blue colour is least scattered
c) Red colour is scattered the most
d) All colours are equally scattered

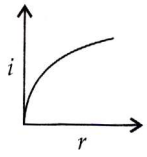
11. Concave lens is used in case of

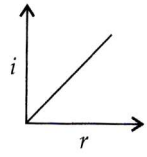
a) Presbyopia
b) Astigmatism
c) Myopia
d) Hypermetropia

12. Which of the following correctly represents graphical relation between the angle of incidence i and the angle of reflection r ?

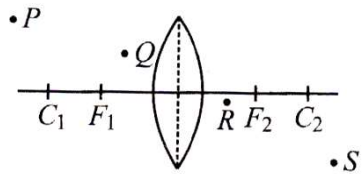
a) 

b) 

c) 

d) 

13. The given figure shows a converging lens. The focal length and centre of curvature of the lens are marked along with four random points, P, Q, R and S. Which of the following set of points correctly represents the position of object and corresponding position of image ?



	Position of object	Position of image
a)	P	R
b)	Q	S
c)	P	S
d)	Q	P

Space for Rough work

14. A convex lens of focal length f produces a real image of size 'm' times the size of the object. Then the object distance is

a) $\left(\frac{m+1}{m}\right)f$ b) (m + 1)f c) $\left(\frac{m+1}{m}\right)$ d) $\frac{fm}{(m+1)}$

15. In which of the following set, the materials are arranged on the basis of ascending order of their refractive index ?

a) Air, water, silicon, diamond
b) Air, silicon, kerosene, diamond
c) Air, water, diamond, silicon
d) Air, alcohol, silicon, diamond

16. If a 3 cm tall object placed perependicular to principal axis of a convex lens of focal length 15 cm produces a real inverted image of height 15 cm, then its object distance (u) is ..... and image distance (v) is

a) u = –18 m, v = +90 m
b) u = +18 cm, v = –90 cm
c) u = –18 cm, v = +90 cm
d) u = +18 cm, v = +90 cm

17. An object 20 cm from a spherical mirror give rise to a virtual image 15 cm behind the mirror. The type of the mirror and its focal length is

a) concave, 8.5 cm b) convex, 30 cm c) concave, 60 cm d) convex, 60 cm

18. Power of a convex lens of focal length 50 cm is

a) –2D b) –0.5 D c) +2 D d) +0.5 D

19. If an incident ray passes through the centre of curvature of a spherical mirror, the reflected ray will

a) pass through the pole
b) pass through the centre of curvature
c) retrace its path
d) be parallel to the principal axis

20. The magnetic field produced due to a circular wire at its centre is

a) at 45° to the plane of the wire
b) at 60° to the plane of the wire
c) in the plane of the wire
d) perpendicular to the plane of the wire

Space for Rough work

21. The magnetic field lines inside a current carying solenoid are

a) circular and they do not intersect each other

b) circular at the ends but they are parallel to the axis inside the solenoid

c) along the axis and parallel to each other

d) perpendicular to the axis and equidistant from each other

22. When the main switch of the house circuit is put off, it disconnects the

a) earth wire b) live and neutral wires c) live wire d) neutral wire

23. Match the Column – I with Column – II.

Column – I	**Column – II**
A. Law of reflection	p) $\frac{1}{\text{focal length}}$
B. Law of refraction	q) $\angle i = \angle r$
C. Power of lens	r) $\frac{\sin i}{\sin r} = \text{constant}$
D. Absolute refractive index of glass	s) $\frac{\text{Speed of light in air}}{\text{Speed of light in glass}}$

a) A – q, B – r, C – p, D – s b) A – r, B – q, C – p, D – s

c) A – q, B – r, C – s, D – p d) A – r, B – q, C – s, D – p

24. Ampere-second stands for the unit of :

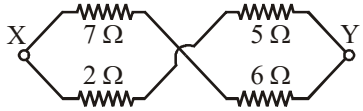
a) Power b) Charge c) e.m.f. d) Energy

25. There are two wires of the same length and of the same material and radius r and 2r. The ratio of their specific resistance is :

a) 1 : 2 b) 1 : 1 c) 1 : 4 d) 4 : 1

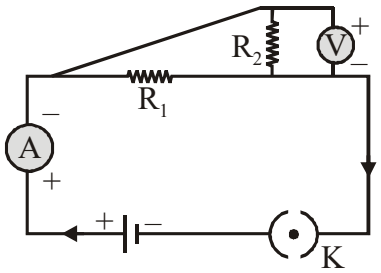
Space for Rough work

26. The equivalent resistance between points X & Y :



a) 4 Ω b) 4.5 Ω c) 2 Ω d) 20 Ω

27. Which of the circuit components in the following circuit diagram and connected in parallel?

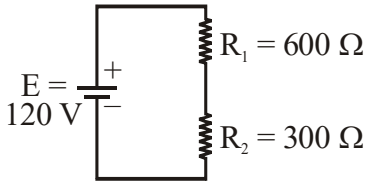


a) R_1 and R_2 only b) R_1, R_2 and V c) R_2 and V only d) R_1 and V only

28. The voltage across a conductor is directly proportional to the current flowing across it under constant conditions of

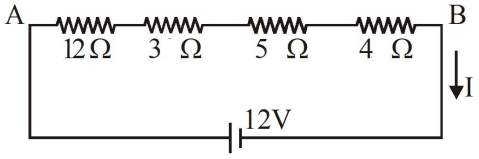
a) Pressure b) Humidity c) Temperature d) Density

29. In the circuit, the battery is ideal. A voltmeter is connected across R_1 and R_2, giving readings V_1 and V_2 respectively. Then



a) $V_1 = 80$ V b) $V_1 = 60$ V c) $V_2 = 30$ V d) $V_2 = 50$ V

30. The potential drop across the 12 Ω resistor is :



a) 12 V b) 6 V c) 8 V d) 0.5 V

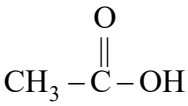
Space for Rough work

CHEMISTRY

31. The electronic configuration of an element is found to be 2, 4. How many bonds can one carbon atom form in a compound ?

    a) 1 b) 2 c) 4 d) 6

32. Which functional group is present in the following compound ?



    a) Aldehyde b) Carboxylic acid c) Ketone d) Alcohol

33. Which of the following is molecular formula of cyclobutane ?

    a) C_4H_{10} c) C_4H_6 c) C_4H_4 d) C_4H_8

34. How many single bonds are present in methane ?

    a) Four b) Five c) Six d) Three

35. Buckminsterfullerne is an allotropic form of

    a) Phosphorus b) Sulphur c) Carbon d) Tin

36. The process of converting a liquid into gaseous state is called

    a) Sublimation b) Condensation c) Evaporation d) Melting

37. The following chemical reaction shows the addition of chlorine gas to hydrocarbon in the presence of sunlight

$$CHCl_3 + Cl_2 \xrightarrow{\text{Sunlight}} CCl_4 + HCl$$

    How does chlorine react to a hydrocarbon comound in the presence of sunlight ?

    a) It adds hydrogen to the compound

    b) It adds on oxygen atom to the compound

    c) It substitutes hydrogen atom from the compound

    d) It breaks double and triple bonds into a single bond.

Space for Rough work

38. Match the reactions given in column (A) with the names given in column (B).

Column (A)	Column (B)
A) $CH_3OH + CH_3COOH \xrightarrow{H^+} CH_3COOCH_3 + H_2O$	i) Addition Reaction
B) $CH_2 = CH_2 + H_2 \xrightarrow{Ni} CH_3 - CH_3$	ii) Substitution Reaction
C) $CH_4 + Cl_2 \xrightarrow{sunlight} CH_3 - Cl + HCl$	iii) Neutralisation Reaction
D) $CH_3COOH + NaOH \rightarrow CH_3COONa + H_2O$	iv) Esterification Reaction

a) A – iv, B – i, C – ii, D – iii
b) A – iv, B – ii, C – i, D – iii
c) A – iv, B – iii, C – ii, D – i
d) A – iv, B – i, C – iii, D – i

39. Which of the following is the purest form of carbon

a) Charcoal b) Coal c) Diamond d) Graphite

40. The first member of the alkyne homologous series is

a) Propyne b) Ethyne c) Methane d) Ethene

41. An elment X on exposure to moist air turns reddish brown and a new compound Y is formed. The substance X and Y are

a) X = Fe, Y = Fe_2O_3 b) X = Ag, Y = Ag_2S c) X = Cu, Y = CuO d) X = Al, Y = Al_2O_3

42. When carbon dioxide is passed through lime water ?

a) Calcium hydroxide is formed
b) White precipitate of CaO is formed
c) Lime water turns milky
d) Colour of lime water disappeaes

43. $Na_2SO_{4(aq)}$ + $BaCl_{2(aq)}$ → $BaSO_{4(s)}$ + $2NaCl_{(aq)}$

Sodium sulphate Barium chloride Barium sulphate Sodium chloride

The above reaction is a example of

a) Displacement reaction
b) Double displacement reaction
c) Combination reaction
d) Decomposition reaction

Space for Rough work

44. Oxidation is a process which involves

a) Addition of oxygen
b) Addition of hydrogen
c) Removal of oxygen
d) Removal of hydrogen and oxygen

45. Which of the following is an example of a chemical change ?

a) Boiling of water
b) Burning of candle
c) Cutting of paper
d) Melting of ice

46. What is the chemical formula of sodium Hydroxide ?

a) NaOH
b) Na_2CO_3
c) NaCl
d) $NaNO_3$

47. Which of the following statements is true about exothermic reactions ?

a) They absorbs heat
b) They release heat
c) They occur at low temperatures
d) They require energy input

48. Brine is an

a) Aqueous solution of sodium hydroxide
b) Aqueous solution of sodium carbonate
c) Aqueous solution of sodium chloride
d) Aqueous solution of sodium bicarbonate

49. What is the nature of baking soda ?

a) Acidic
b) Basic
c) Neutral
d) None of the above

50. Which acid is found in vinegar ?

a) Citric acid
b) Lactic acid
c) Acetic acid
d) Tactaric acid

51. What color does turmeric turns when it contacts a basic substance ?

a) Red
b) Blue
c) Yellow
d) Green

52. The ability of metals to be drawn into thin wire is known as

a) Ductility
b) Malleability
c) Sonorousity
d) Conductivity

53. The bronze medals are made up of

a) Cu and Zn
b) Zn and Ni
c) Cu and Sn
d) Cu, Zn, Sn

Space for Rough work

54. The composition of aqua-regia is

a) dil. HCl : conc. HNO_3 = 3 : 1 b) conc. HCl : dil. HNO_3 = 3 : 1

c) conc. HCl : conc. HNO_3 = 3 : 1 d) dil. HCl : dil. HNO_3 = 3 : 1

55. Two statements are made.

Statement – A : Zine is used in the galvanization of iron.

Statement – B : Its coating on iron articles increasing the life of it by protecting it from rusting.

a) Both Statement A and Statement B are correct.

b) Both Statement A and Statement B are incorrect.

c) Statement A is correct but Statement B is incorrect.

d) Statement A is incorrect but Statement B is correct.

56. What happens when an acid react with a metal ?

a) Formation of acid and salt b) Release of hydrogen gas

c) Production of oxygen gas d) Formation of carbon dioxide gas

57. What type of reaction occurs when an acid react with a metal ?

a) Acid – Base Reaction b) Oxidation – Reduction Reaction

c) Decomposition Reaction d) Neutralization Reaction

58. What is the chemical formula of plaster of paris (POP) ?

a) $CaSO_4 . 2H_2O$ b) $CaSO_4 . 3H_2O$ c) $CaSO_4 . \frac{1}{2} H_2O$ d) $CaCO_3 . \frac{1}{2} H_2$

59. Which of the following is endothermic process ?

a) Dilution of sulphuric acid b) Sublimation of dry ice

c) Condensation of water vapours d) Respiration is human beings

60. What happens when a pallet of sodium is dropped in water ?

a) It catches fire and forms oxide b) It absorbs heat and forms oxide

c) It catches fire and forms hydroxide d) It absorbs heat and forms hydroxide

Space for Rough work

BOTANY

61. Which of the following biomolecules is called bio-catalyst ?
    a) Enzyme b) Glucose c) Protein d) Lipid
62. Identify **'A'** and **'B'** from given equation.

$$6CO_2 + \mathbf{A} \xrightarrow{\text{Chlorophyll}} \mathbf{B} + 6O_2 + 6H_2O$$

    a) A – $12H_2$, B – $C_6H_{12}O_6$ b) A – $12H_2O$, B – $C_6H_{10}O_6$
    c) A – $12H_2O$, B – $C_4H_{10}O_5$ d) A – $12H_2$, B – $C_5H_{10}O_5$
63. Arrange the following events in correct sequence.
    1. Absorption of light energy by chlorophyll.
    2. Reduction of cabon dioxide to carbohydrates.
    3. Conversion of light energy into chemical energy and splitting water into hydrogen and oxygen.
    a) $1 \rightarrow 2 \rightarrow 3$ b) $3 \rightarrow 2 \rightarrow 1$ c) $3 \rightarrow 1 \rightarrow 2$ d) $1 \rightarrow 3 \rightarrow 2$
64. The function of guard cells is
    a) Opening of stomatal pore only b) Closing of stomatal pore only
    c) Both opening and closing of stomatal pore d) None of these
65. Select the INCORRECT statement in relation to ATP
    a) It is energy currency for cellular processes
    b) It is synthesized from ADP and inorganic phosphate
    c) About 3.5 kJ energy is released per ATP molecule.
    d) It provides energy to endothermic processes
66. The phloem in plants are responsible for
    a) transport of water b) transport of food c) transport of minerals d) transport of oxygen
67. The abiotic components of an ecosystem include
    a) Temperature b) Rainfall and wind
    c) Soil and minerals d) All the above

Space for Rough work

68. Read the following statements and choose the correct option given below.

Statement – I : The flow of energy is unidirectional.

Statement – II : Generally, a greater number of individuals is present at the lower trophic level of an ecosystem.

a) Both Statement I and Statement II are correct.

b) Both Statement I and Statement II are incorrect.

c) Statement I is correct but Statement II is incorrect.

d) Statement I is incorrect but Statement II is correct.

69. Which of the following groups contain only producers ?

a) Grass, Garsshopper, Shrubs

b) Grass, Trees, Rabbit

c) Mouse, Insects, Goat

d) Trees, Bushes, Grass

70. Select the INCORRECT pair :

Phenotypes	**Genotypes**
a) Tall	TT, Tt
b) Yellow Round	YyRr, YYRR
c) Yellow Wrinkled	YyRr, YyRR
d) Green Round	yyRR, yyRr

71. If **'T'** for tallness is dominant over **'t'** for shortness in pea plant, then a cross between pure tall plant **(TT)** and pure short plant **(tt)** produces ..... in F_1 generation.

a) All tall offspering

b) All short offspring

c) 50% tall and 50% short offspering

d) 75% tall and 25% short offspering

72. The plant used by Mendel for his experiments is

a) Chick pea b) Garden pea c) Cow pea d) Pigeon pea

73. Match the Column – I with Column – II.

Column – I	**Column – II**
A. *Bryophyllum*	I. Binary fission
B. *Rhizopus*	II. Spore formation
C. *Plasmodium*	III. Multiple fission
D. *Amoeba*	IV. Leaf buds

a) A – IV, B – II, C – III, D – I

b) A – I, B – III, C – IV, D – II

c) A – III, B – I, C – II, D – IV

d) A – II, B – IV, C – I, D – III

Space for Rough work

74. Pistil is made of three parts like
    a) Ovary, Style and Stigma
    b) Style, Stamen and Stigma
    c) Ovary, Filament and Stigma
    d) Ovary, Anther and Stigma
75. Select the CORRECT statement from the following.
    a) After fertilization, ovule develops into fruit
    b) The unisexual flowers are found in mustard and *Hibiscus*
    c) Stamen is the female reproductive part of flower
    d) The transfer of pollen grains in the same flower is called self pollination
76. Match the Column – I with Column – II.

Column – I (Tropic movements)	**Column – II (Stimuli)**
A. Chemotropism	i. Gravity
B. Phototropism	ii. Water
C. Geotropism	iii. Chemicals
D. Hydrotropism	iv. Light

    a) A – iii, B – iv, C – i, D – ii
    b) A – ii, B – i, C – iv, D – iii
    c) A – i, B – iii, C – iv, D – ii
    d) A – iv, B – ii, C – iii, D – i
77. The plant hormone responsible for wilting of leaves is
    a) Cytokinin b) Gibberellin c) Auxin d) Abscisic acid
78. '**Touch-me-not**' plant is the member of
    a) Mustard family b) Mimosa family c) Hibiscus family d) Papaya family
79. The plant hormones that help in promoting growth is / are
    a) Abscisic acid b) Gibberellins c) Auxins d) Both b and c
80. In plants, many waste products are stored in which of the following cellular part ?
    a) Vacuoles b) Golgi body c) Lysosomes d) Mitochondria

Space for Rough work

ZOOLOGY

81. Which of the following organs is responsible for removing nitrogenous waste products from the body ?

a) Liver b) Kidney c) Heart d) Lungs

82. Which of the following is **NOT** function of the digestive system ?

a) Absorbing nutrients into the bloodstream b) Transporting oxygen to the cells

c) Breaking down food into smaller molecules d) Removing undigested waste from body

83. Priyanka was absent in the class because of muscle pain, which he claims to be due to excess physical excercise he had done yesterday. This pain is due to

a) Formation of acetic acid b) Formation of pyruvic acid

c) Formation of Hydrochloric acid d) Formation of Lactic acid

84. Accumulation of non-biodegrable pesticides in the food chain in increasing amount at each higher trophic level is known as

a) Pollution b) Eutrophication c) Accumulation d) Biomagnification

85. Contraceptive methods are

a) Condoms b) Oral pills c) Copper – T d) All of these

86. Match the terms of column (A) with those column (B).

Column – A	**Column – B**
A. Olfactory receptors	i) Tongue
B. Thermoreceptors	ii) Eye
C. Gustatoreceptors	iii) Nose
D. Photoreceptors	iv) Skin

a) A – ii, B – iv, C – iii, D – i

b) A – iii, B – iv, C – i, D – ii

c) A – iii, B – i, C – iv, D – ii

d) A – i, B – iv, C – iii, D – ii

Space for Rough work

87. Match the terms of column (A) with those column (B).

Column – A	**Column – B**
A.Trypsin	i) Pancreas
B. Amylase	ii) Liver
C. Bile	iii) Gastric glands
D. Pepsin	iv) Saliva

a) A – iv, B – ii, C – iii, D – i
b) A – iii, B – i, C – ii, D – iv
c) A – ii, B – iii, C – iv, D – i
d) A – i, B – iv, C – ii, D – iii

88. Based on situation below which situation show human respond to stimuli ?

I. A boy pulls his hand when touching a hot object. II. A girl reading a book.
III. A girl closes her ear when hearing the thunder. IV. A boy is walking to school.

a) I and II b) II and III c) III and IV d) I and III

89. The junction between two neuron is known as .....

a) Synopsis b) Synaptic knobe c) Synapse d) Synaptic cleft

90. Which of the following is the best way for disposal of vegetables and fruit peels ?

a) Landfill b) Recycling c) Compositing d) All of these

91. Offspring formed as a result of sexual reproduction exhibit more variations because ?

a) Genetic material comes from many parents.
b) Genetic material comes from two parents of different species
c) Sexual reproduction is a lengthy process
d) Genetic material comes from two parents of the same species

92. Excessive exposure for human to UV rays results in

i) Eye damage ii) Damage to lungs
iii) Skin cancer iv) Peptice ulcer

a) ii and iv b) i and iii c) ii and iv d) i and ii

Space for Rough work

93. Choose the **INCORRECT** statement about insulin ?

a) It is produced from pancreas.
b) It regulates growth and development of the body
c) It regulates blood sugar level
d) Insufficient secretion fo insulin will cause diabetes

94. The respiratory pigment in human beings is

a) Carotene b) Chlorophyll c) Haemoglobin d) Mitochondria

95. Choose the CORRECT statement.

a) The waste we generate may be biodegradable or non-biodegradable.
b) The use of chemicals like CFC has endangered ozone layer.
c) Ozone is a molecule formed by three atoms of oxygen.
d) All of these

96. Match the terms of column (A) with those column (B).

Column – A	**Column – B**
A. Testosterone	i) Adrenal gland
B. Insulin	ii) Pituitary gland
C. Adrenaline	iii) Testes
D. Growth hormone	iv) Pancreas

a) A – iii, B – iv, C – ii, D – i
b) A – iii, B – iv, C – i, D – ii
c) A – iv, B – ii, C – iii, D – i
d) A – iv, B – iii, C – i, D – ii

97. Excretory system of human being includes

A. Pair of kidneys
B. A pair of ureters
C. A urinary bladder
D. A urethra
E. Nephron
F. Blood vessel

a) A, B, C, E b) A, B, C, D c) A, D, E, F d) A, B, E, D

98. Human Heart is

a) 2 chambered (2 ventricles)
b) 4 chambered (3 Atrium 1 ventricle)
c) 4 chambered (1 Atrium 3 ventricle)
d) 4 chambered (2 Atrium 2 ventricle)

Space for Rough work

99. Read the following statements and choose the correct option given below.

Statement – I : In male urethra forms common passage for both the sperm and urine.

Statement – II : Formation of sperms take place in the testes.

a) Both Statement I and Statement II are correct.

b) Both Statement I and Statement II are incorrect.

c) Statement I is correct but Statement II is incorrect.

d) Statement I is incorrect but Statement II is correct.

100. The number of pairs of sex chromosomes in the zygote of humans is

a) One b) Two c) Three d) Four

Space for Rough work

Space for Rough work