Hall Ticket Number

Q.B.No. 6 3 4 3 2 1

Booklet Code : A

Marks : 100
Time : 120 minutes

3TS1C

Signature of the Candidate | **Signature of the Invigilator**

INSTRUCTIONS TO THE CANDIDATE

(Read the Instructions carefully before Answering)

1. Separate Optical Mark Reader (OMR) Answer Sheet is supplied to you along with Question Paper Booklet. Please read and follow the instructions on the OMR Answer Sheet for marking the responses and the required data.
2. The candidate should ensure that the Booklet Code printed on OMR Answer Sheet and Booklet Code supplied are same.
3. **Immediately on opening the Question Paper Booklet by tearing off the paper seal, please check for (i) The same booklet code (A/B/C/D) on each page, (ii) Serial Number of the questions (1-100), (iii) The number of pages and (iv) Correct Printing.** In case of any defect, please report to the invigilator and ask for replacement of booklet with same code within five minutes from the commencement of the test.
4. Electronic gadgets like Cell Phone, Calculator, Watches and Mathematical/Log Tables are not permitted into the examination hall.
5. **There will be ¼ negative mark for every wrong answer.** If the response to the question is left blank without answering, there will be no penalty of negative mark for that question.
6. Using Blue/Black ball point pen to darken the appropriate circles of (1), (2), (3) or (4) in the OMR Answer Sheet corresponding to correct or the most appropriate answer to the concerned question number in the sheet. Darkening of more than one circle against any question automatically gets invalidated and will be treated as wrong answer.
7. Change of an answer is NOT allowed.
8. Rough work should be done only in the space provided in the Question Paper Booklet.
9. Return the OMR Answer Sheet and Question Paper Booklet to the invigilator before leaving the examination hall. Failure to return the OMR sheet and Question Paper Booklet is liable for criminal action.

This Booklet consists of 13 Pages for 100 Questions + 2 Pages of Rough Work + 1 Title Page i.e. Total 16 Pages.

SPACE FOR ROUGH WORK

3TS1C **Booklet Code A**

Time : 2 Hours **Marks : 100**

Instructions :

i) Each question carries ***one*** mark and ¼ negative mark for every wrong answer.

ii) Choose the correct or most appropriate answer from the given options to the following questions and darken, with Blue/Black Ball Point Pen, the corresponding digit **1, 2, 3** or **4** in the circle pertaining to the question number concerned in the OMR Answer Sheet, separately supplied to you.

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1. State the number of significant digits for measurement of mass of a granite block of $M = 2.40 \times 10^6$ kg.
   (1) 2 (2) 3 (3) 6 (4) 9

2. If the unit of length, mass and time of a particular system are chosen to be 10 cm, 100 gm and 10 sec respectively, then the unit of force in this system will be equivalent to:
   (1) 10^4 N (2) 10^{-3} N (3) 10^5 N (4) 10^{-4} N

3. Which of the following is the most polluted river in the world
   (1) Thames (2) Nile (3) Ganga (4) Amazon

4. CNG is a/an
   (1) clean fuel (2) incombustible substance
   (3) polluted fuel (4) toxic fuel

5. The most serious inorganic contaminants in the drinking water on a world wide basis as recognized by World Health Organization (WHO) are:
   (1) Chloride and Sulfide (2) Fluoride and Lanthanide
   (3) Arsenic and Fluoride (4) Nitrate and Chloride

6. Which type of satellites cover the entire earth surface at regular time intervals
   (1) Polar orbiting satellite (2) Geostationary satellite
   (3) Asynchronous satellite (4) Low-earth orbit satellites

7. Modern astronomers have divided the whole sky into:
   (1) 77 constellations (2) 88 constellations
   (3) 128 constellations (4) 108 constellations

8. Which mirror is used by dentists to examine cavities in the teeth?
   (1) Plane mirror (2) A combination of plane and convex
   (3) Convex mirror (4) Concave mirror

9. A beam of monochromatic light of wavelength 4000 Å in air travels in water (μ (refractive index) = $\frac{4}{3}$). What will be the wavelength of light in the water?
(1) 3000 Å (2) 3150 Å (3) 2800 Å (4) 4000 Å

10. If Helium gas is contained in a 1 cm^3 volume at 10^5 Pa/pressure and kept at 273 K temperature, then the approximate number of Helium atoms are ($K_B = 1.38\times10^{-23}\ m^2\ kg\ s^{-2}\ K^{-1}$)
(1) 3×10^{23} (2) 6×10^{26} (3) 6×10^{23} (4) 3×10^{19}

11. Consider a plane wave of light of wavelength 'λ' incident on an opaque screen with a circular opening of diameter 'a'. If the circular opening has to behave like a point source of light, the relation between 'λ' and 'a' should be
(1) $\lambda >> a$ (2) $\lambda = a$ (3) $\lambda << a$ (4) $\lambda = 2a$

12. Choose the sequence containing all incorrect statements
A) Speed of sound depends upon temperature of the sound source
B) Loud sound can travel a longer distance due to higher amplitude
C) To hear a distinct echo each time, interval between the original and reflected sound must be at least 0.1 sec.
D) Tympanic membrane of human ear converts sound vibrations into electric signals
(1) A, B and D (2) A, C and D (3) A and D (4) B and C

13. For an object placed at 20 cm from a symmetrical lens of refractive index 1.65, if the lateral magnification of the object is $-\frac{1}{4}$, the lens type and image character are
(1) converging lens, virtual image (2) diverging lens, virtual image
(3) converging lens, real image (4) diverging lens, real image

14. A car is moving with a speed 54 km/hr when the driver sees the red signal 40 m ahead. The car can be slowed with a deceleration $5 m/s^2$. If the reaction time of the driver is 0.2 sec, what is the stopping distance.
(1) 25.5 m (2) 22.5 m (3) 50.6 m (4) 40 m

15. A box suspended by a rope is pulled to one side by a horizontal force. The tension in the rope
(1) is unchanged
(2) is less than before
(3) is greater than before
(4) may be any of the above, depends on how strong the force is

16. When F_a, F_b, F_c forces are acting on a particle of mass 'm' such that F_b and F_c are mutually perpendicular, then the particle remains stationary. If the force F_a is now removed, then the magnitude of acceleration of the particle is:
(1) $\frac{F_a}{m}$ (2) $\frac{F_b F_c}{m}$ (3) $\frac{F_b + F_c}{m}$ (4) $\frac{F_c - F_b}{m}$

17. A curve of radius 30 m is to be banked so that a car may make the turn at a speed of 13 m/s without depending on friction. What must be the approximate slope of the roadway? [use g = 10 m/s^2]
(1) 45° (2) 30° (3) 20° (4) 60°

18. A satellite of mass *m*, initially at rest on the earth, is launched into a circular orbit at a height equal to two times of the radius of the earth. The minimum energy required is: (R is the radius of the earth, g is the acceleration due to gravity)
(1) $\frac{3}{4}mgR$ (2) mgR (3) $\frac{1}{2}mgR$ (4) $\frac{5}{6}mgR$

19. Which one is true about earth's magnetism?
(1) Earth's magnetic field is approximately 0.1 gauss
(2) Angle of dip at poles is 0°
(3) The angle between magnetic meridian and geographic meridian at a place is 73°
(4) Earth's magnetic field is approximately 1T

20. In which of the following a permanent magnet is not used?
(1) Loud-speakers (2) transformers (3) magnetoes (4) energy meters

21. A bar magnet is divided into two pieces. Which of the following statement is true about the force between the broken pieces if they face each other with a small separation?
(1) There is an electric repulsive force between the broken pieces
(2) There is a magnetic attractive force between the broken pieces
(3) There is a magnetic repulsive force between the broken pieces
(4) There is no force between the broken pieces

22. A straight wire of diameter 0.5 mm carrying a current of 10 A is replaced by another wire of 1 mm diameter carrying same current. What is the strength of the magnetic field at a given point outside the wire
(1) $\frac{1}{4}$th of the earlier value (2) $\frac{1}{2}$ of the earlier value
(3) same as the earlier value (4) two times the earlier value

23. When the same potential difference is used to accelerate a proton and an electron, then
(1) The proton has the higher velocity (2) The electron has more kinetic energy
(3) The proton has more kinetic energy (4) The electron has the higher velocity

24. A copper wire has a resistance of 10 Ω at 20 °C. What will be its resistance at 80 °C. [α_{copper} = 0.004/°C, α is the temperature coefficient of resistance]
(1) 3.4 Ω (2) 10.0 Ω (3) 11.6 Ω (4) 12.4 Ω

25. Three charges each equal to +5 C are placed at the corner of an equilateral triangle. If the force between any two charges be 2F, then the net force on either will be
(1) 2 F (2) 3 F (3) $2\sqrt{3}F$ (4) $3\sqrt{2}F$

26. A resistor R connected to a battery dissipates energy at the rate P. If another resistor is connected in parallel with R, then the power dissipated by R is
(1) Less than P
(2) P
(3) More than P
(4) Can be either more or less depending on the value of resistances

27. A radio set operates at 6V DC. A transformer with 18 turns in the secondary coil is used to step down the input 220V AC emf to 6V AC emf. This AC emf is then rectified by another circuit to give 6V DC which is fed to the radio. Find the number of turns in the primary coil.
(1) 500 (2) 560 (3) 600 (4) 660

28. A 100 turn coil whose resistance is 6 Ω encloses an area of 80 cm^2. How rapidly should a magnetic field parallel to its axis change to induce a current of 1 mA in the coil.
(1) 7.5×10^{-3} T/s (2) 9.3×10^{-3} T/s (3) 8.9×10^{-3} T/s (4) 6.6×10^{-3} T/s

29. A proton and an α particle having same momentum are fired through a magnetic field. If R_1 and R_2 respectively are the radii of their circular paths, then $\frac{R_1}{R_2} =$
(1) $\frac{1}{2}$ (2) $\frac{1}{\sqrt{2}}$ (3) 2 (4) $\sqrt{2}$

30. A photo-sensitive material would emit electrons if excited by photons beyond a threshhold. Which of the following will be increased to cross the threshhold?
(1) Intensity of light (2) Wavelength of light
(3) Frequency of light (4) Voltage applied to the light source

31. Half-life period of a radioactive element is 50 years. What fraction of the element will remain after 100 years.
(1) $\frac{1}{16}$ (2) $\frac{1}{8}$ (3) $\frac{1}{4}$ (4) $\frac{1}{2}$

32. Which isotope is used to remove the brain tumors and treatment of cancer?
(1) U-235 (2) Th-234 (3) Na-24 (4) Co-60

33. In a radioactive process $^{238}U_{92}$ transform to a stable end product $^{206}Pb_{82}$. How many α and β particles are emitted in this process?
(1) 5 and 12 (2) 8 and 6 (3) 16 and 6 (4) 10 and 12

34. Which of the following does not represent(s) the STP conditions?
a) 273 K and 101.3 kPa b) 273 K and 760 mm Hg
c) 298 K and 101.3 Pa d) 298 K and 14.7 psi
(1) c, d (2) a, c, d (3) a, d (4) a, c

35. In gas chromatography, the basis for separation of the given compounds is due to the difference in
(1) Molecular weight (2) Concentration
(3) Partition coefficients (4) Conductivity

36. Heating a mixture of Cu_2O and Cu_2S will give
(1) $Cu + SO_2$ (2) $Cu + SO_3$
(3) $CuO + CuS$ (4) Cu_2SO_3

37. The decomposition of $KClO_3$ to KCl and O_2 on heating is an example of
(1) Neutralization reaction (2) Intermolecular redox reaction
(3) Intramolecular redox reaction (4) Auto redox reaction

38. Which of the following alkali metals has the highest melting point?
(1) Na (2) Li (3) Rb (4) K

39. The species present in water when CO_2 is dissolved in water
(1) H_2CO_3, CO_3^{2-} (2) CO_3^{2-}, HCO_3^-
(3) CO_2, H_2CO_3 (4) CO_2, H_2CO_3, HCO_3^-, CO_3^{2-}

40. The conjugate acid of NH_2^- is
(1) NH_4^+ (2) NH_2OH (3) NH_3 (4) N_2H_4

41. Asseration (A) : In bleaching powder, oxidation state of the metal is +2.
Reason (R) : In bleaching powder, chlorine is in both +1 and –1 oxidation states.
(1) Both (A) and (R) are correct and (R) is the correct explanation of (A)
(2) Both (A) and (R) are correct and (R) is not the correct explanation of (A)
(3) (A) is correct, but (R) is wrong
(4) (A) is wrong, but (R) is correct

42. Consider the following reaction

$$NO_2^- + H^+ + xe^- \rightarrow NO + H_2O$$

find the value of '*x*', after balancing the equation
(1) 4 (2) 3 (3) 2 (4) 1

43. Which of the following species is diamagnetic in nature?
(1) He_2^+ (2) H_2^+ (3) H_2^- (4) H_2

44. According to Bohr's theory, the angular momentum of an electron in 5th orbit is
(1) $25\ \frac{h}{\pi}$ (2) $10\ \frac{h}{\pi}$ (3) $1.0\ \frac{h}{\pi}$ (4) $2.5\ \frac{h}{\pi}$

45. The value of the 'spin only' magnetic moment for one of the following configurations is 2.84 B.M. The correct one is
(1) d^4 (in strong ligand field)
(2) d^4 (in weak ligand field)
(3) d^3 (in weak as well as in strong ligand fields)
(4) d^5 (in strong ligand field)

46. Heisenberg's uncertainity principle rules out the exact simultaneous measurement of
(1) probability and intensity
(2) energy and velocity
(3) charge density and radius
(4) position and momentum

47. The energy of an electron in an atomic orbital of a multielectron atom depends upon
(1) the principal quantum number only
(2) the principal and azimuthal quantum numbers only
(3) the principal, magnetic and azimuthal quantum numbers only
(4) the principal, azimuthal, magnetic and spin quantum numbers only

48. Law of octaves was proposed by
(1) Dobereiner
(2) Newland
(3) Mandaleev
(4) Rutherford

49. Which of the following is not the correct group?
(1) C, Si, Ge, Se, Pb
(2) N, P, As, Sb, Bi
(3) Be, Mg, Ca, Sr
(4) B, Al, Ga, In, Tl

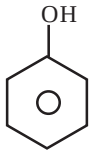
50. Supposing that Z = 117 is discovered, where would you like to place this element
(1) Alkali metals
(2) Inert gases
(3) Halogen family
(4) Oxygen family

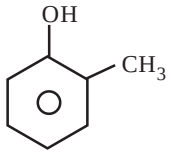
51. The Mandaleev's periodic table arrangement is based on
(1) atomic number
(2) atomic weight
(3) ionic size
(4) number of isotopes

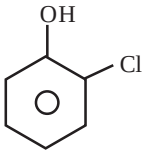
52. Oxidation state and covalancy respectively of Aluminium in $\left[AlCl(H_2O)_5\right]^{2+}$ is
(1) +6, 3
(2) +3, 6
(3) +3, 5
(4) +5, 3

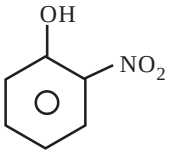
53. Which of the following compound does not follow the octet rule?
(1) CO_2
(2) PCl_3
(3) ICl
(4) ClF_3

54. Which of the following is most and least acidic respectively

a) 

b) 

c) 

d) 

(1) (c), (a) (2) (d), (b) (3) (c), (d) (4) (b), (c)

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55. The shapes of molecules and their chemical formula are given in two columns. Which of the options give the correct match of molecules and their shapes.

	Chemical formula		Shape
a)	C_2H_2	i)	Distorted tetrahedron / See saw
b)	PCl_5	ii)	T-shape
c)	SF_4	iii)	Trigonal bipyramidal
d)	ClF_3	iv)	Linear

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

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56. In compound 'A' all the bond angles are exactly 109° 28'. 'A' is
(1) Chloroform (2) Carbon tetrachloride
(3) Iodoform (4) Chloromethane

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57. The IUPAC name of $CH_3COCH(CH_3)_2$ is
(1) 4-methylisopropyl ketone (2) 3-methyl-2-butanone
(3) Isopropylmethyl ketone (4) 2-methyl-3-butanone

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58. Identify the compound that exhibits tautomerism
(1) 2-Pentanone (2) Phenol
(3) 2-butene (4) Lactic acid

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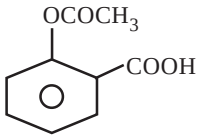
59. The compound 

is used as

(1) antiseptic (2) antibiotic
(3) antipyretic (4) pesticide

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60. Which of the following are correct
a) The molecular formula of both Glucose and Fructose is $C_6H_{12}O_6$
b) The six membered cyclic structure of Glucose is called pyranose
c) Commertial Glucose is obtained by hydrolysis of starch
d) Maltose is a disaccharide
(1) a, b (2) a, b, c (3) a, b, c, d (4) b, d

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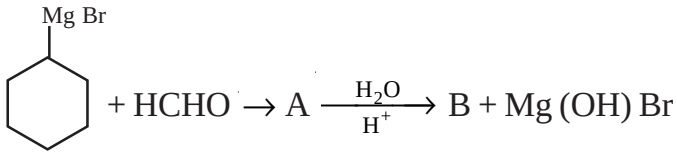
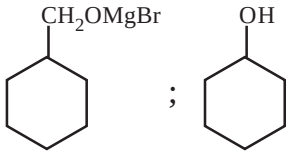
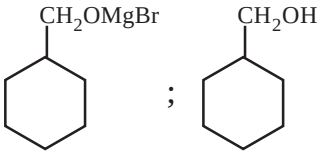
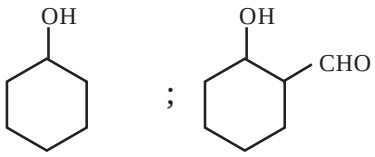
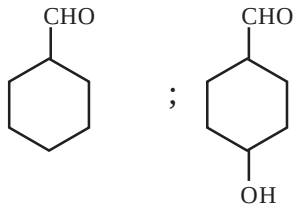
61. A and B in the following reaction are respectively



(1) 

(2) 

(3) 

(4) 

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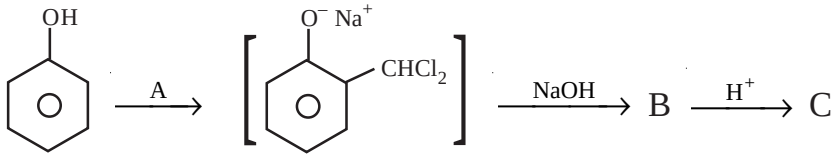
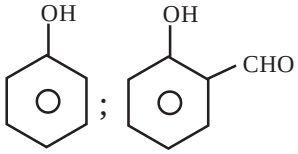
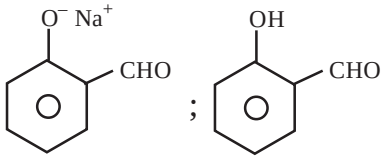
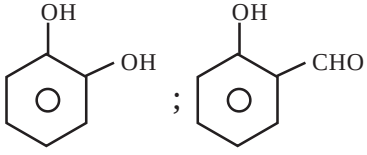
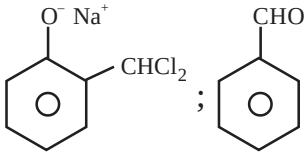
62. Identify A, B, C respectively in the following reaction.



(1) $CHCl_3$, 

(2) $CHCl_3$/ $NaOH_{(aq)}$; 

(3) Cl_2 ; 

(4) Cl_2 ; 

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63. Assertion (A) : 2, 3 dimethyl 2-butene is more stable than 2-butene
Reason (R) : The stability is due to hyper conjugation
(1) Both (A) and (R) are correct
(2) (A) is correct but (R) is wrong
(3) (A) is wrong but (R) is correct
(4) Both (A) and (R) are wrong

64. Which of the following metals can be refined by the electrolysis of an aqueous solution of its complex salt with impure metal at the anode and a strip of pure metal at the cathode.
(1) Indium (2) Zinc (3) Tin (4) Copper

65. A metal is left exposed to the atmosphere for some time. It gets coated with green carbonate. The metal must be
(1) Silver (2) Zinc (3) Copper (4) Iron

66. In which of the following is the corrosion of iron the most rapid.
(1) Pure water (2) Pure oxygen
(3) Air and moisture (4) Air and saline water

67. Assertion (A) : Life expectancy of human beings has not dramatically changed over the years.
Reason (R) : The discovery of antibiotics, synthetic or plant derived drugs, anaesthetics, diagnostic procedures etc., have changed the medical practice on one hand and improved the human health on the other.
(1) Both (A) and (R) are true and (R) is the correct explanation of (A).
(2) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
(3) (A) is true, but (R) is false.
(4) (A) is false, but (R) is true.

68. Match the following:

List - I		List - II	
a)	Bacteria arranged in chain	I)	*Cocci*
b)	Several bacteria are arranged irregularly forming a bunch	II)	*Streptococcus*
c)	Bacteria are arranged in rectangular frames	III)	*Staphylococcus*
d)	Spherical bacterium	IV)	*Sarcina*

The correct answer is

	(a)	(b)	(c)	(d)
(1)	II	I	IV	III
(2)	III	II	I	IV
(3)	II	III	IV	I
(4)	I	IV	III	II

69. Match the following:

List - I		List - II
a)	Phycomycetes	I) *Alternaria*
b)	Deuteromycetes	II) *Puccinia*
c)	Basidiomycetes	III) *Neurospora*
d)	Ascomycetes	IV) *Albugo*

The correct answer is

	(a)	(b)	(c)	(d)
(1)	IV	III	I	II
(2)	III	II	IV	I
(3)	IV	I	II	III
(4)	II	IV	I	III

70. Which of the following is responsible for modifying, sorting and packaging of proteins
(1) Lysosomes (2) Endoplasmic reticulum
(3) Golgi complex (4) Ribosomes

71. Assertion (A) : Lipid soluble compounds pass through the membrane more easily than water soluble compounds.
Reason (R) : Because, membrane is made up of lipids with highly unsaturated and hydrophilic hydrocarbon chains.
(1) Both (A) and (R) are true and (R) is the correct explanation of (A).
(2) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
(3) (A) is true, but (R) is false.
(4) (A) is false, but (R) is true.

72. Number of polypeptides encoded by human mitochondrial genome is
(1) 37 (2) 22 (3) 13 (4) 2

73. Which one of the following phases of Meiosis-I is recognised by the dissolution of the synaptonemal complex and the tendency of the homologous chromosomes of the bivalents to separate from each other except at the sites of crossovers.
(1) Pachytene (2) Zygotene (3) Diplotene (4) Diakinesis

74. Match the following:

List - I		List - II
a)	Hypostomatic	I) *Avena Sativa* (Oats)
b)	Potato type stomata	II) Mustard
c)	Alfalfa type stomata	III) Mulberry
d)	Isostomatic stomata	IV) Tomato

The correct answer is

	(a)	(b)	(c)	(d)
(1)	II	III	IV	I
(2)	III	II	I	IV
(3)	IV	I	II	III
(4)	III	IV	II	I

75. Secondary xylem and phloem in a dicot stem are produced by
(1) Apical meristems (2) Vascular cambium
(3) Phellogen (4) Axillary meristems

76. Which one of the following statements is correct?
(1) Ovules are not enclosed by ovary wall in gymnosperms
(2) *Selaginella* is heterosporous, while salvinia is homosporous
(3) Horsetails are gymnosperms
(4) Stems are usually unbranched in both *Cycas* and *Cedrus*

77. The Indian Agricultural Research Institute, New Delhi has released:

List - I		List - II	
a)	Vitamin A enriched	I)	Broad bean
b)	Vitamin C enriched	II)	Pumpkin
c)	Calcium enriched	III)	Bitter gourd
d)	Protein enriched	IV)	Spinach

The correct answer is

	(a)	(b)	(c)	(d)
(1)	II	IV	I	III
(2)	II	III	IV	I
(3)	III	I	II	IV
(4)	IV	II	III	I

78. The maximum volume of air a person can breathe in after forced expiration is known as
(1) Functional residual capacity (2) Total lung capacity
(3) Inspiratory capacity (4) Vital capacity

79. Which of the following statements are 'INCORRECT' for 'Pigeon's Milk'
(1) It is composed of water, fat, casein and lactose
(2) It is produced by female pigeon
(3) Prolactin hormone stimulates its secretion
(4) It will be regurgitated to feed young pigeons

80. Match the following:

List - I (Placenta type)		List - II (Animal)	
a)	Syndesmochorial	I)	Humans
b)	Endotheliochorial	II)	Rabbits
c)	Haemochorial	III)	Dogs
d)	Heamoendothelial	IV)	Camels

The correct answer is

	(a)	(b)	(c)	(d)
(1)	IV	II	III	I
(2)	I	III	IV	II
(3)	IV	III	I	II
(4)	II	IV	I	III

81. Which of the following medical procedures are suggested when a woman cannot produce viable/fertile ova
(1) In Vitro Fertilisation and Embryo Transfer (IVF-ET)
(2) Artificial Insemination (AI)
(3) Zygote Intrafallopian Transfer (ZIFT)
(4) Gamete Intrafallopian Transfer (GIFT)

82. pH range of the gastric juice in humans is
(1) 1 - 2 (2) 4 - 6 (3) 7 - 9 (4) 10 - 14

83. The region of the vertebrate eye where the optic nerve passes out of the retina is called the
(1) Fovea (2) Cornea (3) Blind spot (4) Retina

84. Match the following:

a)	Bolus	I)	Protein deficiency
b)	Amylase	II)	Saliva
c)	Kwashiorkar	III)	Bile
d)	Bilirubin	IV)	Polysaccharide

Choose the correct answer

	(a)	(b)	(c)	(d)
(1)	II	I	III	IV
(2)	I	II	IV	III
(3)	I	III	II	IV
(4)	II	IV	I	III

85. The transparent lens in the human eye is held in its place by:
(1) Ligaments attached to the ciliary body
(2) Ligaments attached to the iris
(3) Smooth muscles attached to the iris
(4) Rectus and oblique muscles

86. An example of lentic ecosystem is
(1) Rivers (2) Springs (3) Estuary (4) Lakes

87. The functional role of an organism in an ecosystem is termed as
(1) Edge effect (2) Ecotone
(3) Ecological Niche (4) Ecological pyramid

88. World Environment day is observed on
(1) February 10^{th} (2) September 7^{th} (3) June 5^{th} (4) July 25^{th}

89. Green house gases are released into the environment and cause global warming. Identify one of the following gases which is not a green house gas
(1) Sulpher dioxide (2) Methane
(3) Carbon monoxide (4) Fluorochloro carbons

90. Profundal zone is
(1) Shallow part of the lake closer to the shore
(2) An open water away from the shore
(3) A zone effective of light penetration
(4) The deep water area beyond the depth of effective light penetration

91. The following gas is responsible for protecting the humans from harmful ultraviolet rays
(1) Oxygen (2) Ozone (3) Chlorine (4) Methane

92. How many pairs of contrasting characters were studied by Mendel in his experiment on Peas?
(1) 5 (2) 7 (3) 2 (4) 9

93. In sickle-cell anemia, the following point mutation is seen in beta globin polypeptide chains of haemoglobin.
(1) Glutamine is replaced in the 6th position by valine
(2) Glutamine is replaced in the 6th position by alanine
(3) Glutamic acid is replaced in the 6th position by valine
(4) Glutamic acid is replaced in the 6th position by alanine

94. Trisomy is the condition in which
(1) an extra chromosome is added (2) a chromosomal pair is added
(3) a chromosome is deleted (4) a chromosome is replaced

95. Disorders caused due to absence/excess of one/more chromosome.
(1) Mendelian disorder (2) Multiple allelism
(3) Dominance (4) Aneuploidy

96. Biological relationship between parents and their children can be accurately determined by DNA finger printing. Basis for DNA finger printing is
(1) Chromatin structure
(2) Repetitive DNA
(3) Restriction and endonuclease polymorphism
(4) RNA structure

97. Embryological support for evolution was proposed by:
(1) Ernst Heckel (2) Karl Ernst Von Baer
(3) Alfred Wallace (4) Charles Darwin

98. The development of heart in birds and mammals is an example of
(1) Homology (2) Convergent evolution
(3) Adaptive radiation (4) Biogenetic law

99. Evolution of life forms driven by use and disuse of organs was proposed by
(1) Ernst Hackel (2) Thomas Maltus (3) Charles Darwin (4) Lamarck

100. Allopatric speciation occurs due to:
(1) Physiological barrier (2) Geographical isolation
(3) Niche change (4) Genetic drift

SPACE FOR ROUGH WORK