



St. Michael's School

Jajpur, Soparom, Ranchi-835303, Jharkhand.
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Xth

Practice Sample Papers
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☎ 9693210060, 9304502211

✉ stmichaelsranchi@gmail.com



A complete assessment prepared as per the latest syllabus issued by C.B.S.E, Bharat.

PHYSICS

LIGHT: REFLECTION AND REFRACTION

1. What is the focal length of a lens, whose power is given as +4.0D? [1]
2. An object of height 1.2 m is placed before a concave mirror of focal length 20 cm so that a real image is formed at a distance of 60 cm from it. Find the position of the object. What will be the height of the image formed? [2]
3. Use the mirror formula to show that an object lying between the pole and focus of a concave mirror, the image formed is always virtual in nature. [2]
4. With respect to air, the refractive index of ice is 1.31 and that of rock salt is 1.54. Calculate the refractive index of rock salt with respect to ice. [2]
5. A concave lens has the focal length of 20 cm. at what distance from the lens a 5 cm tall object be placed so that it forms an image at 15 cm from the lens? Also calculate the size of the image formed. [2]
6.
 - a) State Snell's law of refraction of light.
 - b) A transparent medium A floats on another transparent medium B. when a ray of light travels obliquely from A into B, the refracted ray bends away from the normal. Which of the two media A and B is optically denser and why? [3]
7. What is the need for sign convention? Write them. [2]
8. The radius of curvature of a convex mirror used on a moving automobile is 2.0 m. A truck is coming behind it at a constant distance of 3.5 m. calculate **i)** the position and **ii)** the size of image relative to the size of truck. What will be the nature of image? [3]
9. An object 3 cm high is placed perpendicular to the principal axis of a concave lens of focal length 15 cm. the image is formed at a distance of 10 cm from the lens. Calculate:
 - a) Distance at which the object is placed.
 - b) Size and nature of the image formed. [3]
10. Draw a ray diagram to show the formation of image of an object placed between the pole and focus of a concave mirror. Obtain the relation between u , v and f for a given concave mirror. State clearly the assumption involved and sign convention used. [3]
11. Draw a ray diagram in each case to show the position and nature of the image formed when the object is places:
 - a) At the centre of curvature of a concave mirror.
 - b) Between the pole P and focus F of a concave mirror.
 - c) In front of a convex mirror.
 - d) At 2F of a convex lens.
 - e) In front of a concave lens. [3]
12.
 - a) During its passages from one medium to another, when does a light ray change its paths? [1]
 - b) Define the term absolute refractive index of a medium. [1]
 - c) State the lens's formula and its magnification. [1]
 - d) Using the lens formula, locate the position of an image formed due to an object at infinity by a convex lens of focal length f . [2]
 - e) How will you find the net focal length of a combination of lenses whose focal length are 15 cm and -5 cm respectively? [2]
13.
 - a) State the basic laws of refraction [3]
 - b) Define refractive index.
Does the incident and emergent ray coincide in a glass slab refraction? Give reason.

14. Suppose you have three concave mirrors A, B and C of focal lengths 10 cm, 15 cm and 20 cm. For each concave mirror you perform the experiment of image formation for three values of object distance of 10 cm, 20 cm and 30 cm. Giving reason and answer the following: [3]
- For the three object distances, identify the mirror/mirrors which will form an image of magnification – 1.
 - Out of the three mirrors identify the mirror which would be preferred to be used for shaving purposes/makeup.
 - For the mirror B draw ray diagram for image formation for object distances 10 cm and 20 cm
15. **a)** Define: **(i)** Centre of curvature **(ii)** Pole of a concave mirror [3]
b) State the mirror formula and its magnification.
 Using the same find the distance at which an object to be placed for getting a real, inverted enlarged image at 45 cm using a concave mirror of focal length 20 cm.
16. **a)** Draw a ray diagram to show the formation of image by a concave lens when an object is placed in front of it between F & INFINITY. [3]
b) In the above diagram mark the object distance (u) and the image distance (v) with their proper signs (+ve or –ve as per the new Cartesian sign convention) and state how these distances are related to the focal length (f) of the concave lens in the case.
c) Find the nature and power of a lens which forms a real and inverted image of magnification –1 at a distance of 40 cm from the optical centre.
17. Draw ray diagrams to show the principal focus of a - [2]
a) concave mirror **b)** convex mirror
18. What is meant by power of a lens? Define its S.I. unit. You have two lenses A and B of focal lengths +10 cm and –10 cm respectively. State the nature and power of each lens. Which of the two lenses will form a virtual and magnified image of an object placed 8 cm from the lens? Draw a ray diagram to justify your answer. [3]
19. **a)** One half of a convex lens of focal length 10 cm is covered with a black paper. Can such a lens produce an image of a complete object placed at a distance of 30 cm from the lens? Draw a ray diagram to justify your answer. [3]
b) A 4 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 20 cm. The distance of the object from the lens is 15 cm. Find the nature, position and size of the image.
20. **a)** Which property of concave mirror is utilized for using them as shaving mirrors?
b) Light passes through a rectangular glass slab and through a triangular glass prism. Using proper ray diagram, explain in what way does the direction of the two emergent beams differs with respect to the incident beam of light. [3]
c) A concave lens has a focal length of 50 cm Calculate its power.
21. **a)** Rohit claims to have obtained an image twice the size of object with a concave lens. Is he correct? Give reason for your answer.
b) Where should an object be placed in case of a convex lens to form an image of same size as of the object? Show with the help of ray diagram the position and the nature of the image formed. [3]
c) With the help of ray diagram, illustrate the change in position, nature and size of the image formed if the convex lens in case of is replaced by concave lens of same focal length.

HUMAN EYE AND COLOURFUL WORLD

22. **a)** What is dispersion of white light? State its cause. [2]
b) "Rainbow is an example of dispersion of sunlight." Justify this statement by explaining, with the help of a labelled diagram, the formation of a rainbow in the sky. List two essential conditions for observing a rainbow. [3]

23. What is atmospheric refraction? Use this phenomenon to explain the following natural events: [3]
a) Twinkling of stars
b) Advanced sunrise and delayed sunset
Draw diagrams to illustrate your answer.
24. Explain how the ray of white light is dispersed. Why does this take place? Which colour deviates more and why? [3]
OR
What is long-sightedness? List two causes for development of long-sightedness. Describe with the ray diagram, how this defect may be corrected by using spectacles
25. **A.** Write the function of each of the following parts of the human eye: Cornea; iris; crystalline lens; ciliary muscles [5]
B. Millions of people in the developing countries of the world are suffering from corneal blindness. These persons can be cured by replacing the defective cornea with the cornea of a donated eye. A charitable society of your city has organized a campaign in your neighbourhood in order to create awareness about this fact. If you are asked to participate in this mission, how would you contribute in this noble cause?
a) State the objective of organising such campaigns.
b) List two arguments which you would give to motivate the people to donate their eyes after death.
c) List two values which are developed in the persons who actively participate and contribute in such programmes.
26. Write the importance of ciliary muscles in the human eye. Name the defect of vision that arises due to gradual weakening of the ciliary muscles in old age. What types of lenses are required by the persons suffering from this defect to see the objects clearly? [3]
27. Akshay, sitting in the last row in his class, could not see clearly the words written on the blackboard. When the teacher noticed it, he announced if any student sitting in the front row could volunteer to exchange his seat with Akshay. Salman immediately agreed to exchange his seat with Akshay. He could now see the words written on the blackboard clearly. The teacher thought it fit to send the message to Akshay's parents advising them to get his eyesight checked. [3]
In the context of the above event, answer the following questions:
a) Which defect of vision is Akshay suffering from? Which type of lens is used to correct this defect?
b) State the values displayed by the teacher and Salman.
c) In your opinion, in what way can Akshay express his gratitude towards the teacher and Salman?
28. a) Explain the formation of rainbow in the sky with the help of a diagram. List the three phenomena of light involved. Which colour – violet or red appears at top of the rainbow? [5]
b) What is the difference in colours of the sun observed during sunrise/sunset and noon? Give explanation for each.
29. Draw a path of light ray passing through a prism. Label angle of incidence and angle of deviation in the ray diagram. [3]
30. Why does it take some time to see objects in dim light when you enter the room from bright sunlight outside? [2]
31. Rony and his friends performed well in mid-term exam. They wanted to go for outing, so they made a request to the principal in this regard. It was decided that they will go by cycle to witness the famous Jonah water fall, situated nearly eight kilometers from their place, with their physical education teacher. It was sunny day. They all enjoyed, rejuvenated and rejoiced mind and body. Rony was thrilled as he saw an exciting

- natural spectrum appearing in the sky when he looked at the sky through the water fall, with the sun behind him. He came back with a number of questions in his mind. Read the given passage and answer the following questions: [3]
- a) Name the natural spectrum appearing in the sky. How does it form?
- b) Draw a ray diagram showing formation of natural spectrum appearing in the sky.
- c) What value is shown by Rony?
32. How do we see colours? Explain the role of cells to respond i) intensity ii) colour. [2]
33. What are accommodations? Explain how does the ciliary muscles do help in accommodations? [2]
34. What is persistence of vision? How do we make a motion picture possible? [2]
35. Amit needs a lens of power -5D for correction of her vision. [2]
- a) What kind of defect in vision is he suffering from?
- b) What is the focal length and nature of the corrective lens?
- c) Draw ray diagrams showing the a) defected eye and b) correction for this defect
- d) What are the causes of this defect?
36. Draw a labeled diagram of human eye and explain the image formation. [5]
37. What are the causes for The following Eye Defects: [3]
- a) Myopia b) Hypermetropia and c) Cataract.
- Show the defective eye and explain how it is corrected?
38. Explain how the ray of white light is dispersed. Why does this take place? Which colour deviates more and why? [2]

ELECTRICITY

39. A charge of 150 coulomb flows through a wire in one minute. Find the electric current flowing through it. [1]
40. a) State the factors on which at a given temperature, the resistivity of a cylindrical conductor depends. State the SI unit of resistivity. [2]
- b) In a given ammeter, a student sees that needle indicates 17 divisions in ammeter while performing an experiment to verify Ohm's law. If ammeter has 10 divisions between 0 and 0.5A, then what is the value corresponding to 17 divisions? [2]
41. a) What is the function of earth wire in electrical instruments? [2]
- b) Explain what is short circuiting & overloading in an electric supply.
42. Draw a circuit diagram of an electric circuit containing a cell, a key, an ammeter, a resistor of 4Ω in series with a combination of two resistors (8Ω each) in parallel and a voltmeter across parallel combination. Each of them dissipate maximum energy and can withstand a maximum power of 16 W without melting. Find the maximum current that can flow through the three resistors. [3]
43. The resistance of a wire of 0.01 cm radius is 10Ω . If the resistivity of the material of the wire is 50×10^8 ohm-meter, find the length of the wire. [3]
44. Derive an expression for electric energy consumed in a device in terms of V, I, t where V is the potential difference applied to it, I is the current drawn by it and t is the time for which the current flows. [2]
45. Derive the formula for equivalent resistances of 3 resistors connected in (i) Series connection (ii) Parallel connection. [3]
46. What is the function of an earth wire? Why is it necessary to earth metallic casing of electric appliance? [2]
47. Name the unit of: (a) electrical resistance (b) resistivity [2]
48. Define One Ohm. [1]
49. Define Resistivity. [1]
50. What is the direction of conventional current [1]
51. What is electrical power? Write its S.I. unit. [1]

52. You take two resistors of resistance $2R$ and $3R$ and connect them in parallel in an electric circuit. Calculate the ratio of the electrical power consumed by $2R$ and $3R$? [2]
53. A small bulb has a resistance of 2Ω when cold. It takes up a current of 0.4 A from a source of 4V and then starts glowing. Calculate (i) the resistance of the bulb when it is glowing and (ii) Elaborate on the reason for the difference in resistance? [2]
54. Define resistance and resistivity and also give the relation between them. Explain the dependence of resistance on temperature [2]
55. A bulb is rated at $330\text{V}-110\text{W}$. What do you think is its resistance? Three such bulbs glows for 5hrs at a stretch. What is the energy consumed? Calculate the cost in rupees if the rate is 70 paise per unit? [3]
56. Calculate the resistance of 2 km long copper wire of radius 2 mm. (Resistivity of copper = $1.72 \times 10^{-8}\ \Omega\text{ m}$) [2]
57. What type of connection is used in domestic appliances and why? [1]
58. A 250 watt electric bulb is lighted for 5 hours daily and four 6 watt bulbs are lighted for 4.5 hours daily. Calculate the energy consumed (in kWh) in the month of February. [2]
59. A torch bulb is rated at 3V and 600mA . Calculate it's - [3]
 a) Power b) Resistance c) Energy consumed if it is lighted for 4 Hrs.
60. State and derive joule's law of heating. An electric iron consumes energy at the rate of 420 W when heating is at maximum rate and 180 W when heating is at minimum. The voltage is 220V . What is the current and resistant in each case? [3]
61. A piece of wire having a resistance R is cut into five equal parts. [3]
 (i) How will the resistance of each part of the wire vary compare with the original resistance?
 (ii) If the five parts of the wire are placed in parallel, how will the resistance of the combination compare with the resistance of the original wire? What will be ratio of resistance in series to that of parallel?
62. What is the difference between a conductor and an insulator? [1]
63. a) What is the difference between open and closed circuits? Draw diagrams for both. [2]
 b) Define parallel connection and series connection in an electric circuit.
64. What are the disadvantages of heating effect of current? [1]
65. What are the advantages of heating effect of current? [1]
66. What is electric current? [1]
67. What is potential difference? Give its unit with definition. [2]
68. Define the terms Watt and Volt. [2]
69. A wire is 1m long, 0.2mm in diameter and has resistance of 10Ω . Calculate its resistivity. [2]
70. Calculate the area of cross section of a wire of length 2m , its resistance is 25Ω and the resistivity of material of wire is $1.84 \times 10^{-6}\ \Omega\text{m}$. [2]
71. Calculate the energy consumed by 120W toaster in 20 minutes. [1]
72. What is resistance of conductors? Name two metals which are highly resistant. [2]
73. Why is tungsten metal used in bulbs but not in fuse wires? [1]

MAGNETIC EFFECTS OF CURRENT

74. When a current carrying conductor is kept in a magnetic field state the position when maximum force acts on it. [1]
75. State two properties of magnetic lines of force? [2]
76. Why does a compass needle deflected when brought near a bar magnet? [1]
77. The magnetic field lines in a given region is uniform. Draw a diagram to represent. [1]
78. Write two ways to induce current in a coil? [1]
79. Draw magnetic field lines around a bar magnet? Give one point of difference between uniform and non-uniform magnetic field. [2]
80. We know a current carrying conductor placed in a magnetic field experiences a force due to which the conductor moves. Explain what will happen if: [3]

- a) current in rod is increased
 b) a stronger horse shoe is used
 c) length of the rod is increased
81. State three factor on which magnetic field produced by a current carrying straight conductor depends. Draw a diagram to show magnetic field produced due to a a current carrying straight conductor [3]
82. State three factor on which magnetic field produced by a current carrying solenoid depends. Draw a diagram to show magnetic field produced due to a current carrying solenoid. [3]
83. State three factor on which magnetic field produced by a current carrying circular loop depends. Draw a diagram to show magnetic field produced due to a current carrying circular loop. [3]
84. a) Name four appliances wherein an electric motor is used as an important component. In what respect it is different from generator? [5]
 b) Define the terms used in the generator (i) armature (ii) slip rings (iii) brushes
85. a) What is the standard colour code followed for: [3]
 i) live ii) neutral and iii) earth wires used in electric circuits?
 b) Which part of an electric appliance is earthed and why?
86. a) What is short circuiting? b) What is overloading? How can you avoid overloading? [3]
87. Define electromagnetic induction? Two circular coils A and B are placed close to each other. If the current in the coil A is changed, will some current be induced in the coil B? Explain. [3]
88. With the help of a labelled circuit diagram wire describe an activity to illustrate the pattern of the magnetic Field lines around a straight current carrying long conducting wire. [5]
 a) Name the rule which is used to find the direction of magnetic field associated with a current carrying conductor.
 b) Is there a similar magnetic field produced around a thin beam of moving:
 i) alpha particles and ii) neutrons? Justify your answer.

SOURCES OF ENERGY

89. a) Why in solar cooker transparent glasses are used? [1]
 b) Why solar cooker is painted black from inside. [1]
90. Why is there a need to harness non-conventional sources of energy? [2]
91. Name any two element used as fuel in nuclear power plant. [1]
92. Name the isotope used for nuclear fusion reaction. [1]
93. What is geothermal energy? Write any two advantages & limitations of geothermal energy. [3]
94. Explain the following: [3]
 (i) OTEC (ii) Tidal energy (iii) Wind energy farms (iv) Bio gas plant.
 Also write any 2 advantages & limitations of each when used for commercial or domestic purposes.

CHEMISTRY

METALS AND NON-METALS

- Give an example of a metal which [1 x 12 = 12]
 - Is a liquid at R.T .
 - Can be easily cut with a knife.
 - Is best conductor of heat?
 - Is poor conductor of heat
 - Has low melting point and melts when kept on palm
 - Found in nature in the free state and a metal in combined state.
 - Reacts with cold water.
 - Reacts with hot water, reacts with steam
 - Displace hydrogen from dilute acid
 - Don't displace hydrogen from dilute acid.
 - Obtained by electrolysis, reduction using carbon.
 - Don't corrode
- Give an example of nonmetal which: [1 x 3 = 3]
 - Is liquid
 - Lustrous
 - Good conductor of electricity
- Write a balanced chemical equation for the following. [1 x 12 = 12]
 - Ore cinnabar is roasted.
 - Aluminum reacts with iron oxide (thermite reaction).
 - Aluminum reacts with pyrolusite(MnO_2).
 - Reaction taking place during extraction of copper.
 - Aluminum reacts with oxygen.
 - Iron with steam.
 - Calcium with water.
 - Aluminum with steam.
 - Potassium with water.
 - Sodium / potassium with water.
 - Aluminum oxide with hydrochloric acid.
 - Aluminum oxide with caustic soda.
- Mention four physical and three chemical difference between metals and nonmetals. [3]
- Mention three difference between roasting and calcination. [2]
- Draw flow chart for the steps involved in extraction of metals from ores. [2]
- Draw a diagram for electrolytic refining of copper and explain. write reaction taken place at anode and cathode. [3]
- What are alloys? How is it prepared? Write its three properties. write the constituents and the use of [5]
 - solder
 - brass
 - bronze
 - stainless steel
- What is amalgam? Write its one use. [2]
- Define the following: [1 x 8 = 8]
 - Malleability
 - Ductility
 - Minerals
 - Ores
 - 22 carat of gold
 - Aqua regia
 - Anodising
 - Galvanization
- Give reasons: [1 x 15 = 15]
 - ionic compounds are solids
 - Ionic compounds have high melting and boiling point.
 - Ionic compounds conduct electricity in molten state.

- (d) Carbon cannot reduce the oxides of Na, Mg, and Ca etc.
 - (e) Hydrogen gas is not evolved when metals reacts with nitric acid.
 - (f) Silver articles acquire a blackish tinge when exposed to air.
 - (g) Copper gains a green coats when exposed to air.
 - (h) Tarnished copper vessel is being cleaned with lemon or tamarind juice.
 - (i) Food cans are coated with tin and not with zinc.
 - (j) Copper is used to make hot water tanks and not steel.
 - (k) Sodium is kept immersed in kerosene oil.
 - (l) Gold, platinum are used to make jewellery.
 - (m) Carbonates and sulphides ores are converted into oxide during the process of extraction.
 - (n) Aluminum is highly reactive metal yet it is used to make utensil for coking.
 - (o) Calcium starts floating when reacts with water
12. What are amphoteric oxides? Give two examples. Write equation when it is behaving like acid and base (any one e.g) [3]
13. Draw electron dot structure of NaCl, MgCl₂, Na₂O and MgO. [1 x 4 = 4]

PERIODIC CLASSIFICATION OF ELEMENTS

14. State : [1 x 4 = 4]
- (a) Dobernier's Triads
 - (b) Newlands's law of Octaves
 - (c) Modern Periodic law.
 - (d) Mendeleev's Law
15. Write limitations of: [1 x 3 = 3]
- (a) Dobernier's Triads
 - (b) Newlands's law of Octaves
 - (c) Mendeleev's Law
16. What were the criteria used by Mendeleev in crating his periodic table? [2]
17. Use Mendleev's periodic table to predict the formulae for the oxides of the following elements: [2]
K, C, Al, Si, Ba
18. Beside gallium, which other elements have since been discovered for which gaps were left by Mendeleev's in his periodic table? [1]
19. Why do you think the noble gases are placed in a seperate group? [1]
20. How does the following vary in the group and period- [1 x 6 = 6]
- | | | |
|--|-------------------------|-----------------------|
| (i) valency | (ii) valence electron | (iii) atomic size |
| (iv) metallic and non-metallic character | (v) chemical reactivity | (vi) nature of oxides |
21. NCERT Page no. 90 Question 2, 3, 4, 6 Page no. 91 and 92 Question- 2,3,5,,7,8,9,10 [3]
22. An element x belongs to 3rd period and group 1 of the periodic table - [3]
- (i) write E.C
 - (ii) name and symbol of element
 - (iii) valence electron
 - (iv) valency
 - (v) metals or non - metal
 - (vi) name of the family
 - (vii) formula of its oxide, chloride, sulphide, sulphate, phosphate, nitrates
23. An element y is in 2nd period and group 16 of the periodic table: [3]
- (a) write E.C
 - (b) name and symbol of element
 - (c) valence electron
 - (d) metal or non-metal
 - (e) valency

24.

Element	Groups
s	
X	2
Y	14
Z	16

[2]

(a) Which two elements will form covalent bond?

(b) Which two elements will form an ionic bond?

25. An element x is in group 13 of the periodic table. What is the formula of its oxide? [1]

26. Elements x and y belongs to groups 1 and 17 of the periodic table respectively. What will be the nature of the bond in the compound xy ? Give two properties of xy ? [2]

27. An elements x belongs to group 2 and another elements y belongs to group 15 of the periodic table: [2]

(a) What is the number of valence electrons in x .

(b) what is the valency of y

(c) what is the number of valence electrons in y

(d) What is the valency of y .

28. Activity 5.7,5.8 (NCERT)

29. Sample problem 1,2,3,4 (page 298-S.Chand)

30. Select the letter which represents- [½ x 8 = 4]

1							18
	2	13	14	15	16	17	
		b			g		c
d	f		h			e	

(a) An alkali metal

(b) A noble gas

(c) An alkaline metal

(d) A halogen

(e) Bond formed between 'a' and 'e'

(f) Bond formed between 'd' and 'e'

(g) Monovalent, divalent and trivalent cation

(h) Monovalent, divalent and trivalent Anion

31.

Group	Group
16	17
-	-
-	A
-	-
B	C

[3]

(a) State whether A is a metal or non-metal?

(b) State whether C is more reactive or less reactive than A.

(c) State whether C is more reactive or less reactive than B.

(d) Will C be larger or smaller in size than B?

(e) Will C be larger or smaller in size than A?

(f) Which type of ion, cation or anion, will be formed by element A?

CARBON AND ITS COMPOUNDS

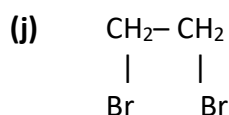
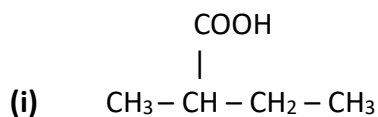
32. Why carbon does not form c^{4-} anion or c^{4+} cation? [2]

33. Give two reasons for versatile nature of carbon? [2]

34. Draw electron dot structure of H_2 , O_2 , N_2 , CH_4 , C_2H_6 , C_2H_4 , (cyclopentane, benzene, cyclohexane) H_2S , F_2 , Cl_2 , CH_3COOH , CCl_4 , C_2H_2 [1 each]

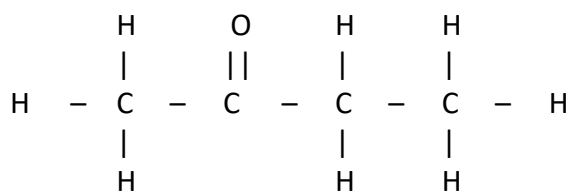
35. What is homologous series? [2]

36. Write the general formula of alkane, alkaline, alkyLne. Also write first three numbers of each. [2 x 3]
37. Write the second member of homologous series having general formula $C_nH_{2n+1}-OH$, $C_nH_{2n+1}-COOH$. [2]
38. Write the functional group of alcohol, aldehyde, ketones, and carboxylic acid. [2]
39. Draw the structure of ethanoic acid, butanone, hexeanal, bromopentane [1 each]
40. What happens when (write only balanced chemical equation) [1 each]
- (a) Methane is oxidized.
- (b) Ethanol is oxidized.
- (c) Ethanoic acid reacts with (A) Sodium hydroxide, (B) Metal carbonate, (C) Metal Bicarbonate.
41. Explain the following with the help of a balanced chemical equation? [1 x 5 = 5]
- (a) Addition reaction.
- (b) Substitution reaction.
- (c) Dehydration reaction.
- (d) Esterification reaction.
- (e) Saponofication reaction
42. How will you convert ethanol to sodium ethoxide? [1]
43. Give a chemical test to indentify [1 x 2 = 2]
- (a) Alcohol. (b) Acid.
44. Write two use of ethanol and ethanoic acid. [1 x 2 = 2]
45. Give a test to differentiate chemically between butter and cooking oil. [2]
46. How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties? [3]
47. Define soap and detergent. [2]
48. Write two differences between soap and detergent. [2]
49. Why detergent can be used even with hard water? [1]
50. What are micelles? [1]
51. Explains the mechanism of cleaning action of soap. [3]
52. What is hydrogenation and write its one industrial application. [2]
53. What are isomers? Drawisomers of bautans, pentane, hexane and also write their IUPAC name? [1 x 3 = 3]
54. Write the IUPAC name of the following: [1 each]
- (a) $CH_3CH = CH - CH_2CH_2CH_3$
- (b) $CH_3CH_2CH_2C = C - CH_3$
- (c) $CH_3 - (CH_2)_3 CH_3$
- (d) $CH_2 - CH_2$
 $\quad | \quad |$
 $\quad C_2H_5 \quad C_2H_5$
- (e) $(CH_3)_4C$
- (f) $CH_3 - C - OH$
 $\quad ||$
 $\quad O$
- (g) $\quad \quad O$
 $\quad \quad ||$
 $H - C - H$
- (h) $\quad \quad \quad O$
 $\quad \quad \quad ||$
 $CH_3 - CH_2 - C - CH_3$

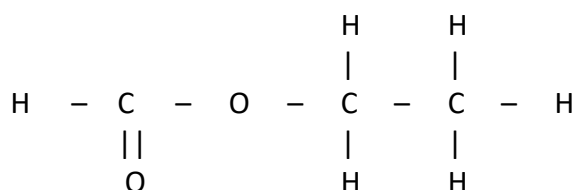


55. A Hydrocarbon contains four carbon atoms write the formula of its alkane, alkene and alkyne [1 each]
56. Hydrocarbon contains four hydrogen atoms write the formula of its alkene, alkene and alkine. [1 x 3 = 3]
57. Write the 3rd number of alkane, alkaline and alkyne. Pg-266(Q-66,70, 71, 72) S.Chand. [1 x 3 = 3]
58. The formula of an organic compound is given below. Name the acid and alcohol from which compound is obtained. Also write the name of compound. [3 x 3 = 9]

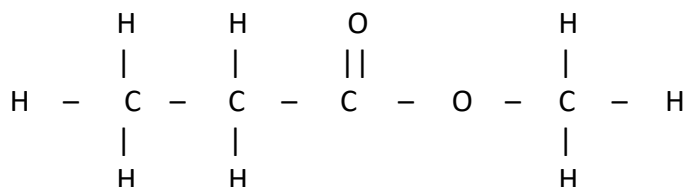
(a)



(b)



(c)



59. An organic compound 'A' is a constituent of wine and beer. This compound on heating with alkaline potassium permanganate forms another organic compound 'B' which turns blue litmus to red. Identify the compound 'A'. Write the chemical equation of the reaction that takes place to form the compound 'B'. Name the compound 'B'. [3]
60. Classify the following into alkane, alkene and alkyne. [½ each]
 $\text{C}_2\text{H}_2, \text{C}_3\text{H}_8, \text{C}_4\text{H}_{10}, \text{C}_5\text{H}_{10}, \text{C}_6\text{H}_{14}, \text{C}_5\text{H}_8, \text{C}_7\text{H}_{14}, \text{C}_6\text{H}_{10}, \text{C}_2\text{H}_6, \text{C}_5\text{H}_{12}$ and identify which will give addition and substitution reaction.
61. An organic compound A has the molecular formula $\text{C}_2\text{H}_4\text{O}_2$ and is acidic in nature. On heating with ethanol and concentrated H_2SO_4 vapours with pleasant and fruity smell are given out. What is the compound A and what is the chemical equation involved in this reaction? [3]
62. The molecular formula of an ester is $\text{C}_3\text{H}_9\text{COOC}_2\text{H}_5$. Write the molecular formula of the alcohol and the acid from which it might be prepared. Name the compound given. [2]

CHEMICAL REACTION AND EQUATION

63. Mention the characteristics which determine that the chemical reaction has taken place. [2]
64. What is a balanced chemical equation, why is it balanced? [2]
65. What is a skeletal chemical equation? [1]

66. Write balanced chemical equation for: [1 each]
- (a) Burning of coal
 - (b) Burning of natural gas
 - (c) Respiration reaction
 - (d) Silver chloride/ Silver Bromide is exposed to sunlight
 - (e) Lead reacts with copper chloride
 - (f) Action of heat on:
 - (1) Ferrous sulphate
 - (2) Lime stone
 - (3) Lead Nitrate
 - (4) Quick lime reacts with water
 - (5) Preparation of Methanol
 - (6) Photosynthesis Reaction
67. Define the following with the help of example: [1 x 6 = 6]
- (a) Combination reaction
 - (b) Displacement reaction
 - (c) Decomposition reaction
 - (d) Double displacement reaction
 - (e) Exothermic reaction
 - (f) Endothermic reaction
68. Write one equation each for decomposition reaction where energy is supplied in the form of heat (thermal decomposition), light (photolytic) and electricity (electrolysis). [3]
69. Solution of Lead Nitrate and potassium Iodide are mixed: [3]
- (a) Write the balanced chemical equation
 - (b) Name the compound precipitated and its colour
 - (c) Is this also a double displacement reaction
70. Define rancidity. Mention 4 methods to prevent rancidity. [3]
71. What is corrosion? Write the formula of rust. [2]
72. Define oxidation and reduction with example. [2 x 2]
73. Why respiration is is considered as exothermic reaction. Explain. [2]
74. In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write a balanced reaction. [1]
75. Ex – question -8, 9, 10, 11
 P.No 53- Q-3
 P.No 46- Q – 4, 5
76. Oil and fat containing food items are flussed with nitrogen why? [1]
77. A Shiny brown coloured element x on heating in air becomes black in colour. Name the element X and the black coloured compound formed. [2]
78. Identify the substance oxidized, reduced, oxidizing agent and reducing agent. [2 each]
- (a) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$
 - (b) $\text{Zn} + \text{C} = \text{Zn} + \text{CO}$
 - (c) $\text{MnO}_2 + 4\text{HCl} = \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$
 - (d) $4\text{Na} + \text{O}_2 = 2\text{Na}_2\text{O}$
 - (e) $2\text{PbO} + \text{C} = 2\text{Pb} + \text{CO}_2$
 - (f) $\text{Fe}_2\text{O}_3 + 2\text{Al} = \text{Al}_2\text{O}_3 + 2\text{Fe}$
 - (g) $\text{PbS} + 4\text{H}_2\text{O} = \text{PbSO}_4 + 4\text{H}_2\text{O}$
 - (h) $\text{SO}_2 + 2\text{H}_2\text{S} = 2\text{H}_2\text{O} + 3\text{S}$
 - (i) $\text{H}_2\text{S} + \text{Cl}_2 = \text{S} + 2\text{HCl}$
 - (j) $2\text{Na} + \text{Cl}_2 = 2\text{NaCl}$
79. Solution of a substance X is used for white washing: [2]
- (a) Name the substance X and write its formula
 - (b) Reaction of X with water

80. During electrolysis of water, why the amount of gas collected in one of the test tube is double of the amount collected in the other. Name this gas. [2]
81. Why should be magnesium ribbon being cleaned before burning in air. [1]
82. NCERT intext question
Page no- 6(2,3) , Page no- 15 (Q no- 5,6,7,8). Also identify the type of reaction.

ACID BASES AND SALTS

83. Name two: (a) Natural indicator (b) Synthetic indicator [1 x 2]
84. What are olfactory indicators? Give two examples. [2]
85. Write three different forms of calcium carbonate. [1]
86. What is neutralization reaction? Give two examples. [2]
87. What is pH scale? Write the pH value of [½ each]
- (a) Gastric juice (b) Lemon juice (c) Pure water, blood
(d) Milk of magnesia (e) NaOH
88. Name the acid present in vinegar, Orange, tamarind, tomato, curd, lemon ant sting, nettle sting. [½ each]
89. Why the survival of aquatic life in river, pond etc becomes difficult due to acid rain. [1]
90. What is acid rain? [1]
91. Which acid is produced in stomach? Name a base used as an antacid to neutralize excess acid. [2]
92. Name the hardest substance in the body and write its composition. [1]
93. Write a balance chemical equation when [1 each]
- (a) Zinc reacts with Sodium Hydroxide.
(b) Metal carbonate reacts with HCl.
(c) Metal bicarbonate reacts with HCl.
(d) Lime water reacts with CO₂
(e) Lime stone reacts with CO₂ in presence of water.
(f) Copper oxide reacts with acid
94. Intext question- P.NO - 18- Q-1(NCERT), P.NO- 22 Q-1,2,3 ,P.NO- 25 Q-1 to 6, P.NO- 28 Q – 1 to 4 P.NO- 34 Q- 7,8,9,10,11,12,13
95. Write chemical name and formula of common salt, caustic soda, Bleaching powder, Baking soda and Plaster of paris. [1 each]
96. Define water of crystallization. [1]
97. How Bleaching powder is prepared and writes its two uses. [2]
98. What happens when plaster of paris reacts with water? [1]
99. What happens when heating of Gypsum is not controlled? [1]
100. How Sodium hydroxide is prepared, Name the process and why it is called so. Name the products obtained at cathode, anode and near cathode. Write two uses of each. [5]
101. Compound x of sodium is used in the kitchen for making tasty crispy pakora. Identify X; how it is prepared, what happens when X is heated. Write two use of X. [2]
102. A baker found that cake prepared by him is hard and not spongy, which ingredients he was forgotten to add. Give reasons. [2]
103. When tooth decay starts. Write its cause and how it can be prevented. [2]

BIOLOGY

MANAGEMENT OF NATURAL RESOURCES

1. Fire wood is our conventional fuel. List any two reasons for replacing it by alternate sources of energy. [1]
2. How is the increase in demand for energy is already affecting our environment already? [1]
3. Why are coal and petroleum considered to be non-renewable sources of energy. [1]
4. Mention one negative effect of our affluent life style on the environment. [1]
5. "We need to manage our resources". List two reasons to justify this statement. [1]
6. Where are coliform bacteria found in human beings? [1]
7. What may happen if destruction is caused to the forests? [1]
8. What will be the effect of loss of biodiversity? [1]
9. List four measures that can be taken to conserve forests. [2]
10. List four advantages of water stored in the ground as "groundwater". [2]
11. List two criteria of measuring the biodiversity of an area. [2]
12. Why management of resources requires a long term perspective? [2]
13. List two advantages of building dams? [2]
14. List three main problems that may arise due to building of big dams. [2]
15. Mention any two water harvesting structures. What is water harvesting? [2]
16. List four changes you would incorporate in your lifestyle in a move towards sustainable use of available resources. [2]
17. State two disadvantage of converting forests into monoculture. [2]
18. "Recycle is considered a welcome practice to deal with environmental problems". Why? [2]
19. What is meant by exploitation of resources with short term aims? [3]
20. Mention any three reasons for failure to sustain underground water. [3]
21. What are fossil fuels? "Burning fossil fuels may lead to intense global warming". Justify this statement. [3]
22. "Industrialization is one of the two main causes of deterioration of environment". List any 3 reasons in favour of this statement. [3]
23. Who are the stakeholders who derive benefits from the forests? [3]
24. Explain with the help of two examples how the participation of local people has led to conservation of forest in the past. [5]
25. What is meant by sustainable management? State any four advantages of sustainable natural resources management. [5]

OUR ENVIRONMENT

26. What is the function of ozone in the upper atmosphere? [1]
27. Write the full name of the group of compounds mainly responsible for the depletion of O₃ layer. [1]
28. List two examples of natural ecosystem. [1]
29. What term is used to describe the substances that are broken down by biological processes? [1]
30. What is meant by biological magnification? [1]
31. Define food chain. [1]
32. List two human – made (artificial) ecosystems. [1]

33. How much organic matter is present at each step of trophic levels and that reaches the next level consumers. [1]
34. Name any two abiotic components of ecosystem. [1]
35. Name two gases which have replaced CFCs. [1]
36. The following organisms form a food chain. Which of these will have the highest concentration of non-biodegradable chemicals? Name the phenomenon associated with it. [1]
37. What will be the amount of energy available to the organisms of the 2nd trophic level of a food chain, if the energy available at the first trophic level is 10,000 J? [1]
38. Why plastics and other man-made material substances cannot be broken down by the action of bacteria or other saprophytes? [1]
39. The first trophic level in a food chain is always a green plant. Why? [1]
40. What happens during the first step of ozone formation in the atmosphere? [1]
41. Write any two effects of ozone depletion on our health. [1]
42. The depletion of ozone layer is a cause of concern. Why? [1]
43. Define environment. [1]
44. "Flow of energy is unidirectional". Name the first two components of the environment involved in this flow of energy from the sun. [1]
45. Which chemical is used in fire extinguishers? How is it harmful? [1]
46. Write any two consequences if decomposers are removed from the ecosystem. [1]
47. What are the two main components of our environment [1]
48. What is the physical environment of an ecosystem called? Give one example. [1]
49. How does concentration of a pesticide change once it enters a food chain? [1]
50. Draw the conclusion for if all the herbivores are removed from the grassland. [1]
51. During heavy rain in a village the rainwater carried excessive fertilizers to a pond. How will it affect the fish population in the pond in the long run? [1]
52. What is the role of decomposers in the ecosystem? [1]
53. Why food chains generally consist of three to four steps only? [1]
54. The flow of energy in the food chain is unidirectional. Why? [1]
55. State one advantage of using disposable paper cups over disposable plastic cups. [1]
56. Why do man –made materials like plastics persist for a long time in our environment? [1]
57. State a way to prevent accumulation of harmful chemicals in our bodies. [1]
58. Why is the government stressing upon the use of jute/cloth carry bags? [1]
59. Why should biodegradable and non biodegradable wastes be discarded in two separate dustbins? [1]
60. Why government has banned the use of kulhads over paper cups? [1]
61. Give any two ways in which biodegradable substances would affect the environment. [1]
62. How can you help in reducing the problem of waste disposal? Give any two methods. [1]
63. a) What is an ecosystem? [2]
b) We do not clean ponds or lakes, but an aquarium needs to be cleaned regularly. Explain.
64. Mention the differences between food habits of organisms belonging to the first and third trophic level. Give one example. [2]
65. Give two roles of decomposers in ecosystem. [2]
66. Define food web. State its significance for ecosystem. [2]
67. Food web increases the stability of an ecosystem. Justify. [2]
68. List two causes and any two harmful effects of ozone depletion. [2]
69. What are trophic levels? Give an example of a food chain and state the different trophic levels in it. [2]
70. State with reason any two possible consequences of elimination of decomposers from the earth. [2]
71. Suggest any two measures to be taken to reduce the damage caused to ozone layer. [2]

72. To protect the food plants from insects, an insecticide was sprayed in small amounts but it was detected in high concentration in human beings. How did it happen? [2]
73. What will happen if all the deer's are removed from the given food chain? [2]
74. If all the waste we generate is biodegradable will this have no impact on the environment? Justify your answer. [2]
75. Propose a way to dispose off vegetable peels so that the environment is not polluted. Write its one advantage. [2]
76. Recycling is considered as a welcome practice to deal with the environmental problems. Justify this statement with two arguments. [2]
77. Construct an aquatic food chain showing four trophic levels [2]
78. Define: (a) Biomass (b) Anaerobic degradation [2]
79. We often observe domestic waste decomposing in the by lanes of residential colonies. Suggest ways to make people realize that the improper disposal of waste is harmful to the environment. [2]
80. Explain how ozone is formed in the atmosphere? [2]
81. What is the full form of UNEP? What is its function? [2]
82. State in brief ways in which non biodegradable substances would affect the environment. List two methods of safe disposal of the non biodegradable waste. [3]
83. State 10% law. Explain with an example how energy flows through different trophic levels. [3]
84. Give three differences between autotrophs and hetrotrophs [3]
85. What is ozone? How and where is it formed in the atmosphere? Explain how does it affect an ecosystem. [3]
86. Why is government of India imposing a ban on the use of polythene bags? Suggest two alternatives to these bags and explain how this ban is likely to improve the environment. [3]
87. Differentiate between autotrophs, hetrotrophs and decomposers and give one example of each. [3]
88. Will the impact of removing all the organisms in a trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem? Justify with example. [5]
89. Distinguish between biodegradable and non biodegradable substances. List two effects of each of them on our environment. [5]
90. Explain five harmful effects of agricultural practices on the environment. [5]

CONTROL AND CO-ORDINATION

91. Mention the part of the body where gustatory and olfactory receptors are located. [1]
92. State the main function of abscisic acid in plants. [1]
93. Name the largest part of hind – brain [1]
94. Mention the part of the brain which controls the involuntary actions. [1]
95. Mention one example of chemotropism. [1]
96. What is synapse? [1]
97. What are hormones? [1]
98. Define 'reflex action'. [1]
99. Name the hormone which helps in regulating blood sugar level. Name the gland which produces this hormone. [1]
100. What are endocrine glands? [1]
101. Give the scientific names of the following regions of human brain: [1]
- a) Region for sight b) Region which controls salivation
102. How do the shoot and roots of a plant respond to the pull of earth's gravity? [1]
103. All information for our environment is detected by specialized tips of some nerve cells. Write the name given to such tips and also mention where they are located. [1]

142. Distinguish between estrogen and testosterone. (any two) [2]
143. Name the hormone synthesized at the shoot tips. How does it help the plant to response to light? [2]
144. Write two differences between the response of the plants and response of the animals to stimuli. [2]
145. When growing plants detect light, name a hormone which is synthesized at the shoot tip. How does this hormone effect the movement of shoot and why? [3]
146. List in tabular form three differences between the movement in 'touch me not' plant and movement of shoot towards light. [3]
147. How our body responds when adrenaline is secreted into the blood? [3]
148. Give three differences between cerebrum and cerebellum. [3]
149. Give a reason to explain why: [3]
- Adrenaline helps in dealing emergency situations?
 - Secretions of growth hormone should be specific in the human body.
 - Some patients of diabetes are treated by giving injections of insulin.
150. The brain contains a fluid filled balloon like structure. Mention the purpose served by the fluid in the structure cranium and vertebrate column protect two vital organs of CNS. Name these organs. Mention two types of nerves arising from these organs. [3]
151. Why the flow of signals in a synapse is from axonal end of one neuron to dendritic end of another neuron but not reverse? Explain. [3]
152. What is geotropism? Describe an experiment to demonstrate it. [3]
153. Trace the sequences of events through a reflex arc which occur when a bright light is focused on your eyes. [3]
154. Explain the terms – (a) reflex action (b) reflex arc. Give two examples of reflex action. [3]
155. What are voluntary and involuntary actions? Give one example each. [3]
156. Name the largest part of the human brain. Give any two role played by this part. [3]
157. List the names of hormones secreted by the following endocrine glands and mention their functions – (a) thyroid glands (b) pituitary glands (c) adrenal glands [3]
158. Draw the structure of a neuron and explain its function. [3]
159. Design an experiment to demonstrate hydrotropism. [3]
160. Mention three characteristics features of hormonal secretions in human beings. [3]
161. a) Write the role of motor areas in brain [3]
 b) A nerve input signal travelled only upto the spinal cord and gave output signal for a response. What type of action will the body show – voluntary or involuntary?
 c) Draw a nerve pathway for the above action
162. Which part of nervous system controls reflex arcs? With the help of a diagram trace the sequence of events which occur when we touch a hot object. Mention the part of the neuron that acquires information and the form in which information travels. [3]
163. Draw a diagram of human brain and label cerebrum, cerebellum, medulla and forebrain on it. [3]
164. List three differences between nervous control and chemical control. [3]
165. Draw a diagram of reflex arc and label on it sensory neuron, motor neuron, relay neuron and receptors. [3]
166. a) What are hormones? List four characteristics of hormones. [5]
 b) Name the hormone required for the following:
 (i) Functioning of mammary glands.
 (ii) Regulation of calcium and phosphate in blood.
 (iii) Lowering of blood glucose.
 (iv) Development of moustache and beard in human male.
167. a) What is phototropism and geotropism? With labeled diagrams describe an activity to show that light and gravity change the direction that plant parts grow in. [5]
 b) Mention the role of - (i) Auxin (ii) Abscisic acid

168. How are involuntary actions and reflex action different from each other (five points). [5]
169. Draw a diagram of human brain and label forebrain, mid- brain and hind- brain on it. Also mention functions of each part. [5]
170. a) Define reflex arc. Draw a flow chart showing the sequence of events which occur during sneezing. [5]
b) List four plant hormones.
171. What is geotropism? Describe an experiment to demonstrate positive and negative geotropism. [5]

LIFE PROCESSES

172. How do autotrophs obtain CO₂ and N₂ to make their food? [1]
173. State the function of digestive enzymes [1]
174. Where does digestion of fat take place in our body? [1]
175. What is translocation in plants? [1]
176. Even when we are not doing any apparent activity, we need energy. justify giving reasons. [1]
177. Name the cellular organelles where the following processes occur:- [1]
a) Photosynthesis
b) Cellular aerobic respiration
178. Name the cartilaginous flap which closes the glottis to check the entry of food into it during swallowing. [1]
179. State the function of alveoli in the lungs. [1]
180. When we breathe out, the air passage does not collapse. Why? [1]
181. Name the components of blood which transport. [1]
a) Food, CO₂ and nitrogenous wastes.
b) Oxygen.
182. What is transpiration? [1]
183. Name the filtering units present in the kidneys. What is their function? [1]
184. What is the function of valves present in auricles and ventricles? [1]
185. What will happen if platelets were absent in the blood? [1]
186. During breathing cycle, what are the advantages of residual volume of air in lungs? [1]
187. a) Name any two substances that are selectively reabsorbed as the urine flows along the tube. [2]
b) Name the part of the excretory system in which urine is stored for some time.
188. Name the green dot like structures in some cells observed by a student when a leaf peel was viewed under a microscope. What is this green colour due to? [2]
189. What advantages over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration? [2]
190. Give reasons for the following:- [2]
a) Blood goes only once through the heart in fishes.
b) Arteries are thick walled.
191. How water enters continuously into the root xylem? [2]
192. How is the small intestine designed to absorb digested food? [2]
193. What is emulsification? Name the organ where fat is emulsified in the alimentary canal of human beings. [2]
194. Name the hormone which maintains the solute potential in the blood of human body. What will happen if this hormone is not released in sufficient amount? [2]
195. State the two vital functions of human kidney. [2]
196. Write two points of difference between respiration in plants and respiration in animals. [2]
197. Stomata of desert plants remain closed during the daytime, how do they take up CO₂ and perform photosynthesis? [2]
198. How is the process of transpiration useful to plants? [2]

228. Name two simple organisms having the ability of regeneration. [1]
229. Name the type of fission carried out by amoeba. [1]
230. If a woman is using a copper-T, will it help in protecting her from sexually transmitted diseases? [1]
231. Name the parts where germ cells of a flower are located. [1]
232. What is syngamy? [1]
233. Differentiate between binary fission and multiple fission. [2]
234. What are the male and female gonads in human beings? Mention their functions. [2]
235. Fertilization is possible if copulation has taken place during the middle of the menstrual cycle. Give reason. [2]
236. List two advantages of vegetative propagation. [2]
237. How menarche differs from menopause. [2]
238. Name one sexually transmitted disease each caused due to bacterial infection and viral infection. How can these be prevented. [2]
239. List any two common pubertal changes that appear in both boys and girls. [2]
240. How does reproduction help in providing stability to population of species? [2]
241. Mention the information source of making proteins in the cell. What is the basis events in reproduction? [2]
242. Which one of the two mode of reproduction confers new characteristics on the offspring and how? [2]
243. Why a more complex organism cannot give rise to new individuals through regeneration? [2]
244. How does Rhizopus multiply by spores? Explain in brief. Sketch neat labelled diagram of this method. [2]
245. What will happen when: [2]
- A mature spirogyra filament attains considerable length.
 - Planaria gets cut into two pieces.
246. Draw labelled diagram to illustrate budding in hydra. [2]
247. Define the following terms used in relation to human reproduction- [3]
- Implantation
 - Gestation
 - Ovulation.
248. Illustrate the following with the help of suitable diagrams:- [3]
- Binary fission in amoeba.
 - Leaf of Bryophyllum with buds.
249. Differentiate between asexual reproduction and sexual reproduction. [3]
250. State one function each of the following parts of human male reproductive system:- [3]
- Vas deferens
 - testis
 - prostate gland.
251. Give a reason for each of the following:- [3]
- Spores generally have a thick wall.
 - Regeneration is not considered a method of reproduction.
 - Blocking of the fallopian tube causes birth control.
252. List four points of significance of reproductive health in a society. Name any two areas related to reproductive health which have improved over the past 50 years in our country. [3]
253. What is placenta? Explain its function in humans. [3]
254. Explain why:- [3]
- Scrotum remains outside the body of human males.
 - Petals of flowers are variously coloured.
 - Some plants are propagated only by vegetative methods.
255. What are the various methods of vegetative propagation? Discuss any 3 methods with example. [5]
256. With the help of a neat labelled diagram describe the sexual reproduction in plants. [5]
257. Give two reasons for avoiding frequent pregnancies by women. Explain the various methods of contraception giving one example of each. [5]

258. a) Draw a section view of human female reproductive system and label the parts where. [5]
 (i) Eggs develop.
 (ii) Fertilized eggs get implanted.
 (iii) Fertilization takes place.
 b) Describe in brief, the changes the uterus undergoes
 (i) To receive the zygote.
 (ii) If zygote is not formed.

HEREDITY AND EVOLUTION

259. Give an example of a vestigial organ present in human body. [1]
 260. Who proposed the theory of natural selection? [1]
 261. In term of evolution, what is the significance of homology between a human hand and a wing of a bird? [1]
 262. Name the scientist who established the laws of inheritance. [1]
 263. Define inheritance. [1]
 264. What is the function of genes in an organism? [1]
 265. What is gene? [1]
 266. What is speciation? [1]
 267. List any two factors which lead to speciation. [1]
 268. What are homologous organs? [1]
 269. Give an example where sex is determined by environmental factors. [1]
 270. Give two characteristics of homologous organs. [1]
 271. What is the cause of variation in asexually reproducing organisms? [1]
 272. What is the basic event in evolution? [1]
 273. What is genetic drift? [1]
 274. Evolution and classification are interlinked. Justify this statement. [2]
 275. List two differences between dominant trait and recessive traits. [2]
 276. Differentiate between pollination and fertilization? [2]
 277. "It is a matter of chance whether a couple will give birth to a male child or a female child." Justify this statement with the help of a flowchart showing the fusion of sex chromosomes. [2]
 278. The modern human beings have originated in Africa. [2]
 a) What evidence suggests this fact?
 b) If an animal is similar to its ancestors what does it imply?
 279. In an area A, the leaf materials available to beetles were very less. [2]
 280. What are the two consequences seen in case a beetles? [2]
 281. a) What is the genetic constitution of human sperm? [2]
 b) Mention the chromosome pair presents in zygote determining the sex of a male child.
 282. Only variations that confer advantages to an individual organisms will survive in a population. Do you agree with this statement? Why or why not? [2]
 283. What are fossils? How do they tell us about process of evolution? [2]
 284. a) Write full form of DNA. [2]
 b) Why are variations essential for the species?
 285. How do sexual and asexual reproduction lead to speciation? Give one point for each. [2]
 286. List four tools used to study evolutionary relationships. [2]
 287. State the importance of chromosomal difference between sperms and eggs of humans. [2]
 288. What is the effect of DNA copying which is not perfectly accurate on the reproduction process? [2]
 289. Name the plant on which Mendel performed his experiments. [2]
 290. What is heredity? [2]

291. Name the term used for the traits that are exhibited externally. [2]
292. Write the sex of the baby that inherits Y-chromosomes from the father. [2]
293. No two individuals are absolutely alike in a population. Why? [2]
294. When and how does the process of gene flow take place? [2]
295. Why is the progeny always tall when a tall pea plant is crossed with a short pea plant? [2]
296. All the variations in a species do not have equal chances of survival. Why? [2]
297. How many pairs of chromosomes are present in human beings? How many chromosomes are present in a gamete? [2]
298. Name the organism that has simple eyes, that are really eye spots which detect light. Name the stage. [2]
299. Can the wing of a butterfly the wing of a bat be considered as homologous organs? Why or why not? [2]
300. What is the study of fossils called as? Define fossils. [2]
301. Explain how the sex of the child is determined genetically at the time of conception in human beings? [3]
302. Distinguish between acquired and inherited traits, giving one example of each. Why are the traits acquired during life time of an individual not inherited? [3]
303. Name the organism Mendel used for his experiments. Explain about F1 and F2 progeny obtained by Mendel when he bred tall and short varieties of the organism he experimented with. [3]
304. Name two homologous structures in vertebrates. Why are they so called? How do such organs help in understanding an evolutionary relationship? [3]
305. With the help of a suitable example, explain natural selection. [3]
306. Explain giving examples how artificial selection has helped in the formation of new varieties of cauliflower. [3]
307. Explain how Mendel's experiment shows that the traits are inherited independently. [3]
308. Briefly explain the role of natural selection and genetic drift in speciation by citing an example. [3]
309. What are fossils? How are they formed? Write its significance. [3]
310. Define the following with one example of each:- [3]
- Genetic drift.
 - natural selection
 - Reproductive isolation.
311. Marriage between cousins is a taboo in most of the countries of the world except in some Asian countries. [3]
- Why should the marriage between close cousins be prevented?
 - Which measures will you take to prevent such practices?
312. How can you say that in Mendel monohybrid cross, the F2 dominants are not all the same? [3]
313. **a)** Why traits such as intelligence and knowledge cannot be passed on the next generation? [3]
- b)** How can we say that birds are closely related to reptiles and have evolved from them?
314. **a)** What are monohybrid and di-hybrid cross? [5]
- b)** How Mendel proved that tallness is the dominant trait and dwarfness is recessive in a pea plant? Explain with the help of monohybrid cross.
315. **a)** 'Evolution has occurred in stages'. Justify the statement. [5]
- b)** Differentiate between eye and eyespots. Which animal possesses eyespots of evolution.
316. Give five points to show the significance of variation. [5]
317. Name any five vegetables generated from a common ancestor through artificial selection rather than natural selection. Also mention the features for which each vegetable is selected. [5]

318. a) Why did Mendel choose garden pea for his experiments? Write two reasons. [5]
b) List two contrasting visible characters of garden pea Mendel used for his experiment.
c) Explain in brief how Mendel interpreted his result to show that the traits may be dominant or recessive.
319. Evolution should not be equated with progress. Justify this statement with suitable example. [5]
320. Explain 5 methods by which evolutionary relations can be traced. [5]

*****END*****