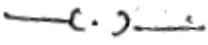


PTA MODEL QUESTIONS KEY 2011-12

**MODEL QUESTION PAPER. 10<sup>TH</sup> Std. SCIENCE**

1. Aggregate fruit
  2. Grass, goat and Human
  3. affect body cell
  4. Tetanus,
  5. Urea
  6. tyndall effect,
  7. catalyst,
  8. 18,
  9. mercury,
  10. C<sub>2</sub>H<sub>6</sub>,
  11. 16.66 c.m,
  - 12 98 N,
  - 13 E
  14. 
  - 15 AC,
- Section B**
16. a-3, b-4, c-2, d-1
  - 17.a).variation may be defined as the **differences** in the characteristics among the individual the species  
b).Disagree. because evolution is a sudden development from simple to complex species
  - 18.A). Nucleus B). Terminal branches
  - 19.d) A is relevant and R is giving correct reasoning
  20. i) flow of mucous ii) head ache, slight rise in temperature

21. i) The polar bears have thick skin coats and woolly far to bear the biting cold of the polar regions.  
ii) The jaws of the whales are modified in to baleen plates to sieve the water and trap the minute planktonic organisms as their food called krill
- 22 .please refer to a text book page no.:78
23. canine, incisors
- 24 please refer to a text book page no.:56
25. Removal of grass from grass land would affect both land and water ecosystem as there will be no food for organisms and also disturb the balance in nature
- 26.b). A is wrong R is correct.
- 27.C) A is correct R is relevant
- 28.i) Green diesel is a **biofuel**  
ii) Bio ethanol is widely used in **USA and brazil**
29. **way of waste water reused**  
i)watering yard and gardens  
ii) filtering septic systems  
**benefits of recycling waster water**  
i)less fresh water usage ii) encourage plant growth
30. This phenomenon is Brownian movement, because this ceaseless, zigzag, continuous random motion of pollen grains in beaker containing water was discovered by Robert Brown.
31.  
concentration of solution in terms of wt. percentage =  $\frac{\text{wt. of solute}}{\text{wt. of solute and solvent}} \times 100$   
=  $20 / (20+60) \times 100$   
=  $(20 / 80) \times 100$   
= 25%
32. Nitrogen-2 moles-58g  
Oxygen – 10 moles- 320g

## PTA MODEL QUESTIONS KEY 2011-12

33. a). reduction b) oxidation
- 34.a) coffee, lemon juice b) house hold ammonia
- 35.a) 8 elements b) group number of fluorine is 17 and neon is 18
- 36 Metal A is used in making aircraft parts is Aluminium. It reacts with NaOH to give Sodium aluminate (B) with liberation of hydrogen.
- $$2Al + 2NaOH + 2H_2O \longrightarrow 2NaAlO_2 + 3H_2$$
- A- Aluminium – Al  
B- Sodium aluminate
37. a-ii, b-iii, c-iv, d-i
38. a) zero B) no
39. According to newtons third law of motion, when a gun is fired it exerts forward force on the bullet. The bullet exerts an equal and opposite reaction force on the gun. This results in the recoil of the gun.
40. A-carbon rod, B-zinc rod, C-carbon and manganese dioxide, D-Ammonium chloride solution
41. a-ii.b-iii,c-iv,d-i
- 42 .i) radio active materials are kept in thick walled lead container  
ii) lead aprons and lead gloves are used while working in hazardous area  
iii) nuclear device can be operated using remote control system
- 43.a) please refer to a text book page number:269  
b) when object is placed at F, the real and inverted image is formed at infinity
- 44.Refractive index =  $\frac{\text{speed of light in vacuum}}{\text{speed of light in medium}}$   

$$= \frac{3 \times 10^8}{(4/3)}$$

$$= 9/4 \times 10^8$$

$$= 2.22 \times 10^8 \text{ ms}^{-1}$$
45. a) scurvy  
b) convex lens.

MODEL QUESTION PAPER-I . 10<sup>TH</sup> Std. SCIENCE1.Vitamin B<sub>12</sub>

1. plasmodium falciparum

3.Lomentum,cremocarp,regma

4. chemotropism

5.Tiger

6.92g

7. black

8.( 22 / 24) x100

9. 2,8,14,2

10.Ethanoic acid

11. Nitrogen

12. 3.6x10<sup>6</sup>J

13. a and c are correct answer

14. convex

15. both magnetic and direction

16. clone cells, cancer

17. Fungi are **non** green saprophytic or parasitic plants living on **dead** and decaying organic matter or living organisms

18. please refer to a text book page no.:81

19.1-3, 2-4, 3-2, 4-1

20.oestrogen

21. please refer to a text book page no.:59

22. Tundra - rein deer  
Desert - Indian wild ass  
Fresh water- platypus  
Marine - whales

## PTA MODEL QUESTIONS KEY 2011-12

23. i) A horse uses its forelimb to gallop  
ii) A rat uses its forelimb to make holes in the ground to live
24. Disturbing any one factor ( like reproduction) could have a drastic impact upon the living conditions of other organisms that will result in an imbalance. So the reproduction will not happen in human for fifty years. It disturbs the balance in nature.
25. cell membrane, nephridia
26. Producer, carnivores
- 27.i) Natural gas is a major source of electricity generation through the use of gas turbines and steam turbines.  
ii) Natural gas is also used in the manufacture of fabrics, glass, steel, plastics, paint and other products.
- 28.a) Energy management may result in increase of financial, capital, environmental value, national security, personal security and human comfort.  
b) i) use fluorescent bulbs  
ii) use electronic chokes in the place of conventional copper chokes
29. Do not iron wet clothes, because wet clothes secure more energy and also increase the financial capital.
30. solubility of Potassium Sulphate } 
$$= \frac{\text{wt. of salt}}{\text{wt. of solvent}} \times 100$$
  
$$= (2/12.5) \times 100$$
  
$$= 16\text{g}$$
31. solid – **solid** = alloy  
Solid – liquid = **salt water**  
Solid -gas = **smoke**  
Liquid-solid = **cheese**
- 32.i) Please refer to a text book page no.:147  
ii) oxygen, ozone
- 33.i) A chemical reaction in which oxidation and reduction take place simultaneously is called **Redox reaction**.  
ii) Displacement reaction
- 34.1-3, 2-4, 3-2, 4-1
- 35.i) 7 periods and 18 groups  
ii) Titanium, chromium
36. The rusting of nails in A is due to air and water. In B, the oily layer above water does not allow air to come in contact with nails. In C, the substance anhydrous calcium chloride has absorbed moisture completely. So nails B and C are unaffected
- 37.i) Orange colour of potassium dichromate is changed to green  
ii) This reaction is used to identify the presence of alcohol.
38. Please refer to a text book page no.: 223
39. a) gravitation b) newton
40. Ohms law  $R = V / I$   
 $= 60/5$   
 $= 12 \text{ ohm}$   
If potential difference increases to 120V,  
Current  $I = V / R$   
 $= 120/12$   
 $= 10\text{A}$
41. In a voltaic cell the copper rod is the positive pole and **dil.sulphuric acid** is the electrolyte. The **zinc rod** is the negative pole.
42.  ${}_{92}\text{U}^{235} + {}_0\text{n}^1 \rightarrow {}_{56}\text{Ba}^{141} + {}_{36}\text{Kr}^{92} + 3{}_0\text{n}^1 + 200 \text{ Mev}$
43. Please refer to a text book page no.:269(f)
44. The south pole of the needle points towards the north pole of the magnet. The north pole of the compass is directed away from the north pole of the magnet.
- 45.1-3, 2-4, 3-1, 4-2.

**MODEL QUESTION PAPER-II. 10<sup>TH</sup> Std. SCIENCE**

1. Body cell
2. Marasmus
3. Seed coat
4. All the above
5. Potassium iodide
6. Sugar solution
7. Basic
8. Ore
9. Transition elements
10. Carbon
11. Cryogenic hardening
12. Electric energy
13.  $E=mc^2$
14. Magnetic field
15. Double convex lens
16. 1-2, 2-1, 3-4, 4-3
17. A) The eye colour among the human beings are varied as blue, brown and green etc., This is called **intra** specific variation  
B) The dentition in rabbit and elephant are not the same. This is called as **inter** specific variation
18. please refer to a text book page no.:44
19. Cerebrum
20. Thyroid gland
21. please refer to a text book page no.:57
22. WBC: **resist germs entering the body**
23. Left auricle and left ventricle
24. The principal excretory organs of our body are the kidneys, which maintain the chemical composition of the blood and so are called as master chemist of our body.
- 25.c) A is wrong R is correct
26. Aluminium cans, plastic waste
27. Hydrogen found to be a good fuel. It can meet all the energy needs of human society including power generation more efficiently and more economically than petro fuels and with total compatibility with the environment. In addition hydrogen is non-toxic, safe to handle, distribute and used as a fuel.
28. a) **Secondary** treatment is used to remove dissolved and suspended biological matter.  
b). **Methane** is the chief component of natural gas.
29. a) petroleum, because this is fossil fuel (others are biofuels)  
b) scabies, because it is directly affect the human beings (others are indirectly affect the human beings).
30. concentration of solution in terms of weight percentage } 
$$= \frac{\text{wt. of solute}}{\text{wt of solute and solvent}} \times 100$$
  
$$= 10 / (10+40) \times 100$$
  
$$= 1000/50$$
  
$$= 20\%$$
31. a) All the substance forms saturated solution  
b) If the temperature increases these substances forms supersaturated solutions.
32. Isotopes are:  $^{35}_{17}\text{Cl}$   $^{37}_{17}\text{Cl}$   
Isobars are :  $^{40}_{18}\text{Ar}$   $^{40}_{20}\text{Ca}$
33. When iron kept in a copper sulphate, iron replaces copper from copper sulphate. So the colour of copper sulphate is changed from blue to green and iron turns into red.

PTA MODEL QUESTIONS KEY 2011-12

34. 1-2,2-4,3-1,4-3

35.i) yes ii) Gravity separation method

36.i) Mixture of mercury with silver and tin used in dental filling

ii) zinc

37. 1. CH<sub>4</sub>                      Methane  
 2. CH<sub>3</sub>CH=CH<sub>2</sub>            Propene  
 3. HC≡CH                      Ethyne  
 4. CH<sub>3</sub>CH<sub>2</sub>OH                Ethanol

38. a) momentum = mass x velocity  
b) liquid helium39.a) Two equal and opposite forces whose lines of action **donot** coincide are said to constitute a **couple** in mechanics.b) one newton is the force that produces an acceleration of  $1\text{ms}^{-2}$  in an objects of 1 **kilogram** mass.

40. 1-4,2-1,3-2,4-3

41. Please refer to a text book page no.: 238

42. Resistance =  $V/I$   
=  $3/0.6$   
= 5 ohm.43.a) electric magnet  
b) Dioptre.

44. A is correct R is wrong

45. a) Migrane (others are defects in eyes)  
b) Utriculus ( others are parts in eyes).MODEL QUESTION PAPER-III. 10<sup>TH</sup> Std. SCIENCE

1. Insulin

2. Tetanus

3. Gynoecium

2. Mycorrhizal root

5. Carbon di oxide

6.  $6.023 \times 10^{23}$ 

7. 11

8. Amalgam

9. Aluminium

10. -COOH

11. zero

12. Lead and tin

13. Potential difference

14. magnetic field

15. Atmospheric refraction

16. 1-3,2-4,3-1,4-2

17.a) Africa b) charles Darwin

18. Please refer to a text book page no.: 38

19. Diabetic Raja father eat sugar lessfoods and also do some basic exercises like walking in the evening may control this problem.

20. Hypothalamus

21. Please refer to a text book page no.: 66

22. Forelimbs into wing

## PTA MODEL QUESTIONS KEY 2011-12

23.d) dog, cat, crocodile, tiger

24. Arteries

25.4) A is relevant and R is correct

26.a) plants b) Most of the green plants are self dependent, because they synthesize their own food materials by photosynthesis.

27. Hydrogen has the highest mass energy content its heat of combustion per unit weight is about 2.5 times that of hydrocarbon fuel, 4.5 times that of ethanol and 6 times that of methanol.

28. a) cholera- bacterial diseases ( others are viral diseases)  
b) solar energy – renewable source ( others are non renewable source)

29. Bio diesel

30. 1-4,2-1,3-2,4-3

31. Potassium nitrate dissolved in water is endothermic reaction. Here solubility increases with increase in temperature. But calcium oxide dissolved in water is exothermic reaction. Here solubility decreases with increase in temperature.

32. No. of moles of water =  $\frac{\text{No. of molecules}}{6.023 \times 10^{23}}$   
=  $\frac{24.092 \times 10^{22}}{6.023 \times 10^{23}}$   
= 0.3 moles.

33. Powdered calcium carbonate offers large surface area for the reaction to occur at a faster rate. This shows that greater the surface area, greater is the rate of the reaction.

34.

Indicator	Colour in Acid	Colour in Base
Litmus	Blue	Red
Phenolphthalein	Colourless	Pale pink colour

35. i) A and R are correct and relevant to each other.

36.i) When iron dipped in con. nitric acid, iron becomes chemically inert due to the formation of a layer of iron oxide on its surface.

ii) 2%

37.i) A – Acetic acid –  $\text{CH}_3\text{COOH}$   
B – Ethyl ethanoate  $\text{CH}_3\text{COOC}_2\text{H}_5$

ii) esterification,

$\text{CH}_3\text{COOH} + \text{HOC}_2\text{H}_5 \rightarrow \text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}$   
( con. Sulphuric acid)

38 a) one newton is the force that produces an acceleration of  $1 \text{ ms}^{-2}$  in an object of 1 kilogram mass.

b) The physical quantity which is equal to the rate of change of momentum is **applied force**.

39. Cryogenic fuels used in the production of very low temperature (123K) and the behaviour of materials at those temperature.

40. A- ammeter, K- key(closed), Bt- battery

41. Total resistance =  $\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$   
=  $\frac{1}{5} + \frac{1}{10} + \frac{1}{30}$   
=  $\frac{6+3+1}{30}$   
 $\frac{1}{R_p} = \frac{1}{3}$   
 $R_p = 3 \text{ ohm.}$

42. 1-3,2-4,3-1,4-2

43.a) The band of the coloured component of a light beam is called its spectrum.

b) Violet, indigo, blue, green, yellow, orange, red

44.a) Convex lens b)  $1/f$  (Dioptre)

45. A is correct R is wrong.

**MODEL QUESTION PAPER-IV. 10<sup>TH</sup> Std. SCIENCE**

1. Charles Darwin
2. P.falciparum
3. Micropyle
4. Hydrotropism
5. Carbon
6. Non-aqueous solution
7. Displacement reaction
8. Froth floatation method
9. Atomic number
10. Ethyne
11. 490N
12. 4V
13. 37% lead,63% tin
14. -0.5D
15. Convex lens
16. 1-4,2-3,3-2,4-1
17. i) fever ii) constipation and abdominal pain and cramps iii) stools with excess mucous and blood clot.
18. Please refer to a text book page book.34
19. A- Thyroid B- Trachea
20. A) Embryonic nervous tissue  
b) zygote
21. please refer to a text book page no.: 67
22. The closure of auriculo ventricular valve of the heart produce **lubb** sound, opening of such valve produce **dubb** sound.
23. a) 72 b) Bat
24. a) A- Geotropism B- phototropism  
b) These two movement are classified under movement dependent on growth, but in the case of mimosa classified under movement independent of growth.
25. a) 1- photosynthesis 3- Respiration  
b) The materials are taken in the form of carbon dioxide and water which are converted into carbohydrates in the presence of light and chlorophyll.
26. It is incorrect. A renewable resource is a natural resource. If it is replaced by natural process at a rate comparable or faster than its rate of consumption by humans.
27. i) Mention any two places of waste water stagnation  
ii) Stagnation of waste water from residential houses and industries will not cause diseases. Is it correct or incorrect. If it is incorrect give the correct statement.
- 28 a) all the above b) methane
29. a) William Harvey b) 4 chambers
30. At the same temperature adding more sugar to the saturated sugar solution is not possible. If the temperature increases you can mix some more sugar.
31. 1-3,2-4,3-1,4-2
32. No of moles of carbondioxide =  $\frac{\text{No. of particles}}{6.023 \times 10^{23}}$   
 $= \frac{3.0115 \times 10^{23}}{6.023 \times 10^{23}}$   
 $= 1/2$   
 $= 0.5 \text{ moles}$
33.  $P^{\text{OH}} = -\log (\text{OH}^-)$   
 $= -\log (10^{-4})$   
 $= 4$   
 $P^{\text{H}} + P^{\text{OH}} = 14$   
 $P^{\text{H}} = 14 - 4$   
 $P^{\text{H}} = 10$

PTA MODEL QUESTIONS KEY 2011-12

34. a) White precipitate b) Lactic acid
35. i) Name the method used to purify copper  
ii) Electrolytic refining method is not used to purify copper. Is it true or false
36. please refer to a text book page no.: 185
37. When ethyl alcohol mixed with pyridine, ethyl alcohol loses its nature. So ethyl alcohol is unfit for drinking purpose.
38. a) momentum = mass x velocity  
b) liquid helium
39. a) mass is measured using physical balance and weight is measured using spring balance.  
b) In the absence of external unbalanced force, the total momentum of a system of objects remains unchanged or conserved by collision.
40. a-3, b-4, c-1, d-2
41. Total resistance =  $\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$   
=  $\frac{1}{5} + \frac{1}{10} + \frac{1}{30}$   
 $\frac{1}{R_p} = \frac{6+3+1}{30}$   
 $\frac{1}{R_p} = \frac{10}{30}$   
 $R_p = 3 \text{ ohm.}$
42. Copper, zinc
43. Due to high wave length of red colour, this is used in traffic signals to stop vehicles.
44. a) Please refer to a text book page no.: 267  
b) A ray passing through the principal focus of a concave mirror, after reflection will emerge parallel to the principal axis.
45. a) Magnetic lines of force  
b) No two field lines are found to cross each other.

## MODEL QUESTION PAPER

### X STANDARD – SCIENCE

**Time: 2.30.Hrs**

**Marks:75**

#### Section – A

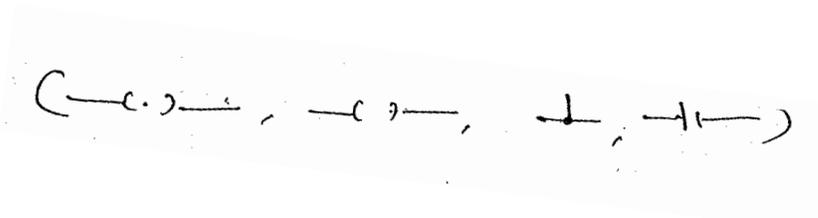
I i) Choose the right Answer

ii) Answer all questions

**15 x 1 =15**

1. A fruit develops from a single flower with multicarpellary, apocarpous, superior ovary is (Aggregate fruit, composite fruit, simple fruit, multiple fruit)
2. Which of the following constitute a food chain { (Grass, Wheat and Mango), (Grass, goat and Human),(Goat, cow and elephant),(Grass, fish and goat)}
3. Somatic genetherapy does ( affect the sperm, affect the egg, affect the progency, affect body cell)
4. Pick out the bacterial disease( Meningities, Rabies, Tetanus, Small pox)
5. Mammal's main excretory product is (Ammonia, Uric acid, Urea, Sodium)
6. When sunlight passes through the window of your house, the dust particles scatter the light making the path of the light visible. This phenomenon is called as (Brownian motion , tyndall effect, Raman Effect , uniform motion)
7.  $2\text{KClO}_3 \xrightarrow[\text{MnO}_2]{\Delta} 2\text{KCl} + 3\text{O}_2$  In this chemical reaction  $\text{MnO}_2$  acts as (reactant, product , catalyst, promoter)
8. Number of groups in modern periodic table is ----- (7,17,18,8)
9. An amalgam is an alloy of metal with ( carbon, mercury, hydrogen, gold)
10. The saturated hydrocarbons form homologous series with the general formula  $\text{C}_n\text{H}_{2n+2}$ . The formula of the second member in this series is ( $\text{C}_2\text{H}_2$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_2\text{H}_8$ )

11. An object is placed at 25 c.m. from a convex lens whose focal length is 10 c.m. The image distance is ..... (50 c.m, 16.66 c.m, 6.6 c.m., 10 c.m.)
12. Mass of an object is 10 Kg. What is its weight on the earth (where  $w=mg$ ,  $g=9.8\text{m/s}^2$ ) (49 N, 25 N, 98 N, 100 N)
13. Four cells each of emf "E" are joined in parallel to form a battery. The equivalent emf of the battery will be .....(4E, E, E/4, E=0)
14. The symbol for closed switch is .....



15. Electric power can be transmitted over long distance without much loss of energy is an important advantage of .....(AC, DC, Both AC & DC, None)

### Section B

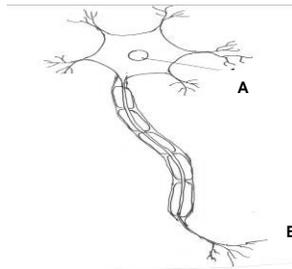
- II i) Short Answers  
ii) Answer any twenty questions. 20 X 2 = 40

16. Match the following glands with suitable hormone

Glands	Hormone
a. Adrenal cortex	i) Insulin
b. Neurohypophysis	ii) Thyroxin
c. Thyroid	iii) Cortisone
d. Islets of Langerhan	iv) Oxytocin

17. Do you agree with the statement given below. If not, give the correct statements.
- a. Variation may be defined as the affinities in the characteristics among the individual the species
- b. Evolution is a sudden development from the complex species to simple form Do you agree with the above statements?

18. Copy the diagram of neuron and label the parts A and B



19. **Assertion (A):** The secretions of pituitary gland controls all other endocrine glands.

**Reason (R) :** It is known as the conductor of endocrine orchestra

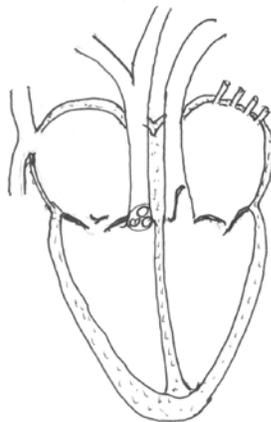
- a) A is correct and R is not giving correct reasoning.
- b) A is correct and R is wrong
- c) A is wrong and R is correct
- d) A is relevant and R is giving correct reasoning.

20. You suspect that your friend is suffering from common cold. What are the questions you will ask your friend to confirm the disease.

21. The polar bears have thick skin coat and wooly fur, the ballen whales have ballen plates. Give reasons

22. The diagram shows that internal structure of the human heart. Label the following parts.

- a. The blood vessal that carries blood to the lungs
- b. The blood vessal that carries blood to the different parts of the body.



23. The tearing teeth of carnivorous animals ..... The tusks of an elephant are modified teeth of .....

24. Draw and label any two parts of the anther.



25. What will happen if all the grass is removed from the grass land eco system?

26. **Assertion A:** All public places need not have adequate sanitation and hygiene facilities.

**Reason (R):** There is a greater risk of the spread of diseases such as Hepatitis A, Typhoid, diareha, etc.,

- a) A is right R is wrong
- b) A is wrong R is right
- c) R explains A
- d) B does not explain A

27. **Assertion A :**Alcohol is made by fermenting the sugar components of plant materials. It can be used as a fuel for vehicles.

**Reason (R) :** Bio - ethanol is widely used.

- a) A is false statement R is correct
- b) A is correct R is wrong
- c) A is correct R is relevant
- d) A and R statements not relevant.

28. Read the following the statements and correct them.

- i) Green diesel is a fossil fuel.
- ii) Bio - ethanol is widely used in England and Spain

29. Any water that has been used in the home, with the exception of water in the toilet can be referred to as waste water. It is also referred as gray water. Suggest any two ways to reuse this water and state benefit out of it.

30. Pollen grains have ceaseless, zigzag, continuous random motion when taken in a beaker containing water. Name the phenomenon and give the reason.



37. Match the following:

**Compounds**

- a. Ethylalcohol
- b. Acetaldehyde
- c. Methanoicacid
- d. Acetone

**Functional Group**

- i) - CO -
- ii) - OH
- iii) - CHO
- iv) -COOH

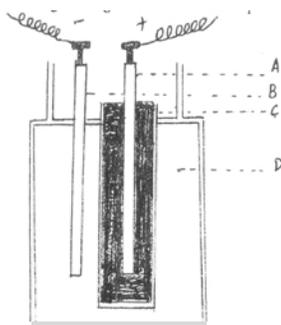
38. Observe the diagram and Write the answer



- a. The resultant of these forces is \_\_\_\_\_
- b. Does the ball move?

39. “When a gun is fired, it exerts forward forces on the bullet”. Why does the gun recoil backwards?

40. Leclanche cell diagram is given below. Lable the parts A, B, C, D.

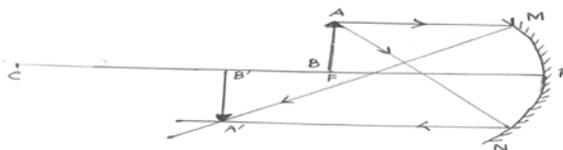


41. Match the following

Components		Symbols
a) Switch (closed)	i)	
b) Battery	ii)	
c) Electric bulb	iii)	
d) Resistance	iv)	

42. Harmful radiations originate from a nuclear reactor. Precautions are taken to see that they do not become a threat to living beings. What are these precautions?

43. The ray diagram shown below is introduced to show how a concave mirror forms an image A' B' of an object A B placed at F.



- a. Identify the mistakes and draw the correct ray diagram.
  - b. Write the justification for your corrections
44. The speed of light in vacuum is  $3 \times 10^8$  m/s Calculate the speed of light in medium of refractive index  $4/3$ . [Hint:  $\mu = c/v$ ]
45. Odd one out.
- a. Myopia, hypermetropia, scurvy, presbyopia
  - b. Convex mirror, concave mirror, plane mirror, convex lens.

### Section – C

**4 x 5 = 20**

- Note:** i) Answer any four questions by choosing one question from each group  
 ii) Each question carries five marks  
 iii) Draw diagram wherever necessary

#### Group-A

46. a. State any two applications of Bio-sensor in medicines. Somatic genetherapy does not effect the sperm or egg. Give reason.  
 b. What are the types of gene therapy?
47. a. The transfer of disease causing germ from an infected person to a normal healthy person through air by sneezing, coughing and talking is possible. Is there any other agent that transmits the infectious germs. List the agents or carriers, and the various diseases caused by them.  
 b. Administering vaccine is to prevent the spread of diseases. Brief the role of MMR and DT vaccine.

#### Group-B

48. Calyx, Corolla are the parts of a flower.  
 a. Give the reproductive parts of a flower

- b. State the process involved in sexual reproduction.
- c. Fruit is a ripened ovary classify the following fruits.
  - 1. Cotton / Lady's finger
  - 2. Paddy
  - 3. Castor

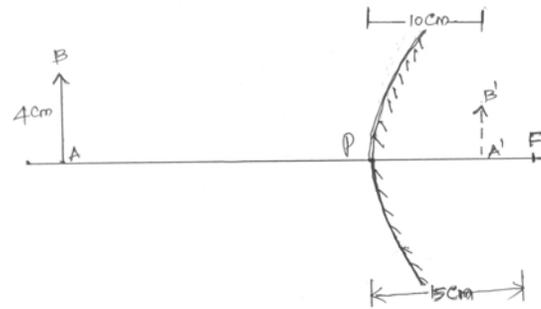
49. a) Smoke, Smoke everywhere smoke. List the effects of coal smoking.  
b) To meet out the water scarcity we need several ways to increase the water supply. Suggest any two ways to manage the crisis.

**Group-C**

50. a. Mole concept is introduced to express the quantity of a substance. If 90 g of water is taken in a beaker. Find the number of moles in it.  
b. Atoms and molecules are the building blocks of matter. List out any two differences between them.
51. a. Ethanoic acid reacts with ethanol in the presence of concentrated sulphuric acid.
  - i) Name the organic product formed.
  - ii) Give the name of the reaction.
  - iii) What is the role of sulphuric acid in the above reactionb. The structural formula of an organic compound is  $\text{CH}_3 - \text{CH}_2 - \text{OH}$ 
  - i) Write the IUPAC name of this compound
  - ii) Give one use of this compound.

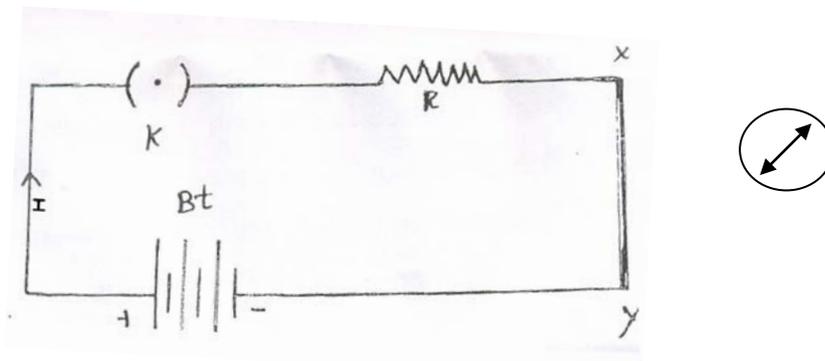
**Group - D**

52. a. Place the following objects in the correct order from the lowest to the highest momentum.  
Assume that all the objects are moving at their maximum velocity.  
Aeroplane, Train, Bus, Car, Cycle.  
{Where: Momentum = mass x velocity;  $p = mv$  }
- b. Which object has more momentum ; a car travelling at 10 km/hr or a baseball pitched at 150 km/hr? Explain your answer.
- c. Newton's third law of motion. For every action there is an equal and opposite reaction. Explain this law, using one illustration.
53. a. Observe the figure and write down the following quantities using Cartesian sign convention.



- i) The length of the object AB
- ii) The distance to the image.
- iii) The focal length of the convex mirror

b. Observe the figure and answer the following questions



- i) Why is the magnetic needle deflected?
- ii) If the direction of current is reversed, what will be the direction of deflection of magnetic needle?

# X STANDARD

## SCIENCE

### Model Question Paper - 1

Time : 2.30 Hrs.

Marks : 75

#### SECTION - A

**I. Answer all questions :**

15 x 1 = 15

1. Biotechnologically synthesized vitamin \_\_\_\_\_ is used, to cure pernicious anaemia.  
( Vitamin A, Vitamin B, Vitamin B12, Vitamin C )
2. In the following Plasmodium which one cause malignant and fatal.  
( Plasmodium vivax, Plasmodium malariae, Plasmodium falciparum, Plasmodium ovale )
3. These are all schizocarpic fruit  
( Legume, Follicle, Capsule, Berry, Hesperidium, Pome Lomentum, Cremocarp, Regma, Simple, Aggregate, Composite )
4. The pollentubes grow towards ovule. This is  
( Phototropism, Chemotropism, Hydrotropism, Geotropism )
5. Odd one out  
( Plants, Grasshopper, Frog, Tiger - snake )
6. The solubility of Sodium Nitrate in water is  
( 92 g, 184 g, 95 g, 36 g )
7. On heating the green colour copper carbonate changes into \_\_\_\_\_ colour resulting in the formation of copper oxide?  
( white, black, green, red )
8. The percentage of purity of Gold is calculated for making ornaments.  
(  $\frac{24}{22} \times 100,$   $\frac{22}{24} \times 100,$   
 $\frac{20}{24} \times 100,$   $\frac{18}{24} \times 100$  )

9. Atomic number of Iron is 26. Its electronic configuration is \_\_\_\_\_  
 ( 2,8,8,2, 2,8,8,4, 2,8,14,2, 2,8,14,4)
10. Ethanol on oxidation in the presence of alkaline potassium permanganate or acidified potassium dichromate gives the following acid.  
 ( Propanoic acid, Butanoic acid, Methanoic acid, Ethanoic acid )
11. The freezing of biotechnology products like vaccines require the freezing systems.  
 ( Helium, Nitrogen, Ammonia, Chlorine)
12. 1 kwh is equal to  
 (  $3.6 \times 10^{-6}J$ ,  $3.6 \times 10^6J$ ,  $6.3 \times 10^{-6}J$ ,  $6.3 \times 10^6J$ )
13. From the following statements write down that which does not represent ohm's Law.  
 (  $\frac{\text{Current}}{\text{Potential difference}} = \text{Constant}$ ,  $\frac{\text{Potential difference}}{\text{Current}} = \text{Constant}$ ,  
 Current = resistance x Potential difference,  
 Resistance =  $\frac{\text{Potential difference}}{\text{Current}}$  )
14. The magnification produced by a mirror is 1/3, then the type of mirror is  
 ( Concave, Convex, Plane, double concave )
15. Magnetic field is a quantity that has  
 ( Direction only, Magnitude only, both magnetic and direction, Spin only )

### SECTION - B

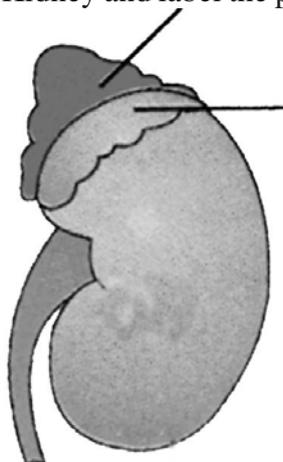
#### II. i. Short Answers :

20 x 2 = 40

ii. Answer any twenty questions.

16. Monoclonal antibodies are the antibodies produced by \_\_\_\_\_ Monoclonal antibodies are now used for treatment of \_\_\_\_\_.
17. Correct the following sentence if it has any mistake.  
 Fungi are green saprophytic or parasitic plants living on live and decaying organic matter or living organisms.

18. Copy the diagram of Kidney and label the parts A and B



19. Match the following

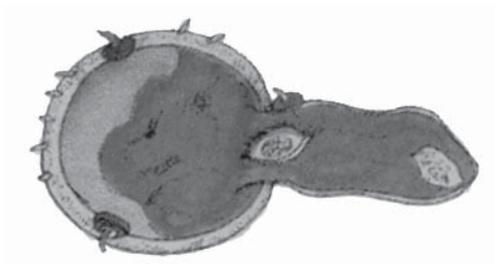
- |                   |   |                                      |
|-------------------|---|--------------------------------------|
| 1. Fore brain     | - | CNS, PNS and ANS                     |
| 2. Mid brain      | - | Pons, cerebellum & medulla oblongata |
| 3. Hind brain     | - | cerebrum, thalamus, hypothalamus     |
| 4. Nervous system | - | cerebral aqueduct                    |

20. Find the odd one out from the following.

(Goitre, Diabetes, Oestrogen, Dwarfism)

21. Redraw the diagram and label the following parts.

- a) Exine                      b) Tubenucleus



22. Classify the animals according to Tundra, Desert, Freshwater and Marine.

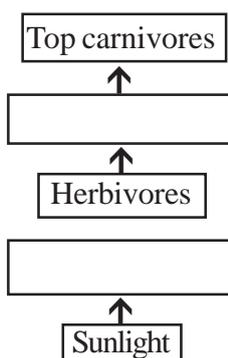
(Indian wild ass, Whales, Platypus, rein deer)

23. Man uses his fore limb to hold an object and to write.

(i) What is the use of fore limb of horse?

(ii) Write the use of fore limb of rat?

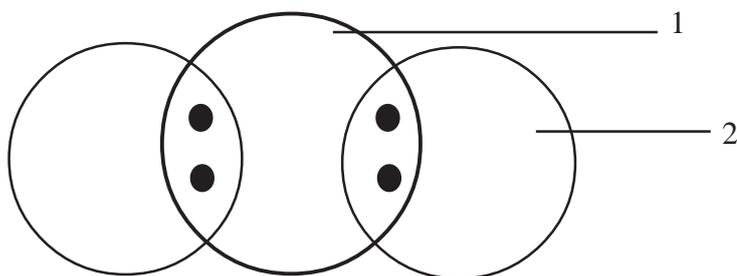
24. Imagine reproduction will not happen in human for fifty years. Interpret your answer in one or two sentences.
25. In coelenterates and sponges the excreta diffuse out through the \_\_\_\_\_  
In Annelids, special kidneys called \_\_\_\_\_ are evolved to collect excreta from the coelomic cavity.
26. Complete the flow of energy in an Ecosystem.



27. Natural gas is a major feed stock for the production of Ammonia and fertilizer production. Mention some other uses (any two only)
28. Energy management should help the environment by reducing the use of natural resource without polluting environment for the future purpose.
- a) Discuss any two importance of energy management
- b) write any two ways of saving energy at home
29. Do not iron wet clothes. Give reasons.
30. 2g of Potassium sulphate was dissolved in 12.5ml of water. On cooling, the first crystals appeared at 60°C. What is the solubility of Pottassium shlpate in water at 60°C.
31. Complete the following

Solute	Solvent	Example
Solid	_____	Alloys
Solid	liquid	_____
Solid	gas	_____
Liquid	solid	_____

32. (i) Draw the molecule of water and name the elements



(ii) Name two examples for homoatomic molecules.

33. Spot the error.

(i) A Chemical reaction in which oxidation and reduction take place simultaneously is called double decomposition.

(ii)  $\text{Fe} + \text{CuSO}_4 \longrightarrow \text{Cu} + \text{FeSO}_4$ , identify the type it belongs to.

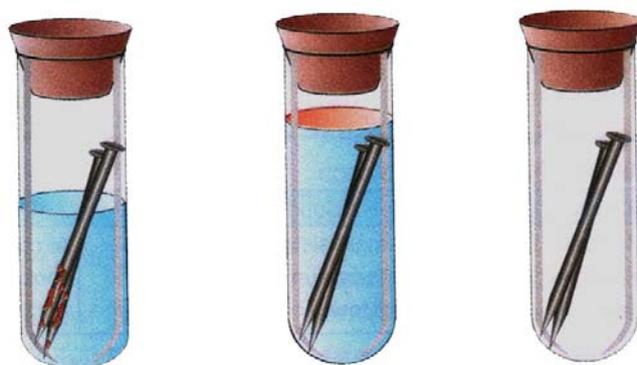
34. Match the following :

Source		Acid Present
Lemon	-	Lactic acid
Apple	-	Tartaric acid
Grapes	-	Citric acid
Curd	-	Malic acid

35. (i) MODern periodic table is made up of periods and groups. How many periods and groups are there in the periodic table?

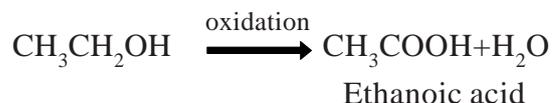
(ii) Name any two strategic metals.

36.

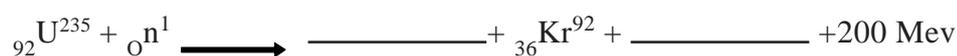


After few days the nails in A are rusted while the nails in B and C are un affected Give reasons.

37. Ethanol is oxidized to ethanoic acid with acidified  $K_2Cr_2O_7$ .



- (i) During this reaction identify the colour change involved.
- (ii) Mention the use of the above reaction.
38. A bullet of mass 15g is horizontally fired with velocity  $100ms^{-1}$  from a pistol of mass 2kg. what is the recoil velocity of the pistol?
39. Odd one out.
- (a) newtonmeter,  $Kgms^{-1}$ , gravitation
- (b) momentum, force, acceleration, newton
40. The potential difference between the terminals of an electric heater is 60V when it draws a current of 5A from the source. What current will the heater draw if the potential difference is increased to 120V?
41. In a voltaic cell the copper rod is the positive pole and Ammonium chloride is the electrolyte. The carbon rod is the negative pole. Spot the error.
42. Fill in the blanks



43. Draw ray diagram to show the formation of image by a concave mirror when an object is between P and F.
44. Place the magnetic needle near the north pole of the bar magnet. How does the south pole and the north pole of the needle points?
45. Match the following
- |                       |   |   |
|-----------------------|---|---|
| 1) Electric motor     | - | $\frac{\sin i}{\sin r}$                           |
| 2) Electric Generator | - | diopetre  |
| 3) Refractive index   | - | converts electrical energy into mechanical energy |
| 4) power of a lens    | - | coverts mechanical energy into electrical energy. |

## **SECTION - C**

- Note :
- (i) Answer any 4 questions by choosing one question from each group.
  - (ii) Each question carries five marks.
  - (iii) Draw diagram wherever necessary.

4 x 5 = 20

### **GROUP - A**

46. Genetic engineering resulted to a new Branch of Science
- (a) Define genetic engineering.
  - (b) What are the benefits of Genetic engineering
  - (c) What are the uses of restriction endonucleases and DNA ligase?
47. T.B. affex lungs and other parts of our body?
- (a) What is the caustive agent of Tuber culos is?
  - (b) Symptoms of Tuberculosis.
  - (c) How to prevent Tuberculosis

### **GROUP - B**

48. (a) Define fertilization
- (b) What are the post fertilization changes?
  - (c) What are Parthenocarpic fruits?
49. Green chemistry is a modern concept, develop in almost in all branches of chemistry.
- (a) What is Green chemistry?
  - (b) What is a global village?
  - (c) List out some products produced by the process of green chemistry.

### **GROUP- C**

50. (i) What are the differences between isotopes and isobars? (2)
- (ii) complete the following.
- 2x \_\_\_\_\_ = Relative molecular mass. (1)
- (iii) Give examples for triatomic and polyatomic molecules. (2)

51. (a) What is functional group?

(b) Complete the table

Sl.No.	Formula	Common Name	IUPAC Name
1.	$\text{CH}_3\text{CH}_2\text{CH}_3$	Propane	_____
2.	$\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$	$\alpha$ Butylene	_____
3.	_____	Dimethyl acetylene	_____
4.	_____	Propionaldehyde	_____

### GROUP - D

52. (a) What are the differences between mass and weight?

(b) Explain balanced and imbalanced forces with an illustration.

53. (a) In Fleming's left hand rule, what are denoted by three fingers?

(b) State any two uses of concave lenses.

(c) A concave lens has focal length of 15cm. At what distance should the object be placed so that it forms an image 10cm from the lens.

# X STANDARD

## SCIENCE

### Model Question Paper - 2

Time : 2.30 Hrs.

Marks : 75

#### SECTION - A

#### I. Answer all questions :

15 x 1 = 15

1. Somatic gene therapy affects \_\_\_\_\_  
( Sperm, egg, progeny, body cell )
2. Pick out the protein deficiency disease  
( Typhoid, Malaria, Marasmus, AIDS)
3. The integuments of the Ovule develop into \_\_\_\_\_  
( covary, Seed Coat, Egg, Seed)
4. The autotrophic nutrition required \_\_\_\_\_  
(  $\text{CO}_2$  and water, Chlorophyll, Sunlight, all the above )
5. \_\_\_\_\_ chemical is used in seeding clouds.  
( Potassium iodide, Calcium carbonate,  
Sulphur di Oxide Ammonium phosphate )
6. Which of the following is a true solution \_\_\_\_\_  
( Milk, Salt in carbon di sulphide, Blood, Sugar solution )
7. The nature of the tooth paste commonly used is \_\_\_\_\_ in nature  
( acidic, basic, neutral, Salty )
8. Bauxite is used to extract aluminium it can be termed as \_\_\_\_\_  
( Ore, Mineral, flux, Slag )
9. Elements of Group 3 to 12 in the long form of periodic table are called.  
( representative elements, transition elements,  
Inner transition elements, Inert gases )

10. Buckminster fullerence is the allotropic form of \_\_\_\_\_  
( Nitrogen, Carbon, Sulphur, Phosphorous )
11. Metals frozen to low temperature showed more resistance to wear. This is known as \_\_\_\_\_ .  
( cryogenic yielding, cryogenic hardening , cryogenic cooling, cryogenic shapping)
12. Kilo watt - hour is the unit of \_\_\_\_\_  
( Potential difference, electric power, electric energym, charge )
13. Einsteins mass energy relation is \_\_\_\_\_  
(  $E = \frac{m}{c^2}$  ,  $E=mc^2$ ,  $E=h\lambda$ ,  $E = 1/2 mc^2$  )
14. In Felming's left hand rule, the fore finger represents the direction of \_\_\_\_\_  
( magnetic field, current, motion of a conductor, electric field )
15. Eye lens is a \_\_\_\_\_  
( double convex lens, double concave lens, plano convex lens, plano concave lens )

### **SECTION - B**

#### **II. i. Short Answers :**

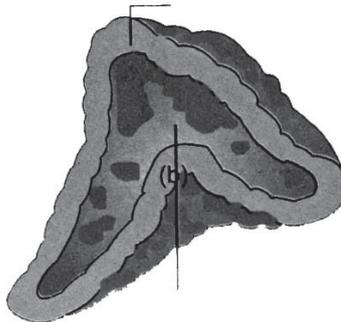
20 x 2 = 40

*ii. Answer any twenty questions.*

16. Match the disease and causative agents.
 

1. Influenza	-	Human rhino virus
2. Common cold	-	$H_1N_1$ virus
3. Tuber culosis	-	Microsporium
4. Ring worm	-	Mycobacterium
17. Correct the answer.
  - (a) The eye colour among the human beings are varied as blue, black, brown and green etc., This is called Inter Specific Variation.
  - (b) The dentition in rabbit and elephant are not the same. This is called as Intra Specific Variation.

18. Copy the diagram and label any two parts.



19. Rahul forgets his answers, lacks intelligence lacks imagination and reasoning after met an accident. Which area affected to him?

20. Fill in the blanks :

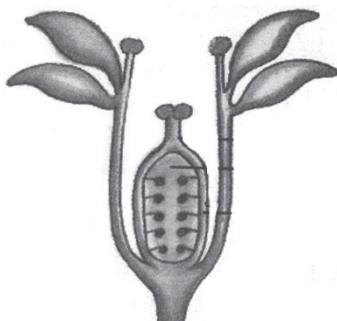
An endocrine gland found in neck is \_\_\_\_\_

(adrenal gland, thyroid gland)

21. This diagram shows the gynoecium of flower Label the following parts.

1. Stigma

2. Ovary



22. Plasma : Fibrinogen

RBC : Carrier of oxygen

WBC : \_\_\_\_\_

23. Mitral valve is found between \_\_\_\_\_

(left auricle and left ventricle, right auricle and right ventricle)

24. Master chemists of our body are kidneys justify.

25. Assertion (A) : Green plants do not possess chloroplasts.

Reason (R) Chloroplasts do not carry out photo synthesis

(a) A is correct R is correct

(b) A is correct R is wrong

(c) A is wrong R is correct

(d) A is wrong R is wrong

26. Which of the following are non-biodegradable?  
(Aluminium cans, Hay, Dry twigs, Animal dung, Plastic waste)
27. To interpret what happens in the given situation Hydrogen is found to be a good choice among the alternative fuel, Why?
28. Spot the error in the given statements  
(a) Primary treatment is used to remove dissolved and suspended biological matter.  
(b) Butane is the Chief component of natural gas.
29. Odd one out  
(a) Bio alcohol, green diesel, bioethers, petroleum  
(b) Cholera, typhoid, scabies, dysentery
30. Take 10g of Common Salt and dissolve it in 40g of the water. Find the concentration of solution in terms of weight percent.
31. From the table given below, furnish your points of inferences

Substance	Solubility at 25°C
NaCl	36g
NaBr	95g

32. From the given examples, form the pair of Isotopes and the pair of Isobars  
 ${}_{18}\text{Ar}^{40}$ ,  ${}_{17}\text{Cl}^{35}$ ,  ${}_{20}\text{Ca}^{40}$ ,  ${}_{17}\text{Cl}^{37}$
33. Why does the colour of Copper Sulphate change when an iron nail is kept in it? Justify your answer.
34. Match the following :
- |                                  |   |   |
|----------------------------------|---|---|
| 1. Displacement reaction         | - | $\text{CaCO}_3 \xrightarrow{\Delta} \text{CaO} + \text{CO}_2$             |
| 2. Double decomposition reaction | - | $\text{H}_2\text{S} + \text{Cl}_2 \longrightarrow 2\text{HCl} + \text{S}$ |
| 3. Decomposition reaction        | - | $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$            |
| 4. Combination reaction          | - | $\text{NaBr} + \text{AgNO}_3 \longrightarrow \text{AgBr} + \text{NaNO}_3$ |

35. Assertion : In thermite welding, aluminium powder and  $\text{Fe}_2\text{O}_3$  are used.  
 (i) Reason : Aluminium powder is a strong reducing agent.  
 Does the reason satisfy the assertion  
 (ii) Name the process employed for the concentration of oxide ore?
36. (i) Any metal mixed with mercury is called amalgam. Name the amalgam used for dental filling?  
 (ii) Name the metal used in the process of galvanisation?
37. Complete the following.
- | Formula                                 | IUPAC name |
|---|------------|
| 1. _____                                | Methane    |
| 2. $\text{CH}_3\text{CH} = \text{CH}_2$ | _____      |
| 3. $\text{HC} \equiv \text{CH}$         | _____      |
| 4. _____                                | ethanol    |
38. Fill in the blanks  
 (a) Force = mass x acceleration, then Momentum = \_\_\_\_\_  
 (b) Liquid hydrogen is for rocket, then \_\_\_\_\_ for MRI
39. Spot the error in the given statements.  
 (a) Two equal and opposite forces whose lines of action coincide are said to constitute a moment in mechanics.  
 (b) One newton is the force that produces an acceleration of  $1\text{ms}^{-2}$  in an object of 1 gram mass.
40. Match the column A with Column B
- | A                     | B        |
|-----------------------|----------|
| 1. Current            | - Volt   |
| 2. Electric potential | - Ohm    |
| 3. Resistance         | - Watt   |
| 4. Electric power     | - Ampere |

41. You are given three resistors of  $10\Omega$ ,  $20\Omega$ ,  $15\Omega$  connected in parallel with a battery of  $2.5V$ , a key, an ammeter and a voltmeter. Draw the circuit diagram showing the correct connections of all the given components.
42. A  $3V$  torch bulb draws a current  $0.6A$ . Calculate the resistance of the bulb when glowing.
43. Fill in the blanks.  
a) For a motor : a permanent magnet, then for a commercial motor : \_\_\_\_\_  
b) Focal length of a lens : meter, then power of a lens : \_\_\_\_\_
44. Assertion : A convex mirrors are commonly used as a rear - view mirrors in vehicle.  
Reason : R convex mirror always gives an real image.  
(Both A and R are correct, A is correct R iswrong, A is wrong R is correct, BothA and R are wrong)
45. Pick the odd and one out :  
a) Myopia, Migrane, Hypermetropia, Presbyopia  
b) Pupil, Iris, Utriculus, Retina

### **SECTION - C**

- Note : (i) Answer any 4 questions by choosing one question from each group.  
(ii) Each question carries five marks.  
(iii) Draw diagram wherever necessary.

$$4 \times 5 = 20$$

### **GROUP - A**

46. One of the most fascinating branches in applied embroyology is stem cell culture.  
(a) What are stem cells.  
(b) Name the two kinds of stem cells.  
(c) Explain the two kinds of stem cells.
47. Kala has delivered a baby.  
(a) Suggest the immunization schedule for the baby in the first six months.  
(b) What are the diseases that can be cured as per the schedule.

**GROUP - B**

48. Describe the structure of dicot seed.
49. Classify the following substances :
- (a) Wood, paper, plastic and grasses.
  - (b) Give detailed account on your classification.

**GROUP - C**

50. (i) Distinguish between atoms and molecules (3)
- (ii) Find the gram molecular mass of carbon di oxide [ where gram atomic mass of (carbon=12 g, oxygen = 16 g) ] (2)
51. (i) Name the enzymes used in the manufacture of ethanol from molasses. (2)
- (ii) What happens when yeast is added to diluted molasses? (2)
- (iii) Write any two evil effects of consuming alcohol. (1)

**GROUP - D**

52. (a) Explain inertia with an example
- (b) Explain Newton's second law of motion with an example.
53. (a) What is an electric motor?
- (b) What is the principle used in an electric motor?
- (c) List the factors that enhances power of a commercial motor.

- - - - -

# X STANDARD

## SCIENCE

### Model Question Paper - 3

Time : 2.30 Hrs.

Marks : 75

#### SECTION - A

**I. Answer all questions :**

15 x 1 = 15

1. Diabetes is treated by the biotechnologically produced \_\_\_\_\_  
( Enzyme, Insulin, Vitamins, Vaccine )
2. Pick out the bacterial disease  
( Brain fever, Rabies, Tetanus, small pox)
3. Which is the female reproductive part of a flower?  
( Calyx, Corolla, Androecium, Gynoecium )
4. In monotropa the special type of root which absorbs nourishment is \_\_\_\_\_  
( Haustoria, Mycorrhizal root, clinging root, Adventitious root)
5. \_\_\_\_\_ green house gas which causes climate change and global warming.  
( Hydrogen, Oxygen, Nitrogen, Carbon-di-oxide )
6. The value of Avogadro Number is \_\_\_\_\_  
(  $6.023 \times 10^{22}$ ,  $6.023 \times 10^{23}$ ,  $6.023 \times 10^{-24}$ ,  $6.023 \times 10^{24}$  )
7.  $\text{pH} + \text{pOH} = 14$  If the value of pOH of a substance is 3, its pH is \_\_\_\_\_  
( 3, 11, 14, 1 )
8. Any metal mixed with mercury is called \_\_\_\_\_  
( Alloy, Solution, Amalgam, Salt )
9. To design the body of the aircraft \_\_\_\_\_ alloys are used.  
( Iron, Gold, Silver, Aluminium )
10. The functional group of carboxylic acid is \_\_\_\_\_  
( -OH, -CHO, -C = O -COOH )

11. The momentum of a truck at rest is \_\_\_\_\_  
( very large, very small, zero, infinity )
12. Fuse wire is made up of an alloy of  
( Lead and tin, lead and copper, tin and iron, zinc and copper )
13. Voltmeter is used to measure \_\_\_\_\_  
( Potential difference, current, magnetic effect, electrical energy )
14. An electric current through a metallic conductor produces \_\_\_\_\_  
( heat, light, magnetic field, mechanical force)
15. Twinkling of stars is due to \_\_\_\_\_  
( Reflection, dispersion, atmospheric refraction, None of the above )

### SECTION - B

#### II. i. Short Answers :

20 x 2 = 40

#### *ii. Answer any twenty questions.*

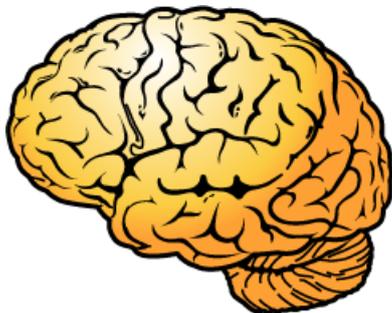
16. Match the following deficiency disease with suitable vitamins.

<b>Vitamins</b>		<b>Deficiency disease</b>
Vitamin A	-	Scurvy
Vitamin B	-	Rickets
Vitamin C	-	Nyctalopia
Vitamin D	-	Beri - Beri

17. Correct the answer.

- (a) Primitive man evolved in Australia.  
(b) Theory of natural selection was proposed by Lamarck.

18. Copy the diagram and label the given two parts A and B.



A. Seat of smell

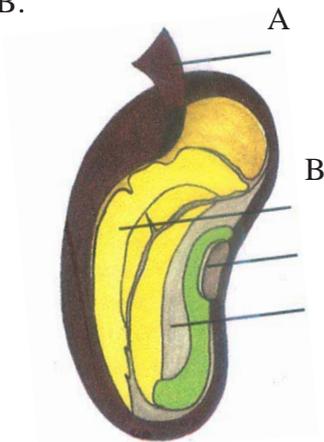
B. Seat of vision

19. Raja's father suffers with diabetic suggest a way to control this problem.

20. Fill in the blanks

The part of the brain which controls emotional reactions in our body is \_\_\_\_\_  
(Thalamus, Hypothalamus)

21. Label the parts A and B.



22. Based on the relationship, fill up. Whale: Baleen plates, Bat : \_\_\_\_\_

23. One of the following groups contains a non mammalian animal. pick up the group.

(a) dolphin, walrus, porcupine, rabbit

(b) Elephant, pig, horse, monkey

(c) deer, cow, buffalo, donkey

(d) dog, cat, crocodile, tiger

24. The blood vessels that carry pure blood from the heart to different parts of the body is \_\_\_\_\_ (Arteries, veins)

25. Assertion (A) : Chemotropism is the movement of plant parts towards the direction of chemicals.

Reason (R) The roots grow towards soil.

(1) A is correct R is not giving correct reasoning.

(2) A is correct R is wrong

(3) A is wrong R is wrong

(4) A is relevant and R is correct.

26. (a) Which one of the following is an autotroph. (Plants, Cat, Lion, Fish)

(b) What are autotrophs?

27. Hydrogen has the highest mass energy content explain.

28. Find the odd one out.

a. Cold, Dengue fever, Brain fever, Cholera.

b. Coal, Petroleum, natural gas, solar energy.

29. Which of the following is made from vegetable oil and animals fats.

Bio alcohol, Bio diesel, Bio gas

30. Match the following

**Solute - solvent**

**Examples**

solid - solid

milk

liquid - liquid

Helium oxygen mixture

Gas - Gas

sugar solutions

solid - liquid

Alloys

31. Solubility of  $\text{KNO}_3$  increases with increase in temperature but the solubility of  $\text{Ca}_\circ$  decreases with increase in temperature. Give reasons.

32. Calculate the number of moles in  $24.092 \times 10^{22}$  molecules of water.

33. Powdered calcium carbonate reacts more readily with hydrochloric acid than marble chips. Give reason.

34. Analyse the table and fill up the blanks

Indicator	Colour in Acid	Colour in Base
Litmus	_____	Red
Phenolphthalein	Colourless	_____

35. Assertion (A) : Greenish layer appears on copper vessels if left uncleaned.

Reason (R) It is due to the formation of a layer of basic copper carbonate.

(i) A and R are correct and relevant to each other.

(ii) A is true but R is not relevant to A.

36. (i) Iron becomes inert when dipped in conc.  $\text{HNO}_3$ . Justify your answer.

(ii) What is the percentage of impurities present in blister copper?

37. An organic compound (A) is widely used as a preservative in pickles and has a molecular formula  $\text{C}_2\text{H}_4\text{O}_2$ . This compound reacts with ethanol to form a sweet smelling compound B)

(i) Identify the compound A and B

(ii) Name the process and write corresponding chemical equations.

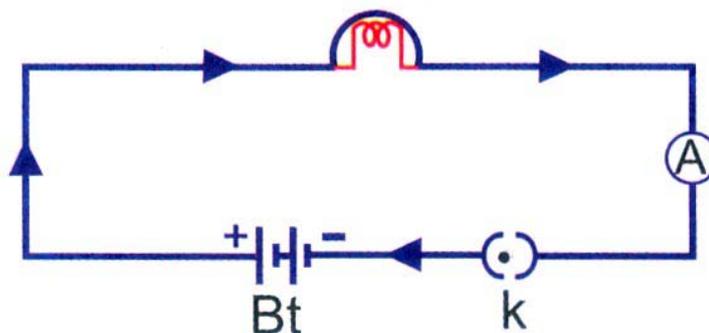
38. Correct the mistakes if any in the following statements.

(a) One newton is the force that produces an acceleration of  $1\text{ms}^{-2}$  in an object of 1 gram mass.

(b) The physical quantity which is equal to the rate of change of momentum is impulse.

39. The important use of cryogenics is cryogenic fuels. What do you mean by cryogenic fuels.

40. An electric circuit is given below copy and label the parts A, K, Bt



41. Three resistances having the values 5, 10, 30 ohms are connected parallel with each other. Calculate the total circuit resistance.

42. Match the column A with Column B

<b>A</b>	<b>B</b>
<b>Energy Sources</b>	<b>Examples</b>
fossil fuel	cow dung
Hydro electric power	Heat
Bio Mass	Coal
Thermal electric power	water

43. We see rainbow in the sky sometimes after the rain.

(a) What is a spectrum.

(b) Write the sequence of colours in a spectrum.

44. Fill in the blanks.

a) If for myopia concave lens, then, what is for hyper metropia \_\_\_\_\_ lens.

b) The focal length of lens is  $f(m)$ . Then the power of the lens is \_\_\_\_\_

45. Assertion (A) In traffic signals, red colour light is used to stop vehicles.

Reason (R) = Because red light is having shorter wave length.

( Both A and R are correct, Both A and R are wrong, A is correct R is wrong, A is wrong R is correct)

### **SECTION - C**

Note : (i) Answer any 4 questions by choosing one question from each group.

(ii) Each question carries five marks.

(iii) Draw diagram wherever necessary.

4 x 5 = 20

**GROUP - A**

46. Human evolution has a record of changes for the past 15 million years.
- (a) Name the different species of mankind in chronological order from primitive to modern man.
  - (b) When were the primitive caves developed.
  - (c) Narrate the life led by early man like hominids.
47. There is a widespread outbreak of malaria in your area?
- (a) Suggest some controlling measures to the local authorities concerned.
  - (b) Pick out the right symptom for malaria  
(Chill and shiver and a rise in temperature / diarrhoea)

**GROUP - B**

48. Compare aggregate fruit with multiple fruit with suitable examples.
49. Somke, smoke, everywhere smoke.
- (a) Do you agree this situation is good for health.
  - (b) List out the harmful effects of coal burning.

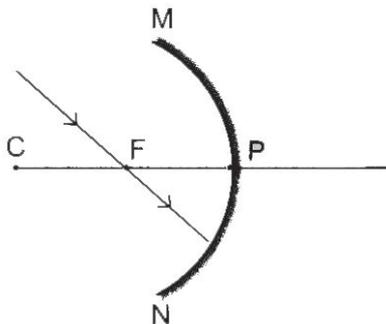
**GROUP - C**

50. (i) Write down any three postulates of modern atomic theory. (3)
- (ii) Write any two applications of Avogadro's Law (2)
51. (i) Homologous series predict the properties of the members of hydrocarbon. Justify, this statement through any three characteristics. (3)
- (ii) Give the IUPAC name of the following (2)
- (a) formaldehyde (b) Acetone

**GROUP - D**

52. (a) Explain Newton's first law of motion with a suitable example.
- (b) Mir and ISS space stations have various issues that limit their long - term habitability. Justify it.

53. The ray diagram shown below is introduced to show how a concave mirror forms an image of an object.



- a. Identify the mistake and draw the correct ray diagram.
  - b. Write the justification for your corrections.
- (ii) Names the parts of human eye considering the following.
- a. Dark muscular diaphragm that control the pupil.
  - b. The screen at where the image is formed by eye lens.

# X STANDARD SCIENCE

## Model Question Paper - 4

Time : 2.30 Hrs.

Marks : 75

### SECTION - A

**I. Answer all questions :**

15 x 1 = 15

1. Theory of natural selection was proposed by \_\_\_\_\_  
( Charles Darwin, Hugo-de-vries,  
Gregor Johann Mendel, Jean Baptise Lamarck )
2. The most serious form of malaria is caused by Plasmodium \_\_\_\_\_  
( P.Ovale, P.Malariae, P.falciparum, P.Vivax )
3. If a water soaked seed is pressed, a small drop of water comes out through \_\_\_\_\_  
( Stomata, Lenticel, micropyle, radicle )
4. The roots of coconut tree are seen away from the plant.  
Such kind of movement of root for want of water is \_\_\_\_\_  
( Phototropism, Geotropism, chemo tropism, Hydrotropism )
5. \_\_\_\_\_ is the chief component of Coal.  
( sulphur, Carbon, Hydrogen, Nitrogen )
6. If carbon disulphide is a solvent in a given solution, then the solution is \_\_\_\_\_  
( Aqueous solution, Non-aqueous solution,  
Standard solution, True solution )
7.  $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2 \uparrow$   
The above reaction is an example of  
( Combination reaction, Double displacement reaction,  
Displacement reaction, Decomposition reaction )
8. A process employed for the concentration of sulphide ore is \_\_\_\_\_  
( Gravity separation, Froth floatation,  
Magnetic separation, Chemical method )

9. Modern periodic law states that the physical and chemical properties of elements are the periodic function of their \_\_\_\_\_  
( atomic weight, mass number, atomic number, neutron number )
10. IUPAC name of first member of alkyne is \_\_\_\_\_  
( methane, methyne, ethene, ethyne )
11. The weight of 50 Kg person at the surface of earth is \_\_\_\_\_  
( 50 N, 35 N, 380 N, 490 N )
12. The potential difference required to pass a current 0.2 A in a wire of resistance 20 ohm is \_\_\_\_\_  
( 100 V, 40 V, 0.1 V, 4V )
13. Fuse is a piece of wire made of an alloy \_\_\_\_\_  
( 63% lead 37% tin, 37% lead 63% tin, 65% lead 35% tin, 35% lead 65% tin )
14. The focal length of a concave lens is 2.m then the power of the lens is \_\_\_\_\_  
( 0.2D, -0.2D, 0.5 D, -0.5D )
15. The magnification produced by a mirror is 1/3, then the type of mirror is \_\_\_\_\_  
( Concave, Convex, Plane, all the above )

### **SECTION - B**

#### **II. i. Short Answers :**

20 x 2 = 40

#### ***ii. Answer any twenty questions.***

16. Match the followings.
- |                      |   |               |
|----------------------|---|---------------|
| a) Garden Pea plant  | - | Dolly         |
| b) Mono hybrid cross | - | Vaccine       |
| c) Edward Jenner     | - | 3 : 1         |
| d) Dr. Ian Wilmut    | - | Pisum sativum |
17. You suspect that your friend is suffering from Amoebic dysentery. What are the questions you will ask your friend to confirm the disease.



22. Spot the error in the given statement and correct it.

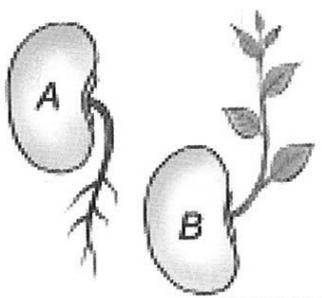
The closure of auriculo ventricular valve of the heart produce “dubb” sound, opening of such valve produce “lubb” sound.

23. Fill up the blanks

a) The heart beat of a normal human is \_\_\_\_\_ times in a minute. (62, 72)

b) \_\_\_\_\_ are the only mammals capable of powered flight. (Bat, Kangaroo)

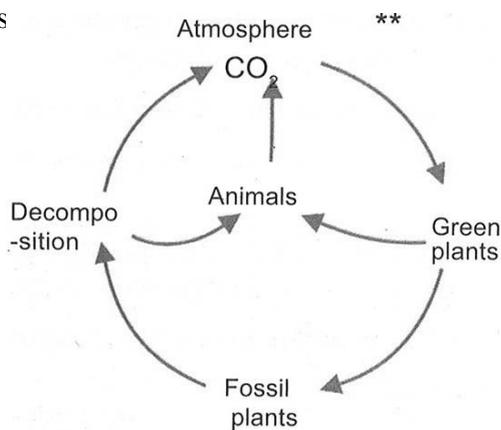
24. Observe the diagram given below.



a) Mention the type of movements shown in figure A and B.

b) How does the movement differ from the movement of mimosa.

25. Answer the followings



a) Name the processes noted as No.1 and 3.

b) Define the process 1.

26. A non renewable resource is a natural resource. If it is replaced by natural process at a rate comparable or faster than its rate of consumption by humans.

Read this statement and confirm whether it is correct, or incorrect. If it is incorrect give correct statement.

27. “Stagnation of waste water from residential house and industries causes variety of communicable diseases”.

Arise questions related to the above statement.

28. a) Which is a non-renewable resource?  
(Coal, petroleum, natural gas, all the above)
- b) \_\_\_\_\_ is the Chief component of natural gas.  
(ethane, methane, propane, butane)
29. In order to transport substances from one part of the body to the other, the circulatory system has evolved.
- a) who discovered the circulation of Blood in man?
- b) How many chambers are there in the human heart?
30. You have prepared a saturated solution of sugar at a given temperature. Is it possible to dissolve some more grams of sugar to this solution at the same temperature. Give reason.
31. Match the solution with examples.
- |                 |   |        |
|-----------------|---|--------|
| Solid in solid  | - | cloud  |
| Solid in gas    | - | Cheese |
| Liquid in gas   | - | Alloys |
| liquid in Solid | - | Smoke  |
32. One mole of any substance contains  $6.023 \times 10^{23}$  particles. If  $3.0115 \times 10^{23}$  particles are present in  $\text{CO}_2$  Find the number of moles.
33. The hydroxyl ion concentration of a solution is  $1.0 \times 10^{-4}\text{M}$ . Find the pH of the solution.
34. Identify the colour of the precipitate :
- a) When aqueous solution of silver nitrate and sodium chloride are mixed.
- b) Name the acid present in curd.
35. "Electrolytic refining method is used to purify copper". – Raise the questions related to the above statement.

36. Give below is the diagram of electrolytic refining of Aluminium. Redraw it and lable the parts given below.

(Graphite rods, Electrolyte, Refined aluminium)

37. Denaturation of ethyl alcohol makes it unfit for drinking purposes. – Reason out.

38. Fill in the blanks.

- a) Force = mass x acceleration then momentum = \_\_\_\_\_
- b) Liquid hydrogen is for rocket, then \_\_\_\_\_ for MRI.

39. Correct the mistakes, if any, in the following statements.

- a) Mass is measured using spring balance and weight is measured using physical balance.
- b) In the absence of external balanced force, mass remains unchanged or conserved during \_\_\_\_\_

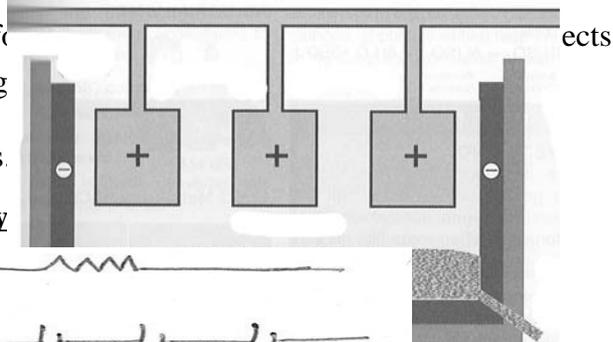
40. Match the components and its symbols.

**Components**

- a) An electrical cell
- b) Closed plug key
- c) A resistor
- d) A battery

**Symbols**

- 
- 
- 
- 

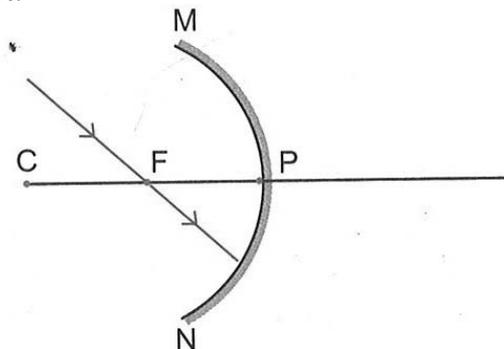


41. Three resistances having the values  $5\Omega$  ,  $10\Omega$  ,  $30\Omega$  are connected parallel with each other. Calculate the total circuit resistance.

42. In volta cell the anode is \_\_\_\_\_ (Iron / Copper) and in Lechlanche cell the cathode is \_\_\_\_\_. (Zinc / Copper)

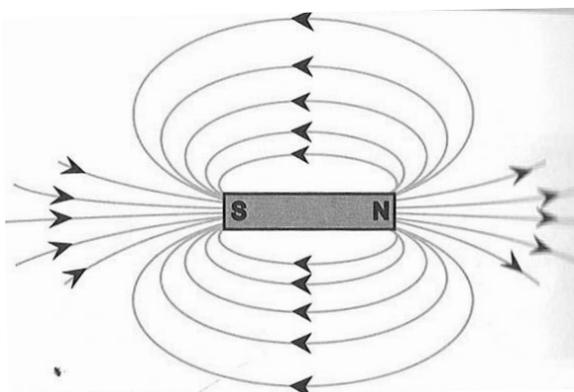
43. In traffic signals Red colour light is used to stop vehicles. Give reason.

44. The ray diagram shown below is introduced to show how a concave mirror forms an image of an object.



- a) identify the mistake and draw the correct ray diagram.  
b) write your justifications for your corrections.

45.



- a) The above diagram represents \_\_\_\_\_  
b) Mention any one property of the above.

### SECTION - C

- Note :
- (i) Answer any 4 questions by choosing one question from each group.
  - (ii) Each question carries five marks.
  - (iii) Draw diagram wherever necessary.

4 x 5 = 20

### GROUP - A

46. a) Write the uses of Bio-sensor and Bio-chips.  
b) Write about science today-Gene therapy.

47. Describe the life cycle of malarial parasite - plasmodium.

**GROUP - B**

48. (a) Fruit is the product of fertilization. Is there any fruit is formed without the act of fertilization.  
b) Represent the classification of fruits in a diagrammatic sketch.
49. a) In your area there is scarcity of water due to this the people are affected. So what are the measures to be taken by you to meet out the scarcity of water.  
b) What is food chain?

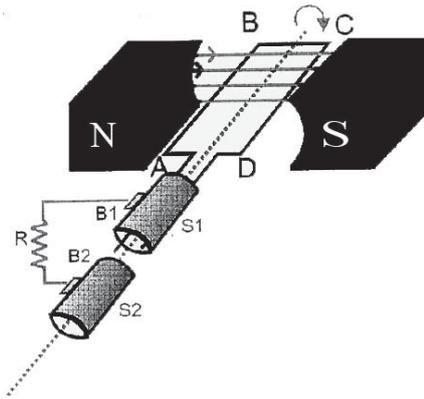
**GROUP - C**

50. a) Define relative Atomic Mass (Based on carbon scale) (2)  
b) Define – Mole (2)  
c) What is the atomicity of oxygen (1)
51. a) What is the Functional group of alcohol? (1)  
b) Write the Esterification reaction. (2)  
c) Write any two uses of Ethanol . (2)

**GROUP - D**

52. a)  $F = \frac{G m_1 m_2}{d^2}$  is the mathematical form of Newtons' law of gravitation.  
Give the statement of Newton's law of gravitation.  
b) Chandrayaan achieved 95% of its planned objectives. Justify it.

53.



- Redraw the above diagram.
- This diagram represents \_\_\_\_\_
- Label the parts of the diagram.
- Write the principles of the name of the device denoted by this diagram.
- Show the method of finding direction of current in this device.