SECONDARY SCIENCE EXAMINATION- 2018

(ANNUAL)

SCIENCE

TOTAL NO. OF QUESTIONS: 68

[TIME: 2 HOURS 30 minutes] **F. M. 80**

Instructions for Candidates:

1. Candidates are required to give their answers in their own words as far as possible.

2. Figures in the right hand margin indicates full marks.

3. While answering the questions Candidate should adhere to the word limit as far as possible.

4. 15 minutes of extra time has been allotted for the candidates to read the questions carefully.

5. This question paper is divided into two sections section A and section B.

6. There are 40 objective type questions which are compulsory each carrying 1 marks .Darken the circle with blue black ball pen against the correct option on the OMR is provided. Do not use wise whitener/ liquid/ blade/nail on OMR paper otherwise result will be invalid

7. In section-B there are 18 short question of each subject. (Under science each carrying 2 Mark as below. Apart from this there are four long type question each carrying four mark. Each question has alternate option.

SECTION – A

Objective Type questions **[40 × 1]**

Select the correct alternative out of following multi choice questions.

1. **Which mirror do the dentist use to use large images of teeth of patient?**

(A) plane mirror **(B) concave mirror**

©convex mirror **(D) all of these**

Ans: concave mirror

2. **Which lens is called diverging lens?**

A) Concave lens **(B) convex lens**

(C)Both concave and convex lens **(D) none of these.**

Ans: concave mirror

3. 3 who controls Pupil size muscles?

(A) Ciliary Muscle **(B) Iris**

(C) Eye lens **(D) retina**

Ans: Iris

4. **Which eye defect can be corrected by using bifocal lens consisting of both concave and convex lens?**

(A) Myopia (B) hypermetropia

©presbyopia (D) cataract

Ans: presbyopia

5. In an experiment the image of an object formed by a concave mirror is obtained on a screen to determine the focal length of the mirror the experimenter needs to measure the distance between the (A) mirror and the screen (B) mirror and object

©both A and B **(D) none of these**

Ans: mirror and the screen

6. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?

(A) A convex lens of focal length 50 cm (B) a concave lens of focal length 50 cm

© Convex lens of focal length 5 cm (D) a concave lens of focal length 5 cm

Ans: convex lens of focal length 5 cm

7. Which of the following is the SI unit of electric potential energy?

(A) Volt **(B) Ohm**

(C) Volte per Columb **(D) Ampere**

Ans: volt

8. At the time of short circuiting the current in the circuit

(A)Reduces the substantially **(B) Does not change**

©Increases heavily **(D) Varies continuously**

Ans: Increases heavily

9. A positively charged particle (Alpha particle) projected towards west is deflected towards north by a magnetic field the direction of the magnetic field is

(A) Towards south **(B) Towards east**

© Downward **(D) upward**

Ans: upward

10. A rectangular coil of copper wire is being rotated in a magnetic field the direction of the induced current in the coil changes once in each

(A) Two revolution **(B) one Revolution**

© Half Revolution **©One fourth revolution**

Ans: half Revolution

11. The magnetic field inside a long straight solenoid carrying current is

(A) Zero **(B) decreases as we move towards its end**

12. What kind of mirror would be most suited for a solar cooker?

(A) plane mirror **(B) convex mirror**

©concave mirror **(D) all of these**

Ans: concave mirror

13. The main aim of Chipko movement was to

(A) Conserve soil **(B) Trees**

©water **(D) electricity**

Ans: Trees

14. Which of the following solution is used for white washing walls?

(A) $CaH(CO_3)_2$ (B) $Ca(OH)_2$

© NaOH (D) $NaH(CO_3)$

Ans: $Ca(OH)_2$

15. Na_2SO_4 (aq) + $BaCl_2$ → $BaSO_4$ (S) + 2NaCl(aq)

The above chemical equation is

(A) Combination reaction (B) decomposition reaction

©double displacement reaction (D) none of these

Ans: double displacement reaction

16. Which of the following is slaked lime?

(A) CaO (B) $Ca(OH)_2$

(C) $CaCO_3$ (D)Ca

Ans: $Ca(OH)_2$

17. PH of aqueous solution of salt $NaCo_3$ is

(A) 7 (B) More than 7

(C) Less than 7 (D) none of these

Ans: More than 7

18. Of which metal the bauxite is an important ore

(A) Copper (B) zinc

(C) aluminium (D)iron

Ans: aluminium

19. Which metal the thin layer is coated over iron and steel to protect them from rusting?

(A) Copper (B) Silver

(c) Gold (D)Zinc

Ans: Zinc

20. Which chemical compound on heating becomes plaster of Paris? Bleaching powder gypsum limestone quicklime?

(A) Bleaching powder **(B) gypsum**

(C)Limestone **(D) quicklime**

Ans: gypsum

21. The functional group present in propanol is

Ans: ©

22. The IUPAC name of Acetic acid is

(A) ethanoic acid **(B) Methanoic acid**

(c) propanone **(D) none of these**

Ans: ethanoic acid

23. In electrolytic refining impure metal is taken as a

(A) Anode **(B) Cathode**

(C) Electrolyte **(D) all of these**

Ans: Anode

24. Who established law of octaves?

(A) Dobereiner **(B) Newlands**

(C) Mendal **(D) Henry Mosely**

Ans: Newlands

25. According to modern periodic law properties of elements are a periodic function of their

(A) atomic mass **(B) atomic number**

(C) Atomic size **(D) atomic volume**

Ans: atomic number

26. Which of the following and can turn red litmus solution?

(A) H^+ **(B) OH^-** **(C) C** **(D) O^{2-}**

Ans: OH^-

27. **The xylem in plant is responsible**

A) For transport of water **(B) transport of food**

(C) Transport of food **(D) transport of oxygen**

Ans: for transport of water

28. Which of the following is known as energy currency of cell?

(A) ADP **(B) ATP** **(C) DTP** **(D) PDP**

Ans: ATP

29. Where does the exchange of gases takes place in leaves?

(A) Vein **(B) stomata**

(C) Mid rib **(D) none of these**

Ans: stomata

30. The blood is pumped from heart to entire body by the

(A) The lungs **(B) Ventricles**

(C) Artria **(D) all of these.**

Ans: Ventricles

31. Which plant hormone is responsible for wilting of leaves?

(A) Auxin **(B) Cytokinin**

(c) Abscisic Acid (D) Gibberllin

Ans: Abscisic Acid

32. Downward growth of root is

(A) Photo phototropism (B) geotropism

(C) Hydrotropism (D) Chemotropism

Ans: geotropism

33. Pons, medulla and cerebellum are parts

(A) Forebrain (B) midbrain

(C)Hindbrain (D) cerebellum

Ans: Hindbrain

34. Which of the following is not an involuntary muscle?

(A) Vomiting (B) Chewing

(C)Salivation (D) Heart Beat

Ans: Chewing

35. Asexual reproduction takes place through budding in

(A) Amoeba (B) Yeast

(C) Plasmodium (D) Leismínia.

Ans: Yeast

36. The formation of sperms takes place in

(A) testis (B) Uterus

(C) Ovary (D) All of these

Ans: testis

37. Which part of a flower becomes fruit?

(A) Anther (B) Stigma

(C) Style (D) ovary

Ans: Ovary

38. The perfect pair of sex chromosomes are found in

(A) Male **(B) female**

(C) Male and female both **(D) none of these**

Ans:female

39. How many pairs of chromosome are found in a normal cell of human body?

(A) 21 **(B) 22**

(C) 23 **(D) 46**

Ans: 23

40. Which of the following groups contain only one biodegradable items?

(A) Grass, flower and leather **(B) brass, wood and plastic**

© Fruits piece cake and Rubber. **(D) Cake, wood and glass**

Ans: cake, wood and glass

SECTION – B

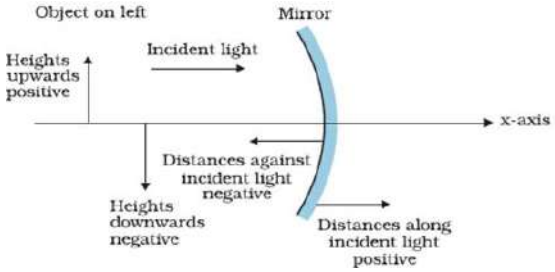
NON OBJECTIVE TYPE QUESTION

PHYSICS

SHORT ANSWER TYPE QUESTION

There are six short answer type questions from question no. 1 to 6.Give answer of any four questions out of 6 short answer type questions.

1. **State the new Cartesian sign convention for reflection by spherical mirror. [2]**



Ans: The Cartesian Sign conventions for spherical mirrors are following:

i) The object is always place to left of the mirror.

ii) All distance parallel to principal Axis (X-Axis are measured from pole of the mirror.

iii)Distance to the left of pole(-ve X Axis) are negative .

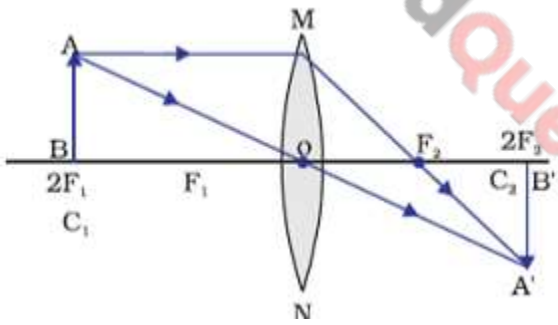
iv) Distance to the right of the polar (+ve X Axis) are positive.

v) Distance measured perpendicular above the principal Axis (along +Y-axis) are taken as positive.

vi) Distance measured perpendicularly below the principal Axis (-Y-axis)are taken as negative

Draw a ray diagram for image of an object placed at the centre of curvature of a convex lens write the nature position and size of the image formed by the lens.

Ans:

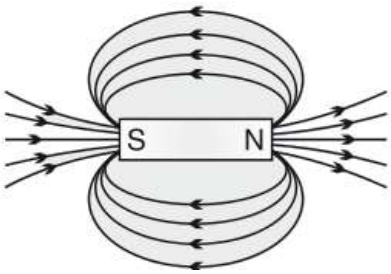


When the object is at center of curvature on the other side of the lens .the imagee formed is real, inverted and of the same sizeof object.

2. Why an ammeter and and a voltmeter are connected in an electrical circuit in series and in parallel respectively? [2]

Ans: An ammeter is a low resistance device so it is always connected in series through which the current is to be measured a voltmeter is a high resistance device so it is always connected in parallel through which the potential difference is to be measured.

a) Draw magnetic field lines around a bar magnet. [1]



MAGNETIC LINES OF FORCE

b) A current through a horizontal transmission by flows in East to West Direction .What is the direction of magnetic field at a point directly below it? [1]

Ans: Using Right Hand Thumb Rule the direction of field at a point above the line with the horizontal and toward the north and the at a point below will be horizontal and toward the south.

5. Two lamps one rated 100 watt at 220 volt and other 60 watt and 220 volt are connected in parallel to electric main supply. What current is drawn from the main line if the supply voltage is 220 volt?[2]

Ans: current drawn from 100w-

$I_1 = P_1/V = 100/220 = 0.4545A$

Current drawn from 60w

$I_2 = P_2/V = 60/220 = 0.2727A$

Current drawn from the main line, $I = I_1 + I_2 = 0.4545 + 0.2727 = 0.727A$

6. What are the disadvantages of fossil fuels? [2]

Ans: a) Pollution is the primary disadvantage advantage of fossil fuels .Burning of fossil fuel can cause greenhouse effect which is harmful to the environment

b).Destruction of wide area of land is another advantage disadvantage of mining physics fossil fuels mining fossil fuels also didn't endanger the lives of animal's people living inside surrounding.

Long answer type questions [1 + 3 + 2]

7. a)State type of defects of vision.

Ans: The following are the the defect of vision related to eye vision.

i) Myopia or short sightedness.-
ii) Hypermetropia or long sightedness.
iii) presbyopia
iv) Astigmatism
v) Cataract.

b) Write these eye defects and their correction in brief.

i) In short sightedness person can see nearby objects clearly but cannot see distant objects clearly the image is formed before retina and not retina. This defect can be corrected by using concave lens of appropriate power.

ii) In long sightedness a person can see distant objects clearly but cannot see nearby objects clearly .A person with this defect has the near point farther away from the normal near point. The image is formed on the retina .The defect can be corrected by using convex lens of appropriate power.

iii) In presbyopia one cannot read comfortably and clearly for oldest people do near. Gradually receipts away this effect can be corrected by using bifocal or very focal length which consists of both convex and concave lens.

iv) In Astigmatisms a person cannot focus objects both in horizontal and vertical lines clearly. This defect can be corrected by using cylindrical lenses for refractive surgery.

v) Cataract is a condition in which crystalline lens of eye becomes milky and cloudy due to growth of membrane over it this it is possible to restore vision for cataract surgery .

c) The far point of a myopic person is 80cm in front of the eye. What is the nature and power of lens required to correct the problem?

Ans: Concave lens is used to correct the problem.

$u = -\infty$

$v = -80$ cm,

$1/-v - 1/-u = 1/f$

$1/-80 + 1/\infty = p$

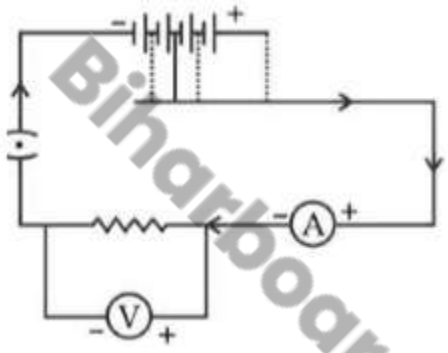
$P = 100/-80$

= -1.25 D

OR

a) Draw a circuit diagram for studying Ohm's law.

Ans:

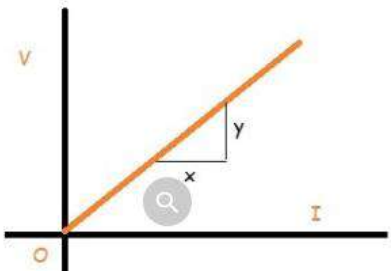


b) State Ohm's law.

Ans: According to this law the electric current flowing through a conductor is directly proportional to the potential difference applied across its and providing the physical condition such as temperature remain unchanged.

c) Draw V-I graph that Verify Ohm's law.State the nature of graph.

Ans:



The graph is found to be a straight line passing through the origin for Ohmic conductors**.**

Chemistry

Short answer type questions:

There are short answer type questions from from question number 8 to 13.Give answer any four question out of 6 short answer type question.

1. **What does one mean by exothermic and endothermic reactions? Give example. [2]**

   Ans: The reactions which are accompanied by the evolution of heat is called exothermic reaction.

   Example: $CH_4(g) + O_2(g) \rightarrow CO_2(g) + 2H_2O(g) + Heat$

   Methane Oxygen Carbon dioxide + water

   The reactions which art which occur buy the absorption of heat at first endothermic reaction

   $2HgO(s) + heat \rightarrow 2Hg(l) + O_2(g)$

   Mercuric Oxide Mercury Oxygen

9) What is a neutralization reaction? Give two examples. [2]

Ans: Acid reacts with bases to produce salt and water. In this reaction an acid neutralizes a base and reduces its effect or bass neutralizes the acid and reduces its effect so this reaction is known as neutralization reaction**.**

10) Give reasons: [2= 1+1]

a) Sodium Potassium and Lithium are stored under oil.

Ans: Sodium and potassium are highly reactive metals and food catch fire by reacting with oxygen in the presence of air so there is stored under oil to prevent their contact with oxygen.

b) Aluminium is a very highly reactive metal yet it is used to make utensils for cooking.

Ans: When Aluminium is exposed to air it reacts with oxygen and forms a white thin layer of Aluminium oxide on its surface. This layer forms protective coating on aluminium and prevents the reaction of aluminium with oxygen. Aluminium metal which this protective layer is used for making cooking utensils .Aluminium is a good conductor of .Aluminium is light and strong metal

11 . Draw the electron dot structure for

a) H_2S

b) F_2

12. Why is conversion of Ethanol to ethanoic acid an Oxidation reaction? [2]

Ans: Since the conversion of Ethanol to ethanoic acid involves the addition of oxygen to ethanol it is an Oxidation reaction.

13. Write the electronic configuration of nitrogen atomic number 7 and phosphorus atomic number 15.Which of these will be more electronegative? [2]

Ans: Electronic configuration of nitrogen atomic number 7= 2, 5

Electronic configuration phosphorus atomic number 15= 2,8,5

BIOLOGY

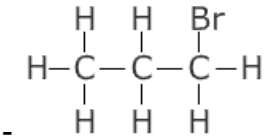
Short answer type questions.

Instructions:

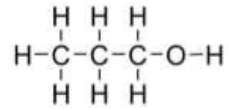
There are short answer type questions from question number 15 to 20 .Give answer any four questions out of six short answer type questions.

14. Draw the structure of following compounds:

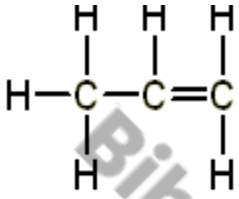
i) bromopropane -



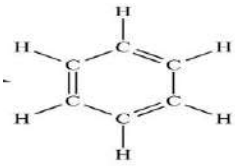
ii)propanol-



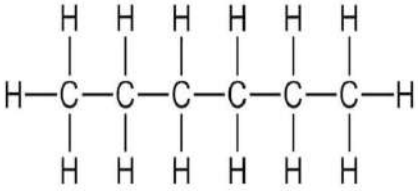
iii) propene



iv)Benzene



vi)hexane



OR

What are the following reaction?

i) combination reaction

Ans: Reaction in which which two or more reactants combine to form a single product is called combination reaction for example

$CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(AQ) + Heat$

ii) decomposition reaction

Calcium carbonate on heating decomposes to give calcium oxide and carbon dioxide oxide

$CaCO_3(s) \rightarrow CaO(s) + CO_{2(g)}$

Iii) Displacement reaction-

When an element displaces other element from its compound it is called displacement reaction.

$Zn(S) + CuSo_4 \rightarrow ZnSO_4 + Cu$

iv) Double displacement reaction

The reaction in which two different ions or group of atoms in the reactants molecules are displaced by each other is called double displacement reaction.It is also called as precipitation reaction in which precipitate is produced .For example on adding sodium sulphate to Barium Chloride curdy white precipitate of Barium sulphate and NaCl are formed.

$Na_2SO_4(aq) + BaCl_2(aq) \rightarrow BaSO_4 + 2NaCl(aq)$

15. What are the difference between aerobic and anaerobic respiration?Name some organisms that use the anaerobic mode of respiration. [2]

Ans: The process in which large amount of energy released in the presence of oxygen from breakdown of process substances aerobic respiration. it can be summarised as given below

Glucose → Pyruvate + Energy → 6 Carbon dioxide + 6water + 38ATP

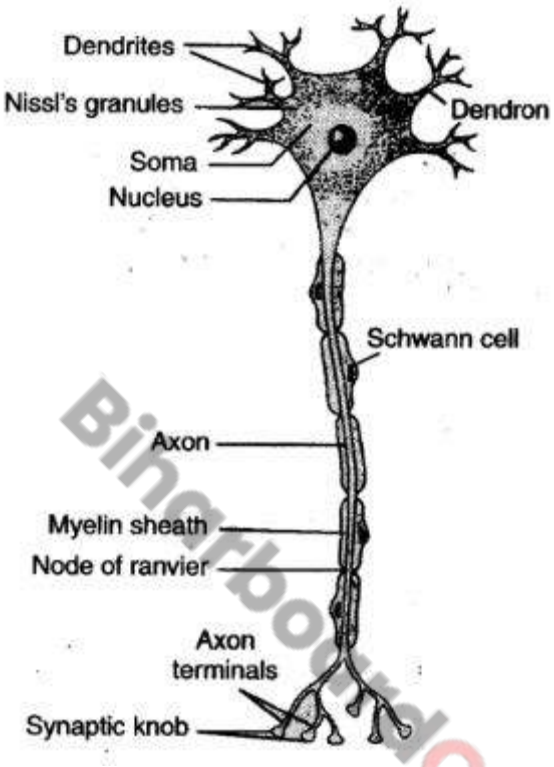
The process in which small amount of energy is released the absence of oxygen from breakdown of food substances is called as anaerobic respiration. IT takes place in yeast, bacteria and in human muscles.

It can be summarized as given below

Glucose → Pyruvate + Energy → 2 ehanol + 2 Carbon dioxide + 2ATP

16. Why does the nervous tissue act? [2]

Ans: Nervous tissue is one of the types of tissue and is a major constituent of nervous system. It consists of cells called neurons. iT is organized into two basic system central nervous system and peripheral nervous system. Nervous tissue is specialized to conduct impulses to various organs in the body which bring about a response to the stimulus.



NEURON

17. Why does menstruation occur? [2]

Ans: In females of human beings if the egg is not fertilized it lives for about a today and afterwards this lining of uterus is no longer required and menstruation occurs. It is a time of uterine bleeding in which an unfertilized egg and uterine lining discharge out of the body through vagina as blood and mucus.

18. What is difference in mode of reproduction between unicellular and multicellular organism? [2]

Ans: The process of Asexual Reproduction takes place in unicellular organism because as it is the simplest type of reproduction for example binary fission in Amoeba and budding in hydra, spore formation in rhizopus .In ulticellular organism having different male and female individual the process of sexual reproduction takes place .It involves fusion of male and female gametes .

19. What are trophic levels give an example of food chain. [2]

Ans: The transfer of food or energy takes place through various steps or or level in the food chain is known as trophic level the producers are at the first tropical level.The herbivore are the second tropical level. Small carnivore are thee third tropic level and large consumers form the fourth tropic level.

Example of food chain

Grass→ Insects → Snake → Hawk

Long answer type questions.

20. Why should we conserve forest and wildlife?

Ans: Forest are need to be conserve because

- They provide Habitat to numerous species of plants and animals .All inhabitants get their food and protection from the forest
- They help in protecting soil from erosion.
- There is a large amount of water which act as a buffer for ecosystem during dry period.
- The leaves of trees absorb carbon dioxide and release oxygen phenomena that is vital for all life on the earth.
- They provide timber to men for various activities.
- They are source of edible fruits and nuts.
- Bark of some trees are used to make for and medicines.
  The depletion of the depleting wildlife all includes animal present in this forest the coaching or killing of wild animals present in forest for commercial purpose it is also an increasing step the animals are killed for their skin tips for brothers terms used in commercial production of many products disturb existing food chain in an ecosystem and their psychological balance.

The depletion of wildlife all includes animal present in this forest the coaching or killing of wild animals present in forest for commercial benefits is also an increasing threat. The animals are killed for their skin teeth, furs, feathers tusks used in commercial production of many product. This practice disturb existing food chain in an ecosystem and their psychological balance**.**

Long essay type question.

21) Explain the modes of reproduction in single organism.

Ans: In unicellular organism reproduction the simplest type of reproduction takes place. This is asexual reproduction. It is a rapid mode of a multiplication. Cell division takes place either mitotically a mitotically .the new individual produced after cell division are genetically identical to parents. It does not involve fusion of gametes. There are different modes of Asexual Reproduction

a)Fission

It is a process of reproduction by which splitting of unicellular organism into two or more than two daughter cells place it is common in bacteria and protozoa.

b) Binary fission-

It is a type of asexual reproduction in which parent organism divides into two identical daughter organism with a definite orientation for example amoeba.

c) Multiple Fission

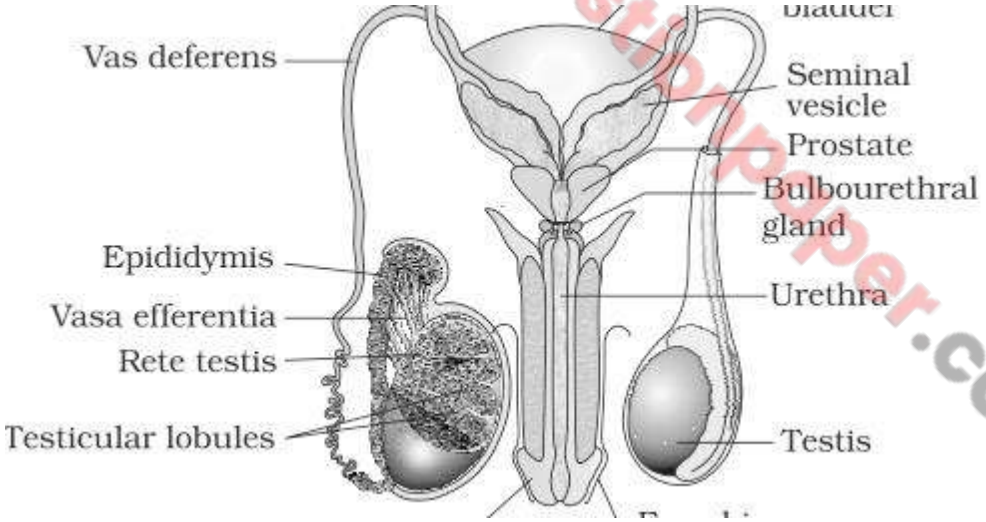
It is a type of Fission in which parent organism divides into many identical daughter organism at the same time for example plasmodium.

d) Fragmentation-

It is a type of asexual reproduction in which the filament breaks into toward smaller fragment of pieces and each fragment subsequent subsequently grows into to a complete new organism for example Spirogyra

OR

Draw level diagram of male reproductive system and explain its function.



Male reproductive system consists of several organs that have two major function the first function is to production of milk is called and the second function is transfer of male gamete to female body the male reproductive organs are there testis accessory clients accessory ducts and external genitalia.

Primary Reproductive organs –

- Testis are primary sex organs of male. They are located outside the abdominal cavity within a sac called scrotum.

- Scrotum keeps the body temperature lower than body temperature which is required for proper functioning of the testis. Testis produce millions of male gamete called spermatozoa by the process of spermatogenesis. The ley dig cells of seminiferous tubules secret males' sex hormone for testosterone which controls the development of male secondary sex characters.

  Secondary sex organs –

- Scrotum keeps the testes temperature lower than body temperature .The lower temperature is required for the proper functioning of testis and for development of sperm.

- Vas difference is a tube like structure that transfers sperm from epididymis to urethra during ejaculation. Vas deferens join with a duct from seminal vesicle to form common ejaculatgort duct.

Urethra is the opening to for both excretory and reproductive system. It receives ducts of prostate and Cowper's gland and passes through to penis. Penis is a ovulatory organ made of special spongy tissue which when filled with blood causes the erection. Accessory glands-

It include the prostate gland, a pair of seminal vesicles. it helps in transporting sperm , forms ,supplies nutrient to sperm, provide an alkaline medium to counteract the acidity of uterus. Secretion of Cowpus gland lubricate the penis.

****