

సాధన 2018-19 Practice Writing

BIOLOGICAL SCIENCE Study Material For SSC Slow Learners

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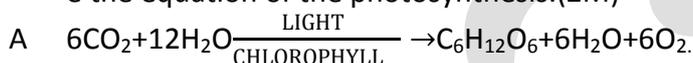
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I. NUTRITION (FOOD SUPPLYING SYSTEM)

- 1 Why do the living organisms take food?(1M)
 A The living organisms take food for growth, repair and maintain the body temperature
- 2 How many types of animals are there according to nutrition? What are they? (1M)
 A There are two types. They are 1. Autotrophs 2. Heterotrophs.
- 3 Write the raw materials for photosynthesis.(1M)
 A CO₂, H₂O, Sunlight and chlorophyll.
- 4 Give examples for autotrophs and heterotrophs.(2M)
 A Examples for autotrophs are green plants and photosynthetic bacteria
 Example for heterotrophs are animals, human beings etc..
- 5 What are the differences between autotrophs and heterotrophs?(2m)

	Autotrophs	Heterotrophs
W r i t e	1.The organisms prepare their food in their ownare not dependents on others	1)The organisms are dependent on other organisms for food.
	2. Green plants and photosynthetic bacteria are called as autotrophs.	2.animals , fungi are called as heterotrophs

e the equation of the photosynthesis.(2M)



- 8 Name the materials used in the experiment to prove presence of starch in leaf(2M)
 A Beaker, leaf, test tube, spirit lamp, water, match box, iodine, dropper, methylated spirit..
- 9 Write the apparatus used in the “experiment to prove carbon dioxide is essential for photosynthesis”(2M)
 A Wide mouth bottle, KOH pellets, potted plant, Vaseline, iodine.
- 11 Draw a neat labled diagram of chloroplast.(2M) A. page no:-10 ,fig no:-8
- 12 What are end products of light reaction?(1M) A. ATP,NADPH,O₂
- 13 What are the differences between light reaction and dark reaction?(2M)

Light reaction	Dark reaction
1.It occurs in grana of chloroplast.	1.It occurs in stroma of chloroplast.
2.End products are O ₂ ,ATP and NADPH	2End product is starch

- 14 How the amoeba takes food?(1m)
 A Amoeba takes food using its pseudopodia.
- 15 Give the examples which contain food vacuole?(1M)
 A Amoeba and paramecium.
- 16 What are the differences between ingestion and digestion?(2M)

Ingestion	Digestion
1.Taking food into body is called ingestion	1. Breaking of complex food material into simple substances by the help of enzymes is called Digestion
2.It occurs in mouth.	2.It occurs in stomach, small intestine.

- 17 What is the role of saliva in digestion?(4M)
 A 1) Saliva makes the food wet and slippery to move easily in food pipe.
 2) Saliva helps in digest the food partially.
 3) It contains ptyalin helps in digestion of carbohydrates to simple ones.
 4) It helps to know the taste of substances by dissolving.
- 18 Draw a flow chart of human digestive system.(4M)

- A FOOD→MOUTH→BUCCAL
CAVITY→PHARYNX→OSOPHAGUS→STOMACH→DUEODENUM→SMALL
INTESTINE→LARGE INTESTINE→RECTUM→ANUS.
- 19 Name the malnutrition diseases?(1M)
- A Kwashiorkor, Marasmus and Obesity are malnutrition diseases.
- 20 How many groups are there in vitamins? What are they? Give examples for each group.(2M)
- A Vitamins are classified into two groups. Those are
1)water soluble vitamins : examples B-Complex and Vitamin-C
2)Fat soluble vitamins: example Vitamin-A, D, E and K
- 21 Fill the following with corresponding deficiency diseases(2M)

Vitamin	Deficiency disease
Vitamin-A	<u>Night blindness, xerophthalmia</u>
Vitamin-C	Scurvy
Vitamin-D	Rickets
Vitamin-K	Delay blood clotting

Objective type questions:

- 1 Photosynthesis equation was proposed by C.B.Van Neil
- 2 Starch is indicated by iodine
- 3 The name oxygen is coined by Lavoisier.
- 4 Carbon dioxide absorbs by potassium hydroxide
- 5 In hydrilla experiment oxygen gas is released.
- 6 Light reaction occurs in Grana.
- 7 Parasitic plant is cuscuta
- 8 Another name for cuscuta dodder
- 9 Enzymless digestic juice is Bile juice.
- 10 Food movement in food pipe is peristaltic movement.
- 11 The beginning ending parts of alimentary canal of man are Mouth and anus.
- 12 The end products of photosynthesis are Starch, O₂.
- 13 Elements present in Chlorophyll and Haemoglobin are Mg (magnesium) and Fe (iron)

2. RESPIRATORY SYSTEM(ENERGY PRODUCING SYSTEM)

- 1 Write the different stages in respiration.
- A Different stages in respiration(2M)
 - 1) breathing
 - 2) gases exchange at lungs level
 - 3) gas transport by blood
 - 4) gases exchange at tissue level
 - 5) Cellular respiration.
- 2 Draw a flowchart showing pathway of air A. page no :28
- 3 write about Epiglottis.(2M)
- A 1) Epiglottis is a flap like muscular valve.
2) It controls movement of air and food towards their respective passages.
- 4 Draw a neat label diagram of alveoli. A. page no 31 fig no:8.
- 5 write a note on haemoglobin. (4M)
- A 1) Haemoglobin is a pigment.
2)It locates on the wall of red blood cells.
3) When oxygen enters in blood it bonds with oxygen and change as oxy haemoglobin.

- 4) It helps in transportation of gases in blood
- 5) Iron present in the middle of haemoglobin.
- 6) It is the reason for the blood is red in colour.

6 Draw a neat labelled diagram of Mitochondria. A. page no 34 fig no 10

7 Define the terms aerobic and anaerobic respiration. (2M)

A The respiration which occurs in the presence of oxygen is called aerobic and the respiration which occurs absence of oxygen is called anaerobic respiration.

8 what are the end products of aerobic and anaerobic respirations. (2M)

A The end products of aerobic respiration are CO_2 , H_2O and energy.(686Kcals). The end products of anaerobic respiration are CO_2 , ethanol and low energy(54Kcals)

9 Write the differences between respiration and combustion.(4M)

Respiration	combustion
1)It occurs in living cells	1)It is not occurs in living cells
2)oxidation of glucose is called respiration	2)Burning of substances in the presence of oxygen n is called combustion
3)It occurs in the presence of water	3)it occurs in the absence of water
4)The energy is released in several stages	4)The energy is released at once as heat

10 Write the respiratory organs in the following animals. (2M)

- a) fish b) man c) frog d) cockroach

A a) Fish-----gills

b) man-----lungs

c) Frog-----Skin and lungs.

d)cockroach-----trachea

11 Write the respiratory organs in the parts of a plant

- a) Roots b) Stem c) Leaf

A a) roots-----surface

b) Stem-----lenticels

c) Leaf-----stomata

12 write the different types of respirations occurs in animals.(2M)

A 1) Pulmonary respiration occurs through lungs in man, mammals, birds and reptiles

2) Cutaneous respiration occurs through skin in frog, earth worm

3) Bronchial respiration occurs through gills in aquatic animal fish

4) Tracheal respiration occurs in insects in cockroach, butterfly, house fly, scorpion

13 What are aerial roots? (1M)

A These are the specialised structures in Mangrove plants for respiration.

14 Write the apparatus used in the experiment to prove "carbon di oxide is released in aerobic respiration". (2M)

A Sprouted seeds, flask, thermometer, wide mouth bottle, lime water, small beaker

Objective type questions:

1. Final utilization of food leads to respiration.(1/2M)
2. The term respiration derived from Respire (Latin word)(1/2M)
3. Respire meaning to breath(1/2M)
4. Lavoisier named the carbon dioxide as fixed air(1/2M)
5. Before name for oxygen is called as respire gas or Vitiated air(1/2M)
6. The lime water turns milky in the presence of carbon dioxide(1/2M)
7. Exhaled air contains carbon dioxide and water vapour(1/2M)
8. In lungs gases exchange occurred in alveolus(1/2M)

A page no : 65 fig no 16

13 Write the experiment done by you to prove root pressure upto Procedure

A Aim :To prove root pressure.

Apparatus: potted plant, glass tube, water.

Procedure: Take potted plant and cut the stem and insert glass tube, pour some water.

Mark the water level.

14 Which blood vessels supply blood to the muscles of the heart? (1M)

A Coronary artery supplies the blood to the muscles of heart.

Objective type questions:

- 1 Transportation methods in unicellular organisms diffusion and osmosis
- 2 Rene Laennec discovered stethoscope.
- 3 Aorta is the largest artery in the body.
- 4 The blood vessel that supplies blood in the muscles of the heart is Coronary Artery.
- 5 Osmosis is the transport system in amoeba
- 6 Heart beat in new born babies is 100-150
- 7 Rene lennec (1816) discovered Stethoscopes.
- 8 There are 4 chambers in the heart.
- 9 The heart is covered by pericardial membrane
- 10 Pulmonary artery supply blood from heart to lungs.

4. EXCRETION (THE WASTAGE DISPOSING SYSTEM)

1 What are the nitrogenous waste products that are formed in Human beings?

A Ammonia, Urea, Uric acid and bile pigments.

2 In our body the right kidney located slightly lower than the left kidney. Why? (1M)

A In our body Right side of the abdominal cavity occupied by Liver that's why right kidney is placed slightly lower than the left kidney

3 Write your observations about kidney that you observe in your laboratory(4M)

A 1) Kidneys are bean shaped and red in colour.

2) Each kidney is convex on the outer side and concave on the inner side.

3) Two portions are there in the kidney (L.S) outer dark colour portion is Cortex pale colour inner portion is called medulla.

4)Each kidney made up of microscopic thin tubular functional units called Nephrons.

4 What are the main parts in Nephron? (1M)

A Each nephron contains two main parts that are i) Malphigian body, ii) Renal tube.

5 What are the place and functions of podocytes? (2M)

A Podocytes are present in Bowman's capsule and helps in filtration of the blood

6 What are the stages that in formation of the Urine.(2M)

A Stages in formation of urine in human beings.

1) Glomerules filtration

2) Tubular re absorption

3) Tubular secretion

4) Concentration of urine.

7 Draw a neat labelled diagram of kidney's longitudinal section. A. page no-: 79, Fig no 5

8 Draw a neat labelled diagram of Nephron. A. page no : 79, fig no :6

9 What is uremia? (2M)

- A If kidneys stop working completely, our body is filled with extra water and waste products. This condition is called as uremia.
- 10 Write accessory excretory organs in Human beings?
- A 1) Lungs 2) Skin 3) Liver 4) Large intestine.
- 11 Prepare a questionnaire to ask a nephrologist to know about dialysis.(4M)
- A 1) When did the dialysis need?
2) How the dialysis going on?
3) What substances present in the dialyzer?
4) Is total blood purifying in the dialysis?
(note:- Teacher should encourage the students to prepare related questions on their own)
- 12 Write down the excretory systems to the given phylum.
Annelid, Arthropoda, mollusc and nematode.
- A Annelid -----Nephridia
Arthropoda -----Molpighian tubes, Green gland
Mollusca -----Metanephridia
Nematode-----Flame cell.
- 13 Read the table given in page no 87 table no:4 and write the answers for the questions given under.(4M)
- a) What is the use of Cocaine? A. pain killer.
b) Which alkaloid is obtained from root? A. Reserpin
c) Which alkaloids are used as sedatives? A. Morphin, cocoin, scopolamine.
d) Which plant gives us insecticides? A. Tobacco, chrysanthemum.
- 14 Separate the primary and secondary metabolites from the below.(2M)
Alkaloids, fats, tannins, proteins, resins, gums, carbohydrates.
- A Primary metabolites Fats, Proteins, Carbohydrates
Secondary metabolites Alkaloids, tannins, gums, resins.
- 15 Separate the secrets and excretions from the below.(2M)
Sweat, saliva, Hormones, tears, urine, enzymes.
- A Secretions Hormones, Saliva, Enzymes
Excretions Sweat, Tears, Urine

Objective type questions:

1. Ammonia is the most poisonous of all nitrogen waste products
2. Inner side of the each kidney has a hilus
3. Structural and functional unit of the kidney is nephron
4. Bowman's capsule and gromerulus together called as Molpighian body
5. Vasopressin hormones helps in reobosbtion of water in nephron.
6. Diabetes insipidus disease occurs in deficiency of vasopressin
7. Total amount of urine excretion in a day is 16-18liters
8. Urea is formed in diminution in liver.
9. Inorganic compounds percentage in urine is 1.5%
10. Tannins occur in acacia as secondary metabolites.
11. Brugmans conducted research on secretion of rats.

5. CO-ORDINATION (THE THINKING SYSTEM)

1 What is a synapse? (1M)

A Synapse is the functional region of contact between two nerves.

2 what is phyto hormones? Give examples(2M)

A hormones present in the plants called phyto hormones

Ex: -Auxins, Gibberellins, Cytokines, Ethylene, Abscisic acid.

3 What is stimulus? (1M)

A Specific functional reaction in an organ or tissue is called stimulus.

4 What is response?

A Response is an effect of a change in the environment of the organism or stimuli.

5 What is phototropism? (1M)

A Bending of a plant shoot towards light is called phototropism.

6 Write the difference between afferent nerves and efferent nerves(2M)

A. **Afferent nerves**

Efferent nerves

1 Afferent nerves are also called as sensory nerves.

1 Efferent nerves are also called as motor nerves.

2 They carry information from the sensory organs to spinal cord and brain.

2 They carry responses from brain or spinal cord to effector organs.

7 If we invite a doctor what doubts you would like to clarify about pancreas? (4M)

A 1) where is pancreas located?

2) Name the disorders occur in pancreas.

3) How it helps in the digestive system?

4) Why it is called as mixed gland?

8 What is reflex arc? Name the components of it. (2M)

A A single pathway going up to the spinal cord from detector and returning to effectors is called a reflex arc. The components are receptors, sensory neuron, association neuron, motor nerve and effector organ.

9 Write the differences between pheromones and hormones (2M)

A **Pheromones**

Hormones

1 These are chemical substances secreted by organisms

1 These are chemical substances secreted by endocrine glands.

2 These are used as signals by the members of the same species

2 Hormones play a vital role in co-ordinating various organ systems.

10 What are the functions of spinal cord?(2M)

A Spinal cord receives information from the spinal nerves sending it to the brain and taking the information from the brain send it to various parts of the body. through motor neurons.

11 Write the parts of brain and mention their function.(4M)

A 1) Fore brain a) control thinking, memory, reasoning emotion responds to cold, heat, pain and pressure etc...

2) Mid brain a) Reflexes for sight and hearing

3) Hind brain a) Maintains posture, equilibrium and muscle tone.

b) Contains centre for cardiac, respiratory and vasomotor activities

12 Write the Endocrine glands and their secretions in our body(4M)

Sl no	Name of the endocrine gland	Secretions
1	Pituitary gland	Growth hormone

2	Thyroid gland	Thyroxin
3	Ovary, Testis	Eastrogen, Teatosterone
4	Adrnal gland	Adrenalin

13 Write the names of phyto hormones and their functions.(4M)

No	Name of the phyto hormone	Functions of hormones
1	Auxins	Cell elongation differentiation of roots shoots
2	Gibberellic acids	Elongation of stem
3	Cytokines	Promote Cell division
4	ethylene	Ripening fruits
5	Abscicic acid	Closing of stomata :seed dormancy

14 What is tropic movements and write different tropic movements(4M)

A Direction and movements in plants in response to specific stimuli like light, chemicals etc.. are called tropic movements

1) Phototropism 2) Geotropism 3) Hydrotropism 4) chemotropism 5) Thigmotropism

15 Draw the diagrams of neuron and reflex arc (2M)

Page no 96(nerve cell) page no 98(reflex arc)

Objective type questions:

1. A Person has loss of control on emotions diencephalon stops its function in brain.
2. Leaf movements in Mimosa helps to protect from grazers
3. Diabetes is related to pancreas gland
4. The scientists who conducted experiments on phototropism are Charles Darwin and Francis Darwin
5. The largest region of the brain is Cerebrum
6. Chemical Co-ordination is brought about by Hormones
7. Mixed gland present in digestion system is pancreas
8. The hormone is in gas form Ethylene.

6. REPRODUCTION (THE GENERATING SYSTEM)

1 What is meant by external fertilization? Give examples.(2m)

A Fusion of gametes occurs outside of the animal is called external fertilization.

Ex; - aquatic animal's fish and frog.

2 what is meant by internal fertilization? Give examples.(2m)

A Fusion of gametes occurs inside of the female body is called external fertilization.

Ex:- mammals

3 How are fungal spores disperse?(1m)

A Fungal spores microscopic unicellular structure, which can be easily dispersed by air currents.

4 Why do fish and frog produce a huge number of eggs each year?(2m)

A These animals lay huge number of eggs and release millions of sperms into the surrounding environment, but all the eggs do not get fertilized and develop into new individuals

5 What would be the consequences if there is no meiosis in organisms that reproduce sexually?(2m)

- A If meiosis not occurs the chromosomes number will be doubled in the formed zygote, the characters of the offspring's are unusual and it may leads to the death of the individual.
- 6 How can we avoid sexually transmitted diseases by adopting simple life style?(2m)
- A Avoid sex with unknown partners .Even though contraceptives are available it is better following ethical and healthy life practices .In case of doubt go to a qualified doctor for early detection and get complete treatment if diagnosed with disease.
- 7 What is parthenogenesis?(2m)
- A In this process generally the female gametes develops into Zygote without fertilization this strange kind of reproduction occurs in bees ants and wasps.
- 8 If you want to grow a single plant having two desirable characters colourful flowers and big fruits, What method do you follow and why?(2m)
- A I will follow the method grafting .Grafting help us to combine the most desirable characteristics of two plants.
- 9 Write differences between grafting and layering?(2m)
- | Grafting | Layering |
|---|--|
| 1 Desired variety is grafted on to another plant. | 1 Roots are formed on a stem of a mother plant and after that the stem is cut-off and planted. |
| 2 This technique is used in plants to get desirable characters. | 2 This technique is used to propagate plants like Jasmine, Strawberry. |
- 10 Write differences between sexual reproduction and asexual reproduction?(4m)
- | Sexual reproduction | Asexual reproduction |
|---|----------------------------------|
| 1)Involves one or two organisms | 1)Involves one organism |
| 2) gametes are formed | 2) gametes are not formed |
| 3) Fusion of gametes taken place | 3)no fusion of gametes |
| 4)require meiotic division followed by mitotic division | 4)Requires only mitotic division |
- 11) Write differences between Mitosis division and Meiosis division?(4m)
- | Mitosis division | Meiosis division |
|--|--|
| 1)Occurs in all cells except reproductive mother cells | 1) Occurs in reproductive mother cells |
| 2) Mother cell divides only once | 2) Mother cell divides twice |
| 3) Chromosomes number is not changed | 3) Half of the chromosomes is reduced |
| 4) Two daughter cells are formed | 4) Four daughter cells are formed. |
- 12 Write about different types of birth controlling methods (4m)
- A Prevention of pregnancy in woman by preventing fertilization is called contraception contraceptive methods are three types.
1. Physical methods : Physical devises such as condoms and diaphragm are used
 2. Chemical methods : chemicals in the form of pills are used.
 3. Surgical methods : use of surgical methods such as Vasectomy for males and tubectomy for females.
- 13 Write about different membranous structure formed during the development of embryo (4M) Concised
- A Certain cells of the embryo develop into membranous structures. They are
- 1)Chorion : During embryo development finger like projections grow from the surface of the outer membrane called chorion into the soft tissues of the uterus

- 2) Placenta : Placenta is formed by the cells of embryo and mother. It is formed at around 12th week
- 3) Amnion : Amnion is another membrane that grows around the embryo. It gives protection to the embryo.
- 4) Allentoin: It originates from the digestive canal of the embryo. It forms Umbilical cord
- 14 Write about floral parts of bisexual flower.(4M)
- A Bisexual flower consists 4 parts.
- A) Calyx: protects the tender parts.
- B) Corolla:-attracted insects for cross pollination
- C) Androecium:- male reproductive parts.
- D) Gynoecium:- Female reproductive parts.
- 15 Draw the labelled diagram of human male reproductive system. A. page no 123
- 16 Draw the labelled diagram of human female reproductive system page no: 124
- 17 Draw the labelled diagram of L.S of flower. A. page no 127
- 18 Draw the labeled diagram of Fertilization A. page no 130

Objective type questions:

- The term we use to describe a sperm cell fusing with an egg cell is Fertilization
- The parts of the male reproductive system produces the sperm cell are somniferous tubules.
- The process the sperm cells break through the egg cell membrane is dissolve the membrane with chemicals
- Foetus connected with the wall of the uterus of the mother by Placenta
- Most essential floral organs required for sexual reproduction are Gynoecium and androeciam
- Endosperm is formed by the function of male gametes Secondary Nucleous
- In stem cutting a slantart is made on the below the node
- In males a small portion of the vas deferens is removed by surgical method is called Vasectomy
- The period between two cell division is called interface
- The upper part in grafting is called scion and lower part is called stock

7. CO-ORDINATION IN LIFE PROCESSES

- 1 What is the result of reverse peristaltic movement?
- A Food move in reverse path .It is called as Vomiting.
- 2 Write the flow charts that shows the path of the signals carrying taste and smell to the brain. (2m) A. page no 149
- 3 Write the aim in the experiment conducted in laboratory related vinegar with piece of chalk (1m).
- A To know the need of breakdown food.
- 4 Write the differences between mastication and rumination.(2m)
- | A | Mastication | Rumination |
|---|---|---|
| 1 | The process of chewing food in the mouth-using teeth and tongue | 1 The process of being of bring back hurriedly chewed food from the rumen by reverse peristalsis and chew the thoroughly and swallowing again |
| 2 | This is taken place in human beings | 2 This is taken in the ruminant animals like cow, buffaloes etc.. |

5 Write the differences between Bolus and chyme(2m)

A

Bolus

chyme

1 Bolus is the mass of food formed as a result of chewing in the mouth

1 Chyme is the semi digested food formed when the bolus is mixed HCl and gastric juice as a result of peristalsis in the stomach

2 Bolus is transported into oesophagus by swallowing with the help of the tongue

2 Chyme is sent in small amounts into duodenum by the opening of the pyloric sphincter.

6 What is the action of amylase in saliva?(1m)

A To break down the large starch molecules' into small subunits.

7 Observe the following flow chart and the answers for the questions given below (4m)

A flow chart page no: 154

8 If not secreted mucus in oesophagus what will happen? (1m)

A Movement of food is difficult in oesophagus.

9 Write the movement hidden in the following diagram (1m) Page no 153 fig no 5

A peristaltic movement.

10 Why do think the stomach is structured like bag rather than tube like oesophagus?(1m)

A To preserve food for some to digest completely that's in some areas look like bag example stomach.

11 Why should a small quantity of food be passed from stomach to duodenum?(1m)

A Because contraction of pyloric sphincter is slow.

12 Why do we feel burning sensation during vomiting in our throat?(1m)

A Because of releasing of HCl along with substances in vomiting.

13 The HCl is most strong to break the bones also in our body. Though it is very strong why our stomach is safe?(2m)

A Because our stomach has mucus lining inside of it, which is helps to slip the acid not to damage the walls of stomach.

14 Why do think small intestine is long and coiled?(1m)

A To increase absorption area in it.

15 How can you justify the enteric nervous system as the second brain of the gut?(4m)

A 1) Alimentary canal has a nerve ring consists complex nerve system and neurons

2) The second brain contains 100 millions neurons.

3) Stimulating and coordinating the breaking down of food, absorbing nutrients

Thus equipped its own reflexes and senses, the second brain can control gut functions often independently of the brain.

Objective type questions:

1. When the glucose levels in blood fall, we get hunger pangs in Stomach

2. The nerve carrying hunger signals is 10th cranial nerve.

3. Japanese some food items taste is Umami

4. The scientist done experiments on conditioned reflex actions in dog actions on is Ivan paulove

5. Nerve controls the movements of Jaws is 5th cranial nerve.

6. Nature of saliva is base nature

7. Volume of saliva secrets in a day is 1 to 1.5 ltrs

8. The system controls the peristaltic movement is involuntary nerve system.

9. Acid releasing in stomach Hydro chloric Acid. Proteins digested in stomach

10. Parts which absorb the nutrients in small intestine are Villus.

11. Which type of life processes, involved in the breakdown of food In the Stomach is Digestion.
12. System, which causes to sends the signals of hunger from nerve system is Circulatory system
13. Leptin hormone suppresses the hunger
14. Type of food movement present in oesophagus of humans is Peristaltic movement.
15. Oesophagus connected parts in alimentary canal in man are pharynx and stomach
16. Food moving in oesophagus is called food bolus.

8. HEREDITY (FROM PARENTS TO PROGENY)

- 1 What are variations?(1m)
 - A Variations are quite apparent among closely related groups of organisms.
 - 2 Write dominant characters identified John Gregar Mendal in garden pea.(4m)
 - A page no :188
 - 3 Why Mendal had chosen garden pea as material for his experiments?(4m)
 - A 1) well defined characters.
2) Bisexual flowers.
3) Predominantly self fertilization.
4) Early hybridization.
 - 4 What do mean by allele?(1m)
 - A Each character or trait is expressed due to a pair of genes. These pair of genes is called allele.
 - 5 Fill the checker board and write pheno type and geno type ratio.(2m)
- | | | |
|------------|----------|----------|
| M/F | T | t |
| T | TT | Tt |
| t | Tt | tt |
- a. Geno type ratio is 1:2:1
 - b. Pheno type ratio is 3:1
- 6 Explain the Law of dominance.(2m)
 - A Mendel propounded that among a pair of closely related alleles or factors for a character, only one expresses itself in the first generation as one of the allele dominant over the other .This is so evident that it came be called as Mendel's Law of Dominance.
 - 7 Write about the Mendel's Law of segregation.(1m)
 - A The offspring then receives its own pair of alleles for that trait one each from both parents. This is what Mendel called Segregation and it is the Law of Segregation.
 - 8 Define the term Heredity.(1m)
 - A The process of Acquiring characters or traits from parents is called Heredity.
 - 9 Male is responsible for sex determination of baby –do you agree? If so Write your answer with flow chart.(4m)
 - A Yes I agree the above statement. Flow chart page no 172
 - 10 Explain the types of chromosomes.(2m)
 - A Chromosomes are two types these are
1)Autosomes : Determine the body characters .No of chromosomes are 22 pairs
2)Allosomes (sex chromosomes.)Responsible for sex determination .No of Chromosomes are 1 pair.

- 11 Explain the term Genetic Drift.(2m)
 A Characters as we know are governed by genes .Thus there is change in the frequency of genes in small population .This is known as Genetic drift.
- 12 Why the acquired and inherited characters cannot passed on to its progeny?(2m)
 A Change in non reproductive tissue cannot be passed on to the DNA of the germ. Therefore the experiences of an individual during its lifetime cannot passed on to its progeny.
- 13 What is inheritance of acquired characters?(2m)
 A According to the Lamarckism some characters that are developed during the lifetime of an organism are called acquired characters. These characters passed on to its offspring's are proposed the theory of is inheritance of acquired characters.
- 14 Write the book of Darwin.(1m)
 A Origin of species.
- 15 Explain the Malthus theory. (2m)
 A According to the Malthus theory population grow in geometrical progression (1,2,4,8,16,...) where as food sources increase in arithmetic progression(1,2,3,4,5,...)
- 16 What is the meaning of 'survival of the fittest.'?(1m)
 A In this struggle for existence only the fittest can survive.
- 17 Write the important points in Darwin's law (4m)
 A 1) Any group of population of an organism develops variations and all members of group are not identical.
 2) Variations are passed from parent to offspring through heredity.
 3) The natural selection over abundance of offspring leads to a constant struggle for their survival in any population.
 4) Individuals with variations that help them to survive reproduce tend to live.
- 18 How the macro evolution differentiate the micro evolution?(2m)
 A The small changes within the species is known as micro evolution. Formation of new species is called macro evolution.
- 19 Write the differences between homologous and analogous organs.(4m)
 A
- | Homologous | Analogous |
|--|---|
| 1 They show common pattern in arrangements and functions are different. | 1 Their organs Which are structurally different but functionally similar. |
| 2 Example: fore limb of Wale(swimmer),Wing of bat(flyer),leg of cheetah(runner) and hand of man (grasping) | 2 Example: wings of bird and wings of bat, two wings. |
| 3 It leads to divergent evolution | 3 It leads to convergent evolution. |
- 20 What is embryology?(1m)
 A Embryology is study of the development of an organism from egg to adult stage.
- 21 Define the term fossils.(1m)
 A Fossils are evidences of ancient life forms or ancient habitats which have been preserved by natural processes.
- 22 Write about ketosaurs fossils.(4m)
 A: 1) A rare and magnificent fossil of the dinosaurs.
 2) It belonging the lower Jurassic age going back to about 160 millions.
 3) Collected from Yamanapalli in Adilabad district of Telangana.
 4) This fossil has 14 meters length and 5 meters height.

- 23 Why the human being called as moving museum of vestigial organs?(2m)
 A There are nearly 180 vestigial organs in human beings. For example pinna, hair on skin, mammary glands in humans etc.. .That's why human being is said to be a moving museum of vestigial organs.

Objective type questions:

1. Father of genetics is Gregar Johann Mendel.
2. Mendel worked on nearly 10,000 pea plants of 34 different varieties.
3. Mendel had chosen 7 pairs of contrasting characters.
4. Theory of evolution is proposed by John Baptist Lamarck
5. scientist proved the' inheritance of acquired characters is wrong' August Weismann
6. The theory of Natural selection is proposed by Charles Darwin.
7. Darwin travelled in the ship of HMS Beagle.
8. Darwin observed variations in Finch birds in Galapagos Islands
9. Darwin proposed the theory of natural selection
10. Alfred Russel Wallace supported the theory of natural selection.
11. The study about fossils is called palaeontology.
12. The age of fossils is determined by using Carbon Dating method
13. Using chemicals in carbon dating method are Carbon, Uranium and Potassium.
14. Human being scientific name is Homo sapiens.

9. OUR ENVIRONMENT (OUR CONCERN)

- 1 What is biosphere? (1M)
 A The world of living things is called Biosphere.
- 2 Write the factors in our Environment, and give examples to each one(2M)
 A Factors in Environments are two Those are
 1) Abiotic factors (physical factors) Examples: - land, air, water sun light etc...
 2) Biotic factors (biological factors) Examples: -animals, plants and microbes
- 3 What does the term Nitch denotes?(2M)
 A The term "nitch" denotes
 1) The animals position in the food web, 2) what it eats and3) its mode of life.
- 4 write the steps present in food chain. (2M)
 A steps in food chain 1) producers 2) primary consumers,3) secondary consumers,
 4) Tertiary consumers.
- 5 Write a food chain using the following living things.
 a) Rabbit b) fox c) grass d) tiger. : Grass---→rabbit-----→fox-----→tiger
 a) Frog b) snake c) grass d) grass hopper : Grass----→grass hopper-----→frog----→snake
- 6 what is food chain? (1M)
 A This shows that how energy passed from one organism to another in the form of food.
- 7 what is food web? (1M)
 A A network of food chains which are interconnected at various tropic levels.
- 8 What is ecological pyramid? (2M)
 A The graphic presentation of feeding level(tropic level)of an ecosystem by taking the shape of pyramid is called "Ecological pyramid"
- 9 How many types are there in ecological pyramids and what are they?(2M)
 A There are 3 Ecological pyramids

- Those are 1) pyramid of Number, 2) Pyramid of Biomass, 3) Pyramid of Energy
- 10 what is biomass and bio fuels?
 A Biomass is the organic material of biological origin that is ultimately derived from the fixation of carbon dioxide by trapping solar energy during photosynthesis. When these material are used for energy production. They are called bio fuels.
- 11 Draw a diagram of Pyramid of Number (2M) A. page no:-196 fig no:-4
 12 Draw a diagram of Pyramid of Biomass (2M) A. page no:-199 fig no:-6
 13 What is Bio-accumulation? (1M)
 A Entering of pollutants in the food chain and their accumulation.
 14 What is Bio-magnification? (1M)
 A The tendency of pollutants to concentrate as they move from one trophic level to the next is known as Bio magnification.
 15 Suggest any four eco-friendly methods for prevention of soil in view of avoiding pesticides. (2M)
 A 1) Rotation of crops, 2) Biological pest control, 3) Development of genetic resistant strains.

Objective type questions:

1. Maximum steps in food chain are 3 or 4
- 8 Food web is better than food chain to understand food relations among living organisms.
2. Ecological pyramids proposed by Charles Elton
3. Expansion of BOD is Biological Oxygen Demand

10. NATURAL RESOURCES

- 1 What is sustainable development?(2m)
 A Development and conservation can coexist in harmony. When we use the environment in ways that ensure we have resources for the future, it is called sustainable development.
- 2 What is Biodiversity?(1m)
 A Biodiversity is the variety of living that populates the Earth.
- 3 What are percolation tanks? (2m)
 A Percolation tanks are normally earthen dams with masonry structures where water may overflow and percolate into the soil.
- 4 What is Micro –irrigation?(2m)
 A Micro-irrigation is an irrigation method that saves water and fertilizers by allowing water to drip slowly to the roots of plants either on the soil surface or directly onto the root zone through net work of valves, pipes ,tubing. Etc
- 5 Give an example of Bio-fuels.(1m)
 A Seeds from Jatropacurcas plant are used for the production of Bio-fuel.
- 6 Write two impacts of deforestation (2m).
 A 1) Deforestation destroys wild life.
 2) Deforestation is the cause for global warming.
- 7 Name the natural resources .How many types are there?(4m)
 A The earth’s Natural resources included air, water, soil, minerals, fuels, plants and animals
 These are two types
 A) Renewable resources: These can be replaced after they are used. Eg: Air, water.
 B) Non-renewable resources: These resources can’t be replaced once they are used .Eg : fossil fuels.

8) Write some slogans to create awareness on "Water conservation" (4m)

A: save water- save future

Don't waste water – To become greater.

Save every drop of water- for our youngsters.

Water is life – That will be life.

9 Write about the three 3R's that can save environment.(4m)

A The person who wants to save the environment should know the following.

1) Reduce : We can save energy resources , by repairing leaky taps and avoiding a shower or switching off unnecessary lights and fans.

2) Reuse : The things like paper and wrapping papers that often tend to throw away must be reused. This would save plants and minimise the pollution.

3) Recycle : It is important one. We can recycle the thrown away material so that they can be reutilized. Mainly plastic will be recycled. But it should be done properly. We have to save the environment by taking these into consideration.

10 What are the benefits of Water Harvesting?(4m)

A 1) Water harvesting provides self sufficiency to water supply.

2) Water harvesting conserves valuable ground water.

3) Water harvesting reduce cost of pumping ground water.

4) Water harvesting reduces local flooding and drainage problems.

11. Draw a pie diagram to show the water sources and area under irrigation in our state.(4m)

A page no; 221 fig no 6

12. Draw a pie diagram showing percentage consumption of some resources in India.(4m)

A page no 225 fig no 8

Objective type questions:

1.  Symbol denotes 3R's

2.  Symbol denotes Sustainable development

3. IUCN stands for the International Union for the Conservation of Nature

4. Jatropha is used for production of bio fuel

5. Biodiversity is important for more than just food and for medicines also.

6. Example for non renewable resource is Fossil fuel