

Practice Paper–I
(Solved)
Subject : Biology (044)
(Theory)
Class : XII
Session-2018-19

Time : 3 Hrs.]

[MM : 70

General Instructions :

- (i) All Questions are compulsory.
- (ii) The question paper is consist of A, B, C and D Sections. Section ‘A’ Questions has of 1 mark each, Section ‘B’ has of 5 Questions of 2 marks each, Section ‘C’ has 12 Questions of 3 marks each, Section ‘D’ has 3 questions each of 5 marks.
- (iii) There is no over all choice. However, an internal choice is given in 1 Question of 2 marks, one question of 3 marks and in all 3 questions of 5 marks. Students have to attempt only one question from such alternative questions.
- (iv) Whenever necessary or asked the diagrams should be neat and clean and well labelled.
- (v) Write answers of all parts of a question together and clearly indicate section, question no, and its parts while answering.

Section A

1. In classification of animals cats and dogs are kept in separate families. Name family of (a) cats (b) dogs.

2. Name the structures formed by (a) ovule (b) ovary after fertilization in a flower.
3. How will you identify the stomata of a monocot and a dicot leaf.
4. What are two components of nucleoside.
5. When a flower is called (a) monoecious (b) actinomorphic.

Section B

6. Name the phylum having largest number of animals. Name are major category of animals it has. Write any two special morphological features of animals of this phylum.
7. What are lichens? Write name and functions of two components of lichens.
8. How many pair of legs are in a cockroach? Name the part of thorax from each pair of leg arise.
9. Draw well labeled diagram of funaria showing its gametophyte and saprophyte.
10. What is stele? What are its components?

OR

What is tendons and ligaments? Write their functions.

11. What is blood plasma. Write its composition.
12. Why is pancreas called a composite or dual gland? Explain briefly.

Section C

13. Write two special features of calyx, Androecium and Gynoecium as indicated in following floral formula. $\oplus K_{2+2} C_4 A_{2+4} \underline{G}_{(2)}$.
14. Write any three anatomical differences in monocot and dicot leaves.
15. Write fall forms of RER and SER. Write their locations and functions.
16. Define the term activation energy. What happens to this activation energy when an enzyme is used in a biochemical reaction ? Show this difference in the activation enzyme by a labelled diagram.

17. Write six main differences in mitosis and meiosis.
18. Define the term chlorosis and Necrosis of leaves. And write the causes of there.
19. Write role of plant hormones-Auxins, ethylene and abscisic acid.
20. Define the term uniport, antiport and symport during a facilitated diffusion. Show these processes by a labeled diagram.

OR

Define the term growth. Write the name of two different pattern of growth rate and show these by the labeled diagrams.

21. Name the part of endocrine system that commands pituitary gland. Where is this part located? Write name and function of two lobes of pituitary gland in human endocrine system.
22. Where does small intestine exist in human digestive system. Write name and role of three different parts of small intestine.
23. (i) What components are formed when haemoglobin combines with (a) O_2 (b) CO_2
(ii) What % of (a) O_2 and (b) CO_2 it transported by RBC of blood.
(iii) What % of respiratory gases (a) O_2 and (b) CO_2 is transported by blood plasma in dissolved form?
24. What do you mean by Renal failure? What is kidney transportation? What necessary precautions are taken for successful kidney transplantation??

Section D

25. What is a light harvesting complex? Show it by labelled diagram. What is light reaction? Where does it takes place? What are end products of light reaction?

OR

What is aerobic respiration? Where does it take place? Write two crucial events that take place in aerobic respiration. Only by labeled flow diagram explain the Krebs' cycle. (TCA cycle).

Section E

26. What is mitosis? Where does it take place? What is its importance in body of organisms. Why is mitosis called an equational cell division? Write all events (only names) in sequence that take place during mitosis. Show these events by labelled diagram.

OR

Name two autonomous body of a cell. Explain the structure and function of any one autonomous body along with labelled diagram.

27. What do you mean by reflex action and reflex Arch? Give one example of reflex action. Show the mechanism of reflex action along with labelled diagram.

OR

What is adrenal gland? Where it is located? Show its external and internal structure by diagram. Name two different regions of adrenal gland. Write name and function or hormone secreted by these regions of adrenal gland.

ANSWER OF PRACTICE TEST PAPER-I
Subject : Biology (044) (Theory)
(Solved)

Class : XI

(Session-2017-18)

Time : 3 Hrs.

MM : 70

Section A

1. (a) Falidae (b) Canidae
2. Seed is formed from ovule and fruit is formed from ovary after fertilization in a flower.
3. On the basis of shape of guard cell. In stomata of monocot leaf guard cells are dumbbell shaped and in dicot leaf guard cells are bean shaped.
4. Components of nucleoside are a pentose sugar (Ribose or Deoxyribose Sugar) and a Nitrogen base (a purine or a pyrimidine)
 - (a) When a flower has both male and female part
 - (b) When flower is radially symmetric.

Section B

6. Lichens are symbiotic association of algae and fungi.
Components of Lichens-
 - (i) Phycobiont-Algal component-It carries out Photosynthesis.
 - (ii) Mycobiont: Fungal component : It provide shelter and absorbs water and minerals.
7. Arthropoda, Insects.
Two main features of arthropods: (any two)
 - (i) Jointed legs (ii) Compound eyes
 - (iii) Exoskeleton made of chitin
 - (iv) Body divided into head neck and thorax

8. A cockroach has 3 pairs of legs:
Ist pair from prothorax,
2nd pair from mesothorax and
3rd pair from metathorax
9. Labelled diagram of funaria refer to fig. No. 3.2 on page 34 of NCERT Book of Biology XI class.
10. The region inside the endodermis of plants called stele. All the tissues inter side of endodermis of root constitute stele.

OR

Tendons and ligaments are (dense regular) connective tissues. Tendons connect skeletal muscles to bones. White ligaments connect bones to another bones.

11. Blood Plasma: The fluid matrix of blood is called plasma. It is straw coloured viscous fluid that constitute about 55% of total blood volume. It has 90-92% of water, 6 to 8% soluble proteins such as fibrinogens, albumin, globulin and some clotting factors. It also contains some amount of minerals, glucose, amino acids, lipids, and hormones. Etc. (Refer to content 18.1.1 page 278 NCERT Book)
12. Pancreas is called a dual or a composite gland. Because it acts as exocrine gland and endocrine gland both. Exocrine part secretes pancreatic juice containing different digestive enzymes transported through pancreatic ducts. α -cells produce glucagon and β -cells produce insulin which are directly poured into blood.

Section C

13. Given floral formula $K_{2+2} C_4 A_{2+4} \underline{G}_{(2)}$
K-represents calyx, A-represents androecium and G represents gynoecium.

Special features of calyx : (K_{2+2}):

1. Total sepals are $4(2+2)$ in two rings
2. Sepals are free polysepalous.

Special features of Androecium (A_{2+4})

1. Total numbers of stamens are six ($6 = 2 + 4$) in two bundles (diadelphous condition)

2. Stamens are free form each.

Special feature of gynoecium:

1. Number of carpels are two and ovary superior.

2. Ovaries/carpels are fused (syncarpous)

14. Anatomical differences between monocot and dicot leaves. (Any three)

Monocot leaf	Knot Leaf
It lacks palisade parenchyma below the upper epidermis	It has palisade parenchyma (pillar like cells) below the upper epidermis
Vascular bundles are not surrounded by thick walled bundle sheath cell in it.	Vascular bundles are surrounded by thick walled bundle sheath cells in it.
In stomata guard cell are dumb-bell shaped.	In stomata guard cells are bean shaped.
Leaf has parallel venation.	Leaf has reticulate venation.
Stomata are present abundently in both upper and lower epidemics.	Stomata are present mainly in lower epidermis and very few in upper epidermis.
Leaf may have bulliform cells near midrib on upper surface.	Bulliform cells are absent in dieot leaf.

15. SER – Smooth endoplasmic reticulum.

RER – Rough endoplasmic reticulum.

Functions of SER and RER:

SET-These donot have ribosomes on their surface and hence these are smooth. These synthesise transport lipids within the cell.

RER-These have Ribosomes on their surface and hence are rough. These synthesize and transport proteins within the cell.

16. **Activation energy:** During metabolic reactions within a cell every substrate is converted into product. Each substrate has/possesses certain amount of energy called its 'Potential energy'. But to get converted into a product it needs more energy substrate into product or the difference of total energy required by a substrate to get converted into product and its potential is called activation energy.

(Diagram-refer to fig. no. 9.6 at page 156 of NCERT Book)

17. Difference between mitosis and meiosis

Mitosis	Meiosis
1. It occurs in somatic cells.	1. It occurs in cells of gonads (ovary and testes)
2. It is completed in one cycle.	2. It is completed in two cycles 'Mitosis I' and 'meiosis II'.
3. Two daughter cells are produced from one cell.	3. Four male gametes or two female gametes (sex cells) are produced from one cell.
4. It causes growth and repair of damaged tissues in body.	4. It causes formation of gametes.
5. New somatic cells formed are diploid.	5. New cells (gametes) formed are haploid.
6. It is called equational cell division.	6. It is called reductional cell division.

18. **Chlorosis:** It is a process of loss of chlorophyll leading to yellowing in leaves.

Causes: It is caused due to deficiency of N, K, Mg, S, Fe, Mn and Mo.

Necrosis: The death of tissue particularly leaf tissue is called Necrosis.

Causes: Deficiency of Ca, Mg, Le and K and lack of low level of N, K, S and MO.

19. **Role of plant Hormones:**

(1) **Role of Auxins:** Auxins are plant growth promoters these promote flowering, roots in stem cutting, and apical dominance.

(2) **Role of Ethylene:** It is a gaseous plant hormone: It promotes senescence of leaves, ripening of fruits. It breaks seed dormancy and promotes seed germination.

(3) **Role of Abscise Hormone:** It is growth inhibitor. It promotes dormancy in seeds and buds, closing of stomata, it promotes tolerance in plants to various kinds of stresses.

20. (i) **Uniport:** During a facilitated diffusion movement of only one kind of molecules only in one direction across the membrane through a transport protein is called uniport.

(ii) The transport of two different kind of molecules in opposite directions across the membrane through a transport protein is called antiport.

(iii) The transport of two different type of molecules together in same direction across the membrane by a transport protein is called symport.

(Diagram refer to fig. No. 11.2 at page No. 177 of NCERT Book)

Or

Growth: It is defined as irreversible permanent increase in size of a cell, organ, cell or in an organism is called growth. Growth is measurable. Ex. Expansion of leaf in size, and increase in length of plants.

Patterns of Growth: These are two different pattern of growth of growth rate: (a) Arithmetic pattern of growth and (b) Geometric pattern of Growth. linear growth and sigmoid growth.

(Diagram refer to fig. no 15.4 a & b at p. 242 or fig no. 15.5 and 15.6 at page no. 243)

21. Hypothalamus it is situated/present below the fore brain/at the base of fore brain.

Lobes of pituitary gland & their function: There are two lobes of pituitary gland:

(i) **Anterior lobe (Adenohypophysis):** It produces growth hormones and tropical hormones such as TSH, ACTH, LH, FSH etc.

(ii) **Posterior lobe (Neurohypophysis):** This lobe produces no any hormones. It stores only two hormones oxytocin and vasopressin secreted by hypothalamus.

22. Small intestine is present in Abdomen. It exist between the stomach and large intensive in human digestive system following are the parts of small intestine and their role:

(a) **Duodemen:** It is a c-shaped first part of small intestine in connected to stomach through pyrolic appertune and sphincter.

(b) **Functions:** It receive chime from stomach, bile juice and pancreatic juice through hepato pancreatic duct. It also produces dicarbonateion to convert acidic chime into slightly basic chime Digestion of food by pamereatic enzymes starts here.

(b) **Jejunum:** It is the middle port of small tentative. It secretes succus entericus that contain many digestive enzymes and final digestion of all food components taken place here.

(c) **Ileum:** It is highly coiled and last part of small intestine. It has villi on its inner side which increase absorptive surface. The main function of ileum to absorb all the digested food.

23. (i) (a) Haemoglobin (b) Carbamino haemoglobin



(ii) (a) 97% of O₂ (b) 20-25% of CO₂

(iii) (a) 3% of O₂ (b) 7% of CO₂

24. **Renal failure:** the failure of kidney to filter blood for removal of Nitrogenous wastes in the form of urine is called renal failure.

Kidney transplantation: Kidney transplantation is the ultimate method for correction/treatment of acute renal failure. In kidney transplantation both the damaged kidneys are surgically removed and a functional kidney from adonor preferably from close relative is taken and transplanted in the body or patient.

Precautions for successful transplantation of kidney:

1. Kidney should be taken from a healthy person preferably from close relative.

2. Matching of blood group and other factors should be done carefully before kidney transplantation.

3. The person/patient has to take certain prescribed medicines throughout life to suppress immune system.

Section D

25. **Light harnessing complex:** (LHC) The various type of pigments such as chlorophyll a, b, c, xanthophyll, carotinoids present in leaf and can absorb light constitute light harvesting complex. These are present within photo system I & photos system II.

All the pigments other than chlorophyll 'a' present in light harvesting system are called antennae molecules make photo systems more efficient by absorbing light of different wave length. The chlorophyll 'a' molecule forms the reaction centre.

(Diagram – Refer to fig. No. 13.4 only age 211 of NCERT Back)

Light Reaction: Light reaction is the 1st step in photosynthesis. It occurs in presence of sunlight light reaction takes place in granna of chloroplast in leaves and other green parts of plants.

Light reaction is a photochemical phase of photosynthesis in which absorption of solar light and splitting of water by solar light takes place. (Photolysis of water)

The end products of light reaction are release of O_2 H^+ ions, ATP, and NADP etc.

Or

Aerobic respiration: The respiration which takes place in presence of O_2 is called aerobic respiration Aerobic respiration take place in Mitochondria. In this process the pyruvic acid from cytoplasm enters into mitochondria. The crucial events that take place in aerobic respiration are:

(i) The complete oxidation of pyruvate molecules by the step wise removal of all H atoms leaving/releasing three molecuers of CO_2 .

(ii) The passing on of electrons removed as a part of hydrogen atoms to molecular O_2 of form water with simultaneous synthesis of ATP.

(Kreb's cycle/TCA cycle only flow diagram) Refer to fig. No. 14.3 on page No. 232 on NCERT Book)

26. **Mitosis:** Mitosis is cell division in which a mature cell produces two new cells similar to parent cell in all respect. Mitosis takes place in all somatic cells (body cells)

It is essented for growth of body and repair of damaged tissues in body. Mitosis is called an equational cell division because no of chromosomes in dauther cells are same as in parent cell. Events that takes place during mitoses are:

(A) Karyokinens (B) Cytokineses

Events during Karyokinesis (division of nucleus)

Prophase (b) Metaphase (c) Anaphase (d) Telophase

(B) Cyto kineses-division of cytoplasm.

(Diagrams: Refer to fig No. 12.2 a, b, c, d and e page no. 165 and 166 of NCERT Book).

Or

The two autonomous bodies of a cell are:

(i) Mitochondria (ii) Chloroplast

For structure and functions refer to content 8.5.4 and fig are 8.7 on page 134 and 135 if NCERT Book and for structure of functions refer to content 8.5.5 on page 135 figure 8.8 on page 136.

27. **Reflex Action:** The sudden response to a stimulus such as withdrawal of body parts on touch with hot object under the control of spinal cord without any conceous effort by brain is called reflex action.

Reflex arch: The route by which a signal from stimulus received by sensory nerve and transmitted to spinal cord from relay neuron of spinal cord to motor neuron and then effector muscles of organ to take action is called a reflex arch. (diagram-refer to fig. No. 21.5 at page No. 322 of NCERT Book)

OR

Adrenal gland is an endocrine gland located at the top of each kidney.

fig.: Refer to fig. No. 22.4 (a & b) at page No. 335 of NCERT Book)

Structure of Adrenal Gland:

Each adrenal gland has two regions

(A) Adrenal cortex (B) Adrenal medulla.

(A) Adrenal cortex: it is the outer region of adrenal gland. It has 3 layers-outer layer-glomerulosa, middle layer-zone fasciculata and inner most layer zona reticularis.

Hormones secreted by Adrenal cortex.

(i) Corticoid hormones: two types of corticoids:

(a) Glucocorticoids: Ex. cortisol

(b) Mineralocorticoids; Ex. Aldosterone.

Functions of glucocorticoids (cortical): It reformulate gluconeogenesis, lipolysis, proteolysis and cellular up take of amino acids.

Functions of glucocorticoids (aldosterons) :- It acts mainly on renal tubule and stimulate reabsorption of Na^+ and water excretion of K^+ and phosphate ions for maintenance of electrolyte in body.

(B) **Adrenal medulla:-** It is the inner region of adrenal gland. It secretes two hormones named adrenaline (epinephrine) and noradrenaline (nor-epinephrine). These are secreted in response to stress of any kind so these are called hormone of fight or flight.

Functions of adrenaline nor adrenaline hormones :- These hormones increase, alertness, pupillary dilation, piloerections (raising of hairs), sweating both hormones increase heart beat and rate of respiration, Break down of glycogen fat and proteins to release energy to face the situations of emergency.