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*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.  
The intended marks for question or parts of questions are given in brackets [ ].*

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**Section A (40 marks)**

**Q.1.Multiple Choice Questions**

**15**

1. The sound 'LUB' is produced in the heart when:  
a) Tricuspid valve closes                      b) Bicuspid valve closes  
c) Semilunar valve closes                      d) Both tricuspid and mitral valves close
2. The blood vessels which supply oxygenated blood to liver is:  
a) Hepatic artery                                  b) Hepatic vein  
c) Hepatic portal vein                              d) Pulmonary artery
3. ACTH stimulates the activity of:  
a) Adrenal medulla              b) Adrenal cortex              c) Pancreas              d) Posterior pituitary
4. A plant cell may burst when:  
a) Turgor pressure equalizes wall pressure              b) Turgor pressure exceeds wall pressure  
c) Wall pressure exceeds turgor pressure              d) None of these
5. The mineral ion needed for formation of the blood clot is"  
a) Potassium                      b) Calcium              c) Sodium                      d) Potassium
6. The outermost layer of meninges:  
a) Pia mater                      b) Arachnoid layer              c) Grey matter              d) Dura matter
7. The release of ovum from follicle is called:  
a) Ovulation                      b) Oogenesis              c) Capacitation              d) Menstrual cycle
8. Duplication of DNA occurs in:  
a) G<sub>1</sub>-phase                      b) G<sub>2</sub>-phase              c) S-phase                      d) M-phase
9. Which one of the following parents is biologically responsible for the sex of the child ?  
a) Father                      b) Mother              c) Both the parents              d) Supernatural powers
10. Tear gland is also called :  
a) Gastric gland                      b) Lacrimal gland              c) Salivary gland              d) Sebaceous gland
11. The basal metabolic rate in body cells is regulated by:  
a) Parathyroid gland              b) Thyroid              c) Pituitary                      d) Thymus
12. If the vas deferentia of a man are surgically disconnected or removed:  
a) Semen will be without sperm.                      b) Sperms in the semen will not take place.  
c) Spermatogenesis will be non-motile.              d) Sperms in semen will be non-motile.
13. The part of human eye where rod cells and cone cells are located is the :  
a) Retina                      b) Cornea              c) Choroid                      d) Sclera
14. Positive geotropism is exhibited by :  
a) Leaves                      b) Shoot              c) Stem                      d) Root
15. Which one of the following is not a simple reflex ?

- a) Coughing                      b) Blinking                      c) Eating                      d) Swallowing

**Q2 A. Select the correct answer from the choices A, B, C and D which are given**

**5**

- (a) The blood vessel which supplies blood to the liver.  
 (b) The layer of the eyeball that forms the transparent cornea.  
 (c) Name the following: A plant hormone.  
 (d) Name the following: A part of the plant showing positive phototropism.  
 (e) Name the following: A gland concerned with male reproductive system.

**B. Given below are sets of five terms each. Rewrite the terms in correct order in a logical sequence beginning with the first word that is underlined:**

**5**

- (a) Stimulus, Response, Receptor, Effector, Spinal cord.  
 (b) Root hair, Endodermis, Epidermis, Xylem, Cortex.  
 (c) Conjunctiva, Yellow spot, Pupil, Vitreous Humour, Aqueous Humour.  
 (d) Cortical cells, Root hair, xylem, Soil water, endodermis.  
 (e) Artery, Capillaries, Venule, Vein, Arteriole.

**C. Match the following :**

**5**

Column A	Column B
(a) Acid rain	1. The exit or flow of water from the cell to the outer environment.
(b) Family planning	2. Light rection
(c) Exosmosis	3. Erodes building
(d) Grana	4. Red triangle
(e) Contraception in males	5. Vasectomy

**D. Find the odd one and name the category which the others belong to:**

**5**

- (a) Urea, bile, uric acid, ammonia.  
 (b) Cowper's gland, fimbriae, vas deferens, prostate gland.  
 (c) Insulin, glucagon, diabetes insipidus, diabetes mellitus  
 (d) Vagina, vulva, seminal vesicles, uterus  
 (e) Monohybrid, dihybrid, homozygous, cochlea

**E. Give the location for the following :**

**5**

- (a) Organ of corti                      (b) Bundle of His                      (c) Centromere  
 (d) Corpus luteum                      (e) Apical meristem

**Section B (40 marks) (Attempt any 4 out of 6 main questions)**

**Q3.**

**A. Explain the term cleavage furrow.**

**2**

**B. Name the organ or structure whose function are:**

**2**

- (a) Transfer impulses from inner ear to the brain  
 (b) Transports water from the roots to the other parts of the plant.

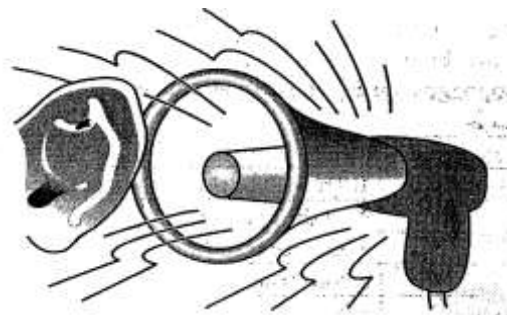
**C. Define the terms: Sympathetic nervous system and Parasympathetic nervous system**

**1**

D. We cannot distinguish colours in dim lights. Explain giving suitable reasons. 2

E. (v) Given below is a representation of kind of pollution. Study the same and answer the question that follow: 3

- (a) Name the kind of pollution
- (b) List any three sources of this pollution type.
- (c) Explain the term pollutant.



**Q4.**

A. Define Biodiversity. 1

B. Why a larger number of sperms are required for fertilizing one egg ? 2

C. Name the following: 2

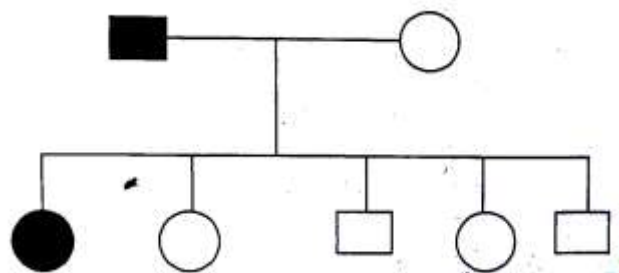
- (a) The gas that reduces the  $O_2$  carrying capacity of blood.
- (b) The blood vessels which enter and leave the kidney.

D. Give the reason for the following statements: 2

- (a) Drops of water on a leaf of plant like peepal does not enter the leaf by osmosis.
- (b) Hormones are called 'chemical messengers'.

E. The below pedigree chart shows inheritance of trait colour-blindsided. Study the chart and answer the following questions: 3

- (a) What does the solid circle indicate in the chart above ?
- (b) On which chromosome is the gene of this trait located ?
- (c) Name another trait which follows similar pattern of inheritance.



**Q.5**

A. Give the full form of the following abbreviation: TSH 1

B. Write the functions of the following : 2

- (a) Leydig cells
- (b) Auditory nerve

C. State True/False for the following and correct the sentence if false: 2

- (a) Ozone in the troposphere is a harmful pollutant.
- (b) The cilia lining of the oviduct funnel push the released ovum into the uterus.

D. Name the following: 2

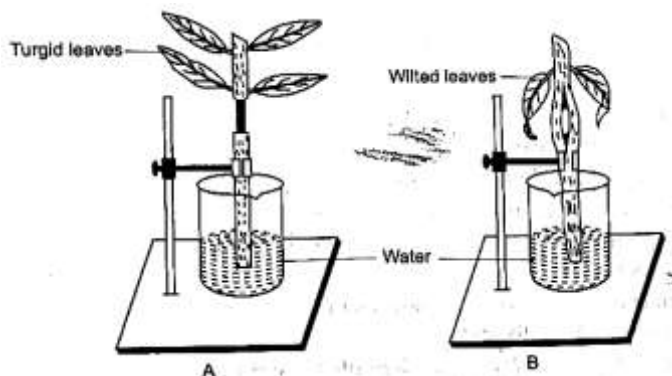
- (a) The chemical substance which is used to test the presence of starch in the cell of a leaf.
- (b) A permanent or irreversible increase in the dry weight, size, mass or volume of a cell, organ or organism.

E. A thin strip of epidermal cells of a leaf was observed in a drop of water. They all looked turgid and normal. Draw a diagram of a cell if this strip is transferred to a strong concentrated solution of sugar. What is term used for the effect on the cells ? 3

**Q6.**

- A. Name the covering of : Brain and Heart 1
- B. Answer the following. 2
- (a) Hypothyroidism leads to ?
- (b) The phase of photosynthesis during which carbohydrates are produced.
- C. State True or False for the following and correct the sentence if false: 2
- (a) Cones are the receptor cells in the retina of the eye that are sensitive to the dim light.
- (b) The unit of light absorbed by the chlorophyll during photosynthesis is the proton.
- D. Write the function of auriculo-ventricular valves and semi-lunar valves. 2
- E. The diagram given below represents the result of an experiment conducted on two freshly taken shoots of a green herbaceous plant. The lower ends are dipped in water. 3

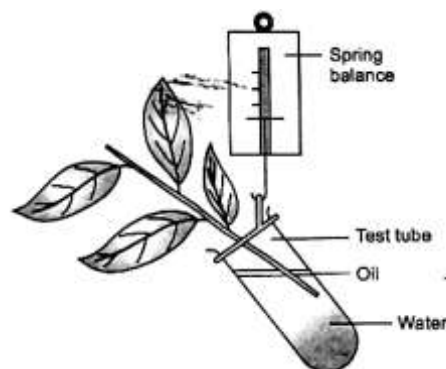
- (a) What is the aim of the experiment ?
- (b) Some parts of the stem in both the shoots have been removed. Name the conducting tissue in shoot A and in shoot B, that have been removed.
- (c) What are the results of this experiment ?



Q7.

- A. State the function of tears. 1
- B. Answer the following : 2
- (a) The way phytohormones can interact with one another.
- (b) Average heart rate.
- C. Give reason : 2
- (a) In honey bees, female is diploid and male is haploid.
- (b) Use of CFCs is banned in some countries.
- D. Choose the odd one in each of the following and mention the rest under one category. 2
- (a) Basophil, Neutrophil, Eosinophil, Lymphocyte.
- (b) Dendrites, Medullary Sheath, Axon, Spinal cord
- E. Given below is a diagram to demonstrate a certain process. Study the same and answer the questions that follow: 3

- (a) Name the process demonstrated here.
- (b) What is the purpose of the spring balance in the set-up?
- (c) Suggest a suitable control for this experiment.



Q 8.

- A. Give the exact location of Adrenal glands. 1

**B. Name the following:**

**2**

(a) The part of the internal ear related to the static balance of the body.

(b) The soluble protein in blood plasma responsible for blood clotting.

**C. Write the technical terms of:**

**2**

(a) Two solutions having equal osmotic pressure.

(b) Waste material that can be broken down into non-poisonous material.

**D. Define Alleles.**

**2**

**E. Given below is a representation of a type of pollution.**

**3**

Study the picture and answer the questions:

(a) Name the type of pollution shown in the picture.

(b) Name one source of this pollution.

(c) How does this pollution affect human health?



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