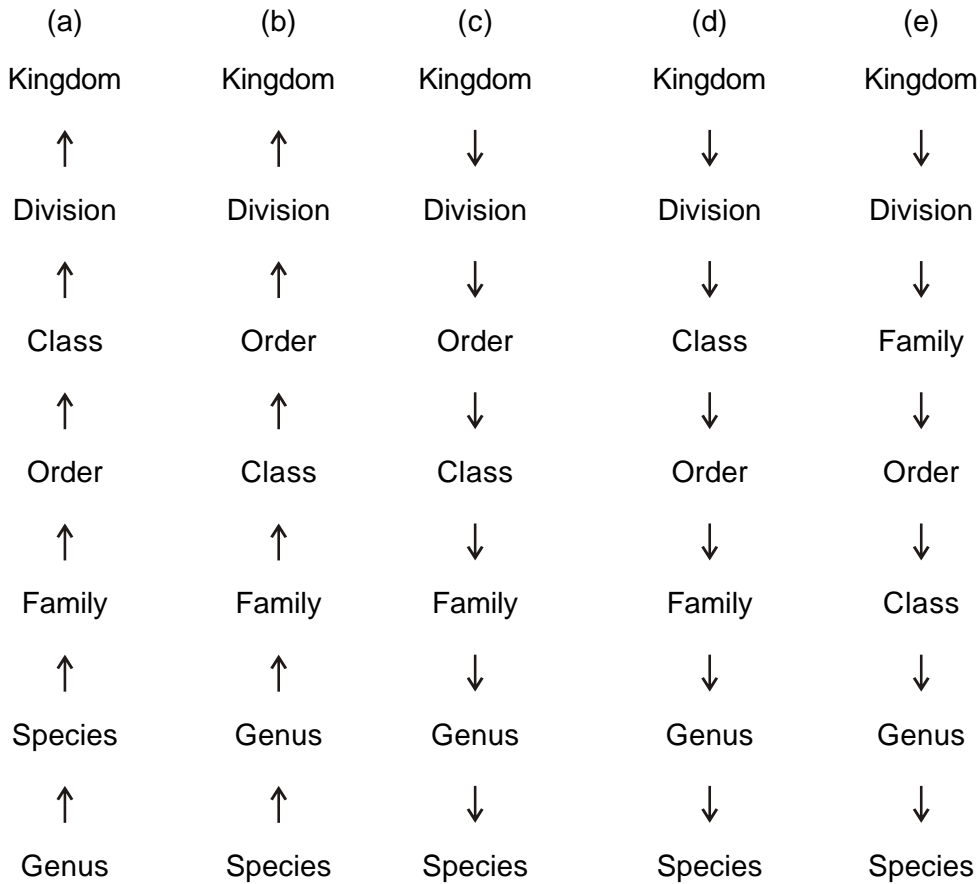




- Q.12** Which of the following families are placed in order polemoniales?
- Convolvulaceae
  - Solanaceae
  - Poaceae
  - Liliaceae
- Q.13** Which of the following do not belong to order carnivora?
- Dogs
  - Cats
  - Fox
  - Monkey
- Q.14** Family of Mango is
- Ranunculaceae
  - Solanaceae
  - Primulaceae
  - Anacardiaceae
- Q.15** The study of classification of plants and animals and their evolutionary relationship is called
- Taxonomy
  - Cytology
  - Ecology
  - Genetics
- Q.16** Which of the following is sterile?
- Hinny
  - Mule
  - Worker honey bees
  - All of these
- Q.17** The Central National Herbarium is located at
- Chennai
  - Hyderabad
  - Delhi
  - Kolkata
- Q.18** Indian Botanical Garden is located at
- Kolkata
  - Delhi
  - Howrah
  - Dehradun
- Q.19** Taxonomic key is one of the taxonomic tools in the identification and classification of plants and animals. It is used in the preparation of
- Mongraphs
  - Flora
  - Both a and b
  - None of these
- Q.20** Which of the following categories top the hierarchial taxonomic categories?
- Order
  - Class
  - Kingdom
  - Species
- Q.21** Which of the following represent maximum number of species among global biodiversity?
- Algae
  - Fungi
  - Lichens
  - Mosses and Ferns
- Q.22** Which one of the following is not a correct statement?
- Key is a taxonomic aid for identification of specimens
  - Botanical gardens have collection of living plants for reference
  - A museum has collection of photographs of plants and animals
  - Herba'rium houses dried, pressed and preserved plant specimens
- Q.23** Which of the following statements is correct?
- Species diversity, in general, increases from poles to the equator.
  - Conventional taxonomic methods are equally suitable FOR higher plants and microorganisms.
  - India's share of global species diversity is about 18%.
  - There are about 25,000 known species of plants in India.

**Q.24** Which one of the following shows, the hierarchial arrangement of taxonomic categories of plants in descending order:



**Q.24** Class is the category of taxonomy which includes related :

- |             |            |
|-------------|------------|
| a. families | b. orders  |
| c. genera   | d. species |

**Q.25** Scientific names of plants are based on principles and criteria agreed by and are given in:

- |         |         |
|---------|---------|
| a. IUCN | b. ICZN |
| c. ICBN | d. ICPN |

**Q.26** Which of the following statement(s) about taxonomical aids is/are true.

- I. Keys are used to identify plants and animals based on similarities and dissimilarities.
  - II. Flora contains the account of habitat and distribution of plants in a given area.
  - III. Flora provide an index to the plant species found in a particular area.
  - IV. Monographs provide information for identifying the species found in an area.
- |                  |                       |
|------------------|-----------------------|
| a. I and II only | b. I, II and III only |
| c. I and IV only | d. I only             |
| e. IV only       |                       |

## ASSERTION AND REASON TYPE QUESTIONS

The following questions consist of two statements, one labelled as **Assertion (A)** and the other labelled the **Reason (R)**. Examine these two statements carefully and select the most appropriate answer codes.

**Answer codes :**

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
  - (b) Both (A) and (R) are true and (R) is not the correct explanation of (A).
  - (c) (A) is true and (R) is false.
  - (d) Both (A) and (R) are false.
1. **Assertion (A)** : Linnaeus is known to the scientific world today as Carolus Linnaeus.  
**Reason (R)** : This is the Latinized form he choose for his name.
  2. **Assertion (A)** : Study of biology requires basic.-knowledge of physics and chemistry.  
**Reason (R)** : Living organisms are made up of atoms and molecules which follow physical and chemical laws.
  3. **Assertion (A)** : Living organisms are regarded as closed systems.  
**Reason (R)** : Energy of living organisms cannot be lost or gained from the environment.
  4. **Assertion (A)** : The conventional segregation of zoology and botany is intellectually meaningless.  
**Reason (R)** : All living things should be studied in an integrated way as biology.
  5. **Assertion (A)** : A virus is a lifeless particle outside a living host cell.  
**Reason (R)** : It has no capacity to reproduce inside or outside the host cell.



- Q.12** Why are the classification systems changing every now and then?
- Q.13** List various taxonomic aids.
- Q.14** A plant may have different names in different regions. How is this problem solved?

### Section-C

- Q.1** a. Name the families of cats and dogs. Why are they placed in separate families?  
b. In which family do we place genera *Datura* and *Petunia*? Why are they placed in same family?
- Q.2** a. What is the rule of keys in taxonomy? Explain with examples.  
b. What is meant by the terms couplet and lead in taxonomic keys?
- Q.3** *Brassica campestris* linn.  
a. Give the common name of the plant.  
b. What do the first two parts of name denote?  
c. Why are they underlined separately?  
d. What is the meaning of linn written at the end of name?
- Q.4** What is a herbarium? What is its utility?
- Q.5** Define the following terms :
- |           |            |
|-----------|------------|
| a. Phylum | b. Class   |
| c. Family | d. Order   |
| e. Genus  | f. Species |

### Section-D

- Q.1** Illustrate the taxonomic hierarchy of the following :
- |             |          |
|-------------|----------|
| a. Housefly | b. mango |
| c. Cat      | d. Wheat |
- Q.2** How do the following serve as taxonomic aids :
- |                     |               |
|---------------------|---------------|
| a. Museum           | b. Zoo        |
| c. Botanical garden | d. Flora      |
| e. Manual           | f. Monographs |
- Q.3** Define a taxon. What is meant by taxonomic hierarchy. Give a flow chart from the lowest to highest category for a plant and an animal. What happens to the number of individuals and number of shared characters as we go up the taxonomical hierarchy?
- Q.4** What is herbarium? How do you prepare your own herbarium sheets? What are the different tools you carry with you while collecting plants for the preparation of herbarium? What information should a preserved plant material on the herbarium sheet provide for taxonomic aids?

### Section-E

- Q.1** What is meant by taxonomic hierarchy. Give a flow diagram from the lowest to highest category for a plant and an animal. What happens to the number of individuals and the number of shared characters as we go up the taxonomical hierarchy?
- Q.2** Metabolism is a defining feature of all living organisms without exception. Isolated metabolic reactions in vitro are not living things but surely living reactions. Comment.
- Q.3** A student of taxonomy was puzzled when told by his professor to look for a key to identify a plant. He went to his friend to clarify what 'key' the professor was referring to? What would the friend explain to him?
- Q.4** *Amoeba* multiplies by mitotic cell division. Is this phenomenon growth or reproduction? Explain.
- Q.5** Botanical gardens are living herbaria. Explain.

### Value based

- Q.1** Rahul wanted to see some wild animals. He requested his father to take him to a circus show in the city. Rahul's father told him circus won't be of much information about wild animals and it is better to visit a zoological park.
- a. What is a zoological park?
  - b. How is it different from zoo?
  - c. Name the largest zoological park in India.
  - d. What values is reflected by Rahul's father.



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Objective type Assignment — 2016-17

Class - XI

Topic : Biological Classification

Section A

- Q.1** Prokaryotes without cell wall are
- a. Cyanobacteria
  - b. Bacteria
  - c. Mycoplasmas
  - d. None of these
- Q.2** 'Red tide' is caused by
- a. Noctiluca
  - b. Gymnodinium
  - c. Gonyaulax
  - d. All of these
- Q.3** Phenetic classification is based on
- a. Observable characteristics
  - b. DNA characteristics
  - c. Sexual characteristics
  - d. The ancestral lineage of existing organisms
- Q.4** Which of the following belongs to ascomycetes?
- a. Agaricus
  - b. Pleurotes
  - c. Phytophthora
  - d. Yeast
- Q.5** Which of the statements about mycoplasmas is wrong?
- a. They are pleomorphic
  - b. They are sensitive to penicillin
  - c. They cause disease in plants
  - d. They are also called PPLO.
- Q.6** Which of the following are found in the gut of ruminants?
- a. Methanogens
  - b. Halophiles
  - c. Thermoacidophiles
  - d. None of these
- Q.7** Which of the following belong to kingdom protista?
- a. Trypanosoma
  - b. Giardia
  - c. Noctiluca
  - d. All of these
- Q.8** Carolus Linnaeus is referred as :
- a. Father of classification
  - b. Father of Genetics
  - c. Father of Botany
  - d. Father of Taxonomy
- Q.9** According to 5-Kingdom system, kingdom protista includes
- a. Unicellular Prokaryotes
  - b. Unicellular eukaryotes
  - c. Multicellular eukaryotes
  - d. both uni and multicellular eukaryotes
- Q.10** Naked cytoplasm, multinucleated and sporopnyte are characteristics of
- a. Monera
  - b. Protista
  - c. Fungi
  - d. Slim moulds
- Q.11** A system of classification based on the ancestry of organisms is called
- a. Natural system
  - b. Phylogenetic system
  - c. Cytotaxonomy
  - d. Artificial system
- Q.12** Different between Virus and Viroid is
- a. Absence of protein coat in viroid but present in virus
  - b. Presence of low molecular weight RNA in virus but absent in viroid



- c. Both a and b
- d. None of the above

**Q.13** \_\_\_\_\_ is an ascomycetes

- a. Agaricus
- b. Yeast
- c. Phytophthora
- d. Pythium

**Q.14** Sexual reproduction is absent in

- a. Phycomycetes
- b. Ascomycetes
- c. Basidiomycetes
- d. Deuteromycetes

**Q.15** Viroid is \_\_\_\_\_ particle

- a. RNA
- b. DNA
- c. Protein
- d. DNA and protein

**Q.16** 'Contagium vivum fluidum' was proposed by

- a. D.J. Invanowsky
- b. M.W. Beijerinck
- c. Stanley
- d. Robert Hook

**Q.17** Type of genetic material present in TMV is

- a. Single stranded DNA
- b. Double stranded DNA
- c. Single stranded RNA
- d. Double stranded RNA

**Q.18** The group of most primitive prokaryotes which are regarded as the oldest living fossils are :

- a. Cyanobacteria
- b. Eubacteria
- c. Archaeobacteria
- d. Mycoplasmas

**Q.19** Which of the following is a non-toxic fast growing cyanobacteria used to obtain single cell protein

- a. Spirulina
- b. Azotobacter
- c. Mycoplasma
- d. Anabaena

**Q.20** The red colour of 'red sea' is due to the presence of

- a. Trichodesmium
- b. Shizothrix
- c. Nostoc
- d. Oscillatoria

**Q.21** The protozoan protist which help in cellulose digestion in termites is

- a. Trichomonas
- b. Trichonympha
- c. Lophomonas
- d. Trypanosoma

**Q.22** The motile bacteria are able to move by:

- (a) pili
- b. fimbriae
- c. flagella
- d. cilia

**Q.23** What structures perform the function of mitochondria in bacteria?

- a. mesosomes
- b. nucleoid
- c. ribosomes
- d. cell wall

**Q.24** True nucleus is absent in :

- a. Anabaena
- b. Mucor
- c. Vaucheria
- d. Volvox

**Q.25** The guts of cow and buffalo possess:

- a. Fucus spp.
- b. Chlorella spp.
- c. Methanogens
- d. Cyanobacteria

- Q.26** Tikka is a :
- fungal disease
  - viral disease
  - bacterial disease
  - protozoan disease
- Q.27** Which one of the following matches is correct ?
- Phytophthora                      Aseptate mycelium                      Basidiomycetes
  - Alternaria                              Sexual reproduction absent              Deuteromycetes
  - Mucor                                      Reproduction by Conjugation              Ascomycetes
  - Agaricus                                  Parasitic fungus                              Basidiomycetes
- Q.28** The imperfect fungi which are decomposers of litter and help in mineral cycling belong to :
- Deuteromycetes
  - Basidiomycetes
  - Phycomycetes
  - Ascomycetes
- Q.29** Choose the wrong statement :
- Penicillium is multicellular and produces antibiotics
  - Neurospora is used in the study of biochemical genetics
  - Morels and truffles are poisonous mushrooms
  - Yeast is unicellular and useful in fermentation
- Q.30** Pick up the wrong statement
- Cell wall is absent in Animalia
  - Protista have photosynthetic and heterotrophic modes of nutrition
  - Some fungi are edible
  - Nuclear membrane is present in Monera
- Q.31** The structures that help some bacteria to attach to rocks and/or host tissues are :
- Rhizoids
  - Fimbriae
  - Mesosomes
  - Holdfast
- Q.32** Cell wall is absent in
- Aspergillus
  - Funaria
  - Mycoplasma
  - Nostoc
- Q.33** Which of the following groups of organisms have protein rich layer called pellicle?
- Protozoans
  - Euglenoids
  - Chrysophytes
  - Dinoflagellates
  - Slime moulds
- Q.34** The mature infective stages of malarial parasite which are transferred from mosquito to man are :
- merozoites
  - sporozoites
  - gametocytes
  - trophozoites
- Q.35** Which of the following human parasites require mosquito to complete their life cycle?
- Wuchereria bancrofti and Plasmodium ovale
  - Leishmania donovani and Plasmodium ovale
  - Ascaris lumbricoides and Wuchereria bancrofti
  - Ascaris lumbricoides and Leishmania donovani

- Q.36** Intermediate host of malarial parasite is:
- a. pig
  - b. man
  - c. mosquito
  - d. larva of mosquito
- Q.37** The active form of *Entamoeba histolytica* feeds on :
- (a) erythrocytes, mucosa and submucosa of colon
  - (b) mucosa and submucosa of colon only
  - (c) food in intestine
  - (d) blood only

### ASSERTION - REASON TYPE QUESTIONS

- Q.1** **Assertion (A)** : Golden-brown algae are not considered truly autotrophic by some biologists.  
**Reason (R)** : Nearly all chrysophytes become facultatively heterotrophic in the absence of adequate light or in the presence of plentiful dissolved food.
- Q.2** **Assertion (A)** : Euglena is a plant due to the presence of chlorophyll.  
**Reason (R)** : Euglena cannot be classified on the basis of two kingdom system.
- Q.3** **Assertion (A)** : Conjugation is a temporary union between two ciliates belonging to two different mating types for the exchange and reconstitution of nuclear materials.  
**Reason (R)** : Conjugation occurs between two inactive individuals which have gained their vigour and vitality due to chromosomal imbalance in their macronuclei caused by repeated amitotic division.
- Q.4** **Assertion (A)** : Plasmids are single stranded extra-chromosomal DNA.  
**Reason (R)** : Plasmids are possessed by prokaryotic cells.
- Q.5** **Assertion (A)** : Nitrogen fixing bacteria of legume nodule live in oxygen depleted cells.  
**Reason (R)** : Leghaemoglobin completely removes oxygen from nodule cells.
- Q.6** **Assertion (A)** : The fungi are wide spread in distribution and they even live on or inside other plants and animals.  
**Reason (R)** : Fungi are able to grow anywhere on land, water or on other organisms because they have a variety of pigments including chlorophyll, carotenoids, fucoxanthin and phycoerythrin.
- Q.7** **Assertion (A)** : In fungi, sexual apparatus decreases in complexity from lower to higher forms.  
**Reason (R)** : In algae, sexual apparatus increases in complexity from simple to higher forms.



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17

Class - XI

Topic : Biological Classification

## Section A

- Q.1 Which pigment imparts brown colour to diatoms?
- Q.2 Name a fungus in which pseudomycelium is present.
- Q.3 On What basis the fungi were earlier included in the plant kingdom?
- Q.4 What is the nature of genetic material in (i) TMV (ii) Bacteriophages.
- Q.5 What is the chemical nature of capsid?
- Q.6 In which kingdom viruses are placed in the 5-kingdom system of classification?
- Q.7 What is the principle underlying the use of cyanobacteria in agriculture for crop improvement?
- Q.8 One basic difference between bacteria and archaeobacteria has led the latter to survive under extreme conditions. What is the difference?
- Q.9 You are given a slide of unicellular, biflagellate organism with well defined nucleus, one flagellum lies longitudinally and the other transversely.  
What would you identify it as? Can you name the kingdom it belongs to?
- Q.10 What is the composition of cell wall of bacteria?
- Q.11 Name the methods by which genetic recombination take place in bacteria.
- Q.12 Which kingdom includes multicellular heterotrophic organisms?
- Q.13 What is the nature of cell wall in diatoms?
- Q.14 What are Viroids? How are they different from viruses?
- Q.15 Why are some fungi grouped under 'fungi imperfecti'?
- Q.16 Give the scientific term for a cell with two haploid nuclei of different mating types.
- Q.17 Which part of the filament is associated with nitrogen fixation in cyano-bacteria?
- Q.18 Where are photosynthetic pigments present in cyanobacteria?
- Q.19 What are hormogonia?
- Q.20 Name the dinoflagellate causing red tide.
- Q.21 Name the chemical constituting cell wall of fungi.
- Q.22 Name the protists that share characteristics of both animals and fungi.
- Q.23 Who obtained viruses in crystallized form for the first time?
- Q.24 Plants are autotrophic. Can you think of some plants that are partially heterotrophic?

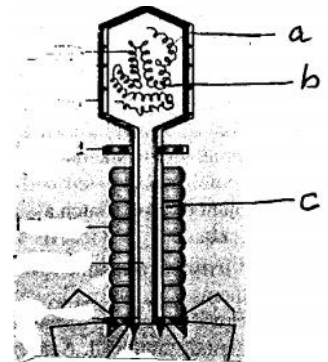
## Section B

- Q.1 Which group of fungi is commonly called (a) algal fungi (b) sac fungi (c) club fungi (d) fungi imperfecti.
- Q.2 There is a myth that immediately after heavy rains in forest, mushrooms appear in large number and make very large circles, called 'Fairy rings'. Explain this myth of fairy rings in biological terms.
- Q.3 What do you understand by the artificial and natural systems of classification?
- Q.4 Distinguish between gram positive and gram negative bacteria.
- Q.5 What do you mean by archaeobacteria? What are the various forms of archaeobacteria?
- Q.6 What observable features in Trypanosoma would make you classify it under kingdom Protista?
- Q.7 Name two parasitic protozoans and also mention the diseases caused by them.
- Q.8 Give the main characteristics of dinoflagellates?
- Q.9 What do you understand by the terms mycobiont and phycobiont?
- Q.10 Cyanobacteria are autotrophic yet they placed with heterotrophic bacteria in Kingdom Monera. Is this grouping justified? Give reason.

- Q.11** Give the salient features of viruses.
- Q.12** Who proposed the two kingdom classification? Why is this system inadequate?
- Q.13** Name the various important diseases caused by deuteromycetes and the causative pathogen.
- Q.14** Why are euglenoids considered a challenge by taxonomists?
- Q.15** Name the groups to which following fungi belong : Yeast, Morels, Puffballs, Bracket fungi.
- Q.16** State economic importance of
- Heterotrophic bacteria
  - Archaeobacteria
- Q.17**
- Identify the organism shown in the given figure
  - Name the parts marked (a) and (b) in the figure.
  - What is the function of the part marked (a)?
  - Name the pigments present in the organism shown in the figure.

### Section-C

- Q.1** Differentiate between :
- Ascus and Basidium
  - Conidia and sporangiospores
  - Bacteria and cyanobacteria
- Q.2** What are slime moulds? In What ways they are similar to and different from fungi? Give one example each of cellular and acellular slime moulds.
- Q.3** Discuss different forms of nutrition found in bacteria.
- Q.4** Give a brief account of viruses with respect to their structure and nature of genetic material.
- Q.5** Describe the three common steps in sexual reproduction of fungi.
- Q.6** How are ascomycetes different from basidiomycetes?
- Q.7**
- Identify the structure shown in the given figure.
  - Name the parts marked (a), (b) and (c) in the figure.
  - Which part of it is infectious?
  - What is the chemical nature of the part marked (c) in the figure.



- Q.8** What are plasmids? How are they useful in genetic engineering
- Q.9** How is the five kingdom classification advantageous over the two-kingdom classification?
- Q.10** Biological classification is a dynamic and ever evolving phenomenon which keeps changing with our understanding of life forms. Justify the statement by taking examples.
- Q.11** A virus is considered as a living organism and an obligate parasite when inside a host cell. But virus is not classified along with bacteria or fungi. what are the characters of virus that are similar to non-living objects?

### Section-D

- Q.1** Differentiate between Monera and Protista on the basis of (a) cell wall (b) genetic material (c) Ribosomes, (d) location of extra chromosomal DNA (e) respiratory apparatus.
- Q.2** What are the criteria used by Whittaker for delimiting 5-kingdoms? What are its advantages and disadvantages?
- Q.3** Draw well labelled diagram of
- Euglena
  - Nostoc
  - Bacteriophage
  - TMV
  - A typical bacterial cell
- Q.4** Describe briefly the four major groups of protozoa.

**Q.5** What pigments are present in blue-green, red and brown algae that are responsible for their characteristic colour? Do they have chlorophyll also? Apart from pigments, how are they different from each other?

**Q.6** Why are protists important ecologically? How are they important to humans?

#### **Section-E**

**Q.1** The sexuality in streptomyces pneumoniae was first indicated by Griffith (1928). He had explained transformation with the help of two strains of this bacterium - R-II (non-virulent) and S-III (virulent). Who had established the biochemical nature of gene and in what way?

**Q.2** Some rust fungi require only one host while other rust fungi need two unrelated hosts to complete their life cycle. Explain it with the help of an example.

**Q.3** Some fungi are source of LSD (Lysergic acid diethyl amide). Can you name that fungus and how LSD affects the human beings?

#### **Value-based Questions**

**Q.1** Gaurav suffered from nausea and dysentery after taking food from roadside restaurant. Doctor advised Gaurav to get the stool test done and not to eat in restaurants near roadside.

- i. Why did doctor advise the stool test?
- ii. Which bacteria may be responsible for dysentery?
- iii. What value is displayed by Doctor?







## **ASSERTION AND REASON TYPE QUESTIONS**

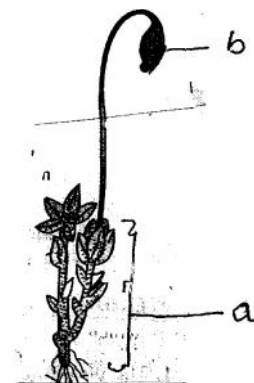
- Q.1 Assertion (A) :** The wood of *Cycas* provides . commercially important timber.  
**Reason (R) :** The wood of *Cycas* is monoxyllic.
- Q.2 Assertion (A) :** Fern prothallus is monoecious and protandrous.  
**Reason (R) :** Cross fertilization is found in fern.
- Q.3 Assertion (A) :** The adult gametophyte in moss is green and photosynthetic.  
**Reason (R) :** The mosses like liverworts do not show alternation of generation.
- Q.4 Assertion (A) :** Asexual reproduction produces large number of genetically similar plants irrespective of heterogeneity.  
**Reason (R) :** Asexual reproduction is of great help to the plant breeding programme.
- Q.5 Assertion (A) :** In monocarpic plants, flowering takes place once in life cycle.  
**Reason (R) :** Monocarpic plants do not survive after flowering.



- Q.3** What is the structure of brown algae? Give two examples of brown algae.
- Q.4** In which plant group, both sporophyte and gametophyte are represented as independent phases and how?
- Q.5** What is agar? What are its main sources? How is it beneficial in scientific studies?
- Q.6** What are gemmae? Name a plant that produces gemmae.
- Q.7** Describe two stages of the gametophyte in the life cycle of moss.
- Q.8** What is a prothallus? Name a plant that forms prothallus.
- Q.9** Differentiate between the gametophyte of bryophytes and of ferns.
- Q.10** Name the classes of pteridophytes giving one example of each.
- Q.11** What is double fertilization?
- Q.12** Describe the sporophyte of *Funaria*.
- Q.13** Describe the male and female gametophytes of a gymnosperm.
- Q.14** How is chemotaxonomy different from cytotaxonomy?
- Q.15** What do you understand by alternation of generation?
- Q.16** Heterospory is a characteristic feature in the life cycle of a few members of pteridophytes and all spermatophytes. Do you think heterospory has some evolutionary significance in plant kingdom? Discuss.
- Q.17** How far does *Selaginella* - one of the few living members of lycopodiales fall short of seed habit?

### Section-C

- Q.1 Give reason :**
- Presence of water is a must for fertilization in pteridophytes.
  - Stem-like and root - like structures of a moss plant are not called stem and leaves.
  - gymnosperms do not produce fruits.
- Q.2 Differentiate between :**
- Liverworts and moss
  - Homosporous and Heterosporous pteridophytes
  - Syngamy and triple fusion.
- Q.3** Name three classes of algae. Name the type of pigments and reserve food in each class.
- Q.4** Comment upon the life cycle and nature of a fern prothallus.
- Q.5** When and where does meiosis take place in the life cycle of a bryophyte, a pteridophyte and an angiosperm.
- Q.6** Explain the structure of female reproductive organ in a gymnosperm.
- Q.7** What is the technical term given to female gametophyte in angiosperms? Describe its structure.
- Q.8**
- Identify the plant shown in figure.
  - Name the parts marked (a) and (b) in the figure.
  - What structures are present in the part marked (b), and what is their function?
  - Where does the dioid structure develop in the shown plant and what is it called?
  - mention the division and class of the plant.



- Q.8** What is essential for fertilization in bryophytes and pteridophytes. How gymnosperms cope without the use of water in fertilization? Justify
- Q.9** Comment on the life cycle and nature of tern prothallus.
- Q.10** How gymnosperms are more evolved than pteridophytes? Explain.
- Q.11** How are the male and female gametophytes of pteridophytes and gymnosperms different from each other?
- Q.12** In which plant will you look for mycorrhizae and coralloid roots? Also explain what these terms mean.

#### **Section-D**

- Q.1** Explain the following terms :
- |                         |              |
|-------------------------|--------------|
| a. Isogamy              | b. Sori      |
| c. Haplontic life cycle | d. Protonema |
| e. Sporophyll           |              |
- Q.2** Explain (a) natural (b) artificial and (c) phylogenetic systems of classification.
- Q.3** With the help of a schematic diagram describe the
- |                                  |
|----------------------------------|
| a. haplo - diplontic             |
| b. Diplontic                     |
| c. Haplontic life cycle patterns |
- Q.4** Explain why sexual reproduction in angiosperms is said to take place through double fertilization and triple fusion. Also draw a labelled diagram of embryo sac to explain the phenomenon.
- Q.5** Draw well labelled diagram of
- |                                          |                                         |
|------------------------------------------|-----------------------------------------|
| a. Chlamydomonas                         | b. Male and female thallus of Liverwort |
| c. Gametophyte and Sporophyte of Funaria | d. Equisetum                            |
| e. Ginkgo                                |                                         |

#### **Section-E**

- Q.1** Each plant or group of plants has some phylogenetic significance in relation to evolution. Cycas, one of the few living members of gymnosperms is called as the 'relic of past'. Can you establish a phylogenetic relationship of cycas with any other group of plants that justifies the above statement?
- Q.2** The male and female reproductive organs of several pteridophytes and gymnosperms are comparable to floral structures of angiosperms. Make an attempt to compare various reproductive parts of pteridophytes and gymnosperms. With reproductive structures of angiosperms.
- Q.3** Why the sporophytic phase is dominant in angiosperms?
- Q.4** What characters of seed plants make them specially adapted to life on land.
- Q.5** Draw diagrams of
- |                                                    |
|----------------------------------------------------|
| a. Gametophyte and sporophyte of a moss.           |
| b. Male thallus and female thallus of a liverwort. |
- Q.6** Why Bryophytes are considered to be ecologically more important? How bryophytes thrive on hills where large quantity of water is lost as run-off?

### Value based question

- Q.1** A student visited a botanical garden and saw a beautiful plant. His teacher told him that it is Equisetum (horse-tail) with its fine branches. He told the student about the occurrence of silica on the surface of this plant and also its medicinal value.
- a. To which division of plant Kingdom Equisetum belongs.
  - b. Is there any commercial use of silica?
  - c. What is the medicinal value of Equisetum?
  - d. What value is displayed by the teacher?



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17

Class - XI

## Topic : Transport in Plants

- Q.1** According to Steward's starch hydrolysis theory, which one of the following is the principle reason for the opening of stomata during day time ?
- Efflux of  $K^+$  ions from guard cells under the influence Of ABA hormone.
  - Photosynthetic utilization of  $CO_2$ , in guard cells
  - Influx of  $K^+$  ions into guard cells under the influence of ABA hormone.
  - Conversion of sugar into starch in guard cells
- Q.2** Compare the statements A and B
- Statement A : To counteract the increase in turgor pressure in plant cells, the cell wall produces an equal and opposite pressure, i.e., wall pressure.
- Statement B : When plant cells undergo endosmosis, they swell but do not burst.
- Statement A is wrong and B is correct.
  - Both the statements A and B are correct and A is not the reason for B.
  - Both the statements A and B are correct and A is the reason for B.
  - Statement A is correct and B is wrong.
- Q.3** Cell A and Cell B are adjacent plant cells. In cell A,  $\Psi_s = -20$  bars and  $\Psi_p = 8$  bars. In cell B,  $\Psi_s = -12$  bars and  $\Psi_p = 2$  bars. Then,
- water moves from cell B to cell A.
  - equal amount of water is simultaneously exchanged between cell A and cell B
  - water moves from cell A to cell B.
  - there is no movement of water between cell A and cell B.
- Q.4** Which one of the following is a driving force for the process of passive absorption of water in roots ?
- Activity of aquaporins
  - Transpiration in leaves
  - The increase in imbibitional pressure in root cells
  - Root pressure
- Q.5** When the cell is fully turgid, its
- |               |                 |
|---------------|-----------------|
| a. $DPD = OP$ | b. $DPD = zero$ |
| c. $WP = TP$  | d. $OP = zero$  |
- Q.6** Hydathode helps in
- |                   |                |
|-------------------|----------------|
| a. transpiration  | b. guttation   |
| c. photosynthesis | d. respiration |
- Q.7** Stomatal opening or closing is due to
- change in the turgidity of guard cells
  - the inner walls of each guard cell is thick and elastic .
  - cellulose microfibrils of guard cells are oriented raidally
  - all of the above

- Q.8** Apoplastic movement of water in plants occurs through
- casparian strips
  - plasma membrane
  - intracellular spaces
  - plasmodesmata
- Q.9** CAM helps the plants in
- conserving water
  - secondary growth
  - disease resistance
  - reproduction
- Q.10** Radial conduction of water takes place by
- vessels
  - vessels and trachieds
  - phloem
  - ray parenchyma cells
- Q.11** Wilting occurs in a plant when
- absorption rate is slow
  - absorption rate is fast
  - absorption is less than transpiration
  - reverse of (c)
- Q.12** A soil physiologically dry when
- it has no hygroscopic water
  - its temperature is 40°C
  - soil sap is hypertonic to cell sap
  - excess of CO<sub>2</sub> in soil
- Q.13** Hormone which causes the stomatal closure is
- GA
  - IAA
  - ABA
  - 2-4D
- Q.14** In a fully turgid cell, wall pressure shall be
- minimum
  - maximum
  - zero
  - minus zero
- Q.15** Water is pulled upwards through xylem against gravity because of
- root pressure
  - rhythmic pulsation
  - transpiration pull
  - none of these
- Q.16** Which phenomenon is involved in kneading of wheat flour with water?
- Exosmosis
  - Imbibition
  - Plasmolysis
  - Exosmosis
- Q.17** The instrument used to measure the rate of transpiration is
- porometer
  - Crescograph
  - Potentiometer
  - Potometer
- Q.18** A cell when dipped in 0.5M sucrose solution has no effect but when the same cell will be dipped in 0.5M NaCl solution the cell will
- Increase in size
  - Decrease in size
  - Will be turgid
  - Will get plasmolysed
- Q.19** Two plant cells are lying adjacent to each other. Cell A has O.P.=10 atm, T.P.=7 atm. Cell B has O.P.=8 atm, T.P.=3 atm. The result will be
- No movement of water
  - Equilibrium between the two
  - Movement of water from cell A to B
  - Movement of water from cell B to A
- Q.20** Sunken stomata are found in
- Mesophytes
  - Hydrophytes
  - Xerophytes
  - Epiphytes









# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17

Class - XI

Topic : Transport in Plants

## Section A

- Q.1** A plant cell kept in a certain solution got plasmolyzed. What was the nature of solution?
- Q.2** Name the plant hormone which causes closure of stomata under severe drought conditions.
- Q.3** What will happen to a plant cell if it is kept in a solution having lower water potential?
- Q.4** What is the water potential of pure water at atmospheric pressure? What happens to it when solutes are added to it?
- Q.5** What are the two kinds of interactions of water molecules that help in transpiration pull?
- Q.6** Identify a type of molecular movement which is highly selective and requires special membrane proteins, but does not require energy.
- Q.7** Where is casparian strip located?
- Q.8** When a freshly collected spirogyra filament is kept in a 10% potassium nitrate solution, it is observed that the protoplasm shrinks in size.
- What is this phenomenon called?
  - What will happen if the filament is replaced in distilled water?
- Q.9** Name any two conditions that lead to guttation.
- Q.10** Which is higher  $\Psi_w = -1000$  Mpa or  $-2000$  MPa?
- Q.11** What is translocation?
- Q.12** Which type of pressure will be zero, when a cell is fully turgid?
- Q.13** Name the plants in which sunken stomata are present.
- Q.14** What will happen if a cell is placed in hypotonic solution?
- Q.15** Why is energy required to develop root pressure?
- Q.16** What is the shape of guard cells in grasses?
- Q.17** List environmental factors that affect transpiration rate.
- Q.18** Why do plants die in waterlogged soil?
- Q.19** If the concentration of salt is too high, the plant may wilt even if the field is thoroughly irrigated. Why?
- Q.20** Name the pores through which guttation occurs.
- Q.21** Name the process that occurs when root pressure is high and transpiration is low?

## Section B

- Q.1** Food is translocated in the form of disaccharide sugar sucrose in plants. Justify.
- Q.2** In a girdled plant, when water is supplied to the leaves above the girdle, leaves may remain green for sometime, then wilt and ultimately die. What does it indicate?
- Q.3** Differentiate between :
- Water potential and solute potential
  - Osmotic pressure and osmotic potential.
  - Plasmolysis and deplasmolysis
- Q.4** Water molecule is polar end of molecule attracts opposite charges on another water molecule. How will you explain this property of water with reference to upward movement of water? Comment on the upward movement of water given the intermolecular hydrogen bonding in water.

- Q.5** Why is solute potential always negative?
- Q.6** Will the ascent of sap be possible without the cohesion and adhesion of water molecules?
- Q.7** Why is root pressure not considered an important factor for upward movement of water in plants?
- Q.8** Why the xylem sap flows out from the cut end, if the well hydrated plant is cut near the base of stem?
- Q.9** Pickles are well salted to protect them from bacterial contamination. Why?
- Q.10** If a plant is girdled, which part of the plant dies first the root or the shoot. Answer giving reasons.
- Q.11** Mention any two uses of transpiration to plants.
- Q.12** What are porins? What role do they play in diffusion?
- Q.13** What are the factors affecting the rate of diffusion?
- Q.14** Why pure water has maximum water potential?
- Q.15** How does solute potential affects water potential?
- Q.16** What happens when a pressure greater than the atmospheric pressure is applied to water?
- Q.17** How is transpiration different from guttation?
- Q.18** How do changes in turgor pressure help in opening and closing of stomata?
- Q.19** What essential role does root endodermis play during mineral absorption in plants?
- Q.20** What is the difference between passive and active transport across a membrane?
- Q.21** A farmer observed drops of water along margins of tomato leaves growing in his well irrigated field on a winter morning. Give reasons for their occurrence. Why had the water drops appeared only along the leaf margins?
- Q.22** Explain why the transport of water is unidirectional and the transport of organic nutrients is bidirectional?

### Section C

- Q.1** What do you understand by apoplast and symplast pathways of movement of water? Which of these would need active transport?
- Q.2** Define :
- a. Antiport
  - b. Symport
  - c. Uniport
- Q.3** Compare the following :
- Diffusion, Facilitated diffusion and Active Transport.
- Q.4** How do the various internal factors of a plant affect the rate of transpiration?
- Q.5** What is the importance of turgor pressure in plants?
- Q.6** With the help of diagram, show the path of water from soil into root.
- Q.7** What role does root pressure play in the water movement in plants?
- Q.8** Why transpiration is considered as necessary evil?
- Q.9** How is imbibition different from osmosis? Under which conditions does imbibition occur? What is its importance during germination of seed?
- Q.10** Which of the following is semipermeable membrane (S.P.) and which is selectively permeable (S.L)
- a. Animal Bladder
  - b. Plasmalemma
  - c. Tonoplast
  - d. Parchment membrane
  - e. Egg Membrane

- Q.11** Plants show temporary and permanent wilting. Differentiate between the two. Do any of them indicate the water status of soil?

#### **Section D**

- Q.1** How do light, temperature, humidity, wind and water affect the rate of transpiration?
- Q.2** List the main theories to explain the water translocation in tall trees. Describe the most accepted theory out of these.
- Q.3** Describe the mass flow hypothesis of translocation of sugars in plants.
- Q.4**
- What are hydathodes?
  - Under what conditions do they help plants?
  - How are they different from stomata?
- Q.5** Briefly describe the mechanism of uptake and translocation of mineral ions in plants.

#### **Section E**

- Q.1** If you are provided with two tubes A and B. A is wider and B is relatively narrower. Both are immersed in a beaker containing water. Which one of them will show high water rise and why?
- Q.2** Salt is applied to tennis lawns to kill weeds. How does salting tennis lawns help in killing of weeds without affecting the grass?
- Q.3** A gardener forgot to water a potted plant for a day during summer. What will happen to this plant? Do you think it is reversible? If yes, how?
- Q.4** What are selectively permeable membranes? How do they differ from semi-permeable membranes?
- Q.5** What are potassium pump and proton secretion theory? Which features help the proton pump?
- Q.6** Succulents are known to keep their stomata closed during the day to check transpiration. How do they meet their photosynthetic CO<sub>2</sub> requirements?

#### **Value Based Questions**

- Q.1** Mohan had experienced that during the summers the potted plants at his home got easily wilted during bright sunny days in the noon. After watering the plants in the afternoon, the plants got recovered. One of his friends had the idea of it and explained to him the entire process.
- Why the plants got wilted?
  - How the plants got recovered?
  - What value is displayed by Mohan's friend?







# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17

Class - XI

Topic : Mineral Nutrition

## Section A

- Q.1 How is nitrogenase enzyme protected?
- Q.2 Which two macronutrients play the most important role in plant growth?
- Q.3 Name the one most mobile and one most immobile element.
- Q.4 Which mineral nutrient
- Forms the core constituent of the ring structure of chlorophyll.
  - is a component of middle lamella.
- Q.5 Name a plant, which accumulates silicon.
- Q.6 A farmer adds Azotobacter culture to the soil before sowing maize. Which mineral element is being replenished?
- Q.7 Which substance shows reduced biosynthesis in plants with zinc deficiency?
- Q.8 Which element is essential part of enzymes catalase, nitrogenase, nitrate reductase?
- Q.9 Name the most abundant cation in cell.
- Q.10 Name the enzyme involved in biological nitrogen fixation. What are the two mineral elements needed for the activity of enzyme?
- Q.11 What is critical concentration?
- Q.12 Name the pigment found in the root nodules of leguminous plants.
- Q.13 Who introduced hydroponics?
- Q.14 Where is leghaemoglobin located in the root nodule?
- Q.15 What type of condition is created by leghaemoglobin in root nodules of a legume?
- Q.16 Name two functional proteins containing iron.
- Q.17 From where do plants get hydrogen?
- Q.18 Deficiency of which mineral is responsible for early fall of leaves?
- Q.19 Which element is used by plants to form cytochrome?
- Q.20 Name the best known symbiotic nitrogen fixing bacterium.

## Section B

- Q.1 How is sulphur important for plants? Name the amino acids in which it is present.
- Q.2 What is hydroponics? Give its importance.
- Q.3 Define : ammonification, nitrification, denitrification.
- Q.4 Name the element required for (a) synthesis of auxin (b) synthesis of chlorophyll (c) splitting of water in photosynthesis.
- Q.5 How are organisms like Thiobacillus and Pseudomonas of great importance in nitrogen cycle?
- Q.6 Differentiate between micronutrients and macronutrients.
- Q.7 Name the nitrifying bacteria of the soil. Why are they called them chemo-autotrophs?
- Q.8 Write the deficiency symptoms of nitrogen and potassium.

- Q.9** What is the role of sodium and calcium in plants?
- Q.10** It is observed that deficiency of a particular element showed its symptoms initially in older leaves and then in younger leaves.
- Does it indicate that the element is actively mobilized or relatively immobile?
  - Name two elements which are highly mobile and two which are relatively immobile.
- Q.11** If we supply the nutrients to plants in excess amount, will they be beneficial for them? If yes, how? If no, why?
- Q.12** Why does the active absorption of salts take place against the concentration gradient?
- Q.13** A farmer adds Na, Ca, Mg and Fe regularly to his field and yet he observes that the plant show deficiency of Ca, Mg and Fe. Give a valid reason and suggest a way to help the farmer improve the growth of plants.

### Section-C

- Q.1** Name the most crucial enzyme found in root nodules for  $N_2$  fixation. Which pigment is required for its functioning and why?
- Q.2** Complete the following equations by giving correct option for A and B.
- $\alpha$ -ketoglutaric acid + [A] + NADPH  $\xrightarrow[\text{Dehydrogenase}]{\text{Glutamate}}$  [B] +  $H_2O$  + NADP<sup>+</sup>
  - Oxaloacetic acid + [C]  $\xrightarrow{\text{Transaminase}}$  Aspartic acid + [D]
- Q.3** How will you determine whether or not a particular element is essential for plants?
- Q.4** Explain the two phases during the process of ion absorption.
- Q.5** What are essential elements? What are the criteria for the essentiality of an element?
- Q.6** State functions of Manganese, Boron, Iron, Zinc, Molybdenum.
- Q.7** What will happen if the plants are supplied with excess of molybdenum. Explain.
- Q.8** Show only by schematic diagram the progressive reduction of one molecule of nitrogen into 2 molecules of ammonia during nitrogen fixation in plants.
- Q.9** How are amino acids synthesized? Explain.
- Q.10** How will you differentiate nitrification from denitrification?
- Q.11** With the help of examples describe the classification of essential elements based on the function they perform.

### Section-D

- Q.1** Give reason :
- Solute can reach upto endodermis through apoplast but it moves through endodermis by symplast
  - Higher plants fail to assimilate atmospheric free nitrogen directly
  - Iron is not a constituent of Chlorophyll but its deficiency causes chlorosis.
  - Excess of manganese may induce deficiency of iron, magnesium and calcium in plants.
- Q.2** Name the organism involved in symbiotic nitrogen fixation. What are the components needed for this purpose.
- Q.3** Differentiate between two types of absorption of minerals from soil through roots.
- Q.4** What are the various elements needed for the healthy growth of plants? Explain the sources, function and deficiency symptoms of any three.
- Q.5** Explain the various steps involved in Biological nitrogen fixation.



- Q.6** Trace the events starting from the coming in contact of Rhizobium to a leguminous root till nodule formation. Add a note on importance of leg haemoglobin.

### **Section E**

- Q.1** It is observed that deficiency of a particular element showed its symptoms initially in older leaves and then in younger leaves.
- Does it indicate that the element is actively mobilized or relatively immobile?
  - Name two elements which are highly mobile and two which are relatively immobile.
  - How is the aspect of mobility of elements important to horticulture and agriculture.
- Q.2** Nitrogen fixation is shown by prokaryotes and not eukaryotes. Comment?
- Q.3** How are organisms like Pseudomonas and Thiobacillus of great significance in nitrogen fixation?
- Q.4** Why do plants absorb and accumulate those elements which are not essential for their survival?

### **VALUE BASED QUESTION**

- Q.1** Amit developed deficiency of iron in his body and became pale. He saw a few plants with pale leaves in his farmhouse and asked the gardner whether plants also suffered from iron deficiency like humans. The gardner told him that plants also require minerals for their growth and development.
- What is the role of iron in plants?
  - Name one disease caused by deficiency of ironin plants.
  - What value is displayed by Amit?



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - I, Semester I

Class - XI

## Topic : Nervous System

### Section A

- Q.1 Which are the principle ions involved in conduction of nerve impulse.
- Q.2 Which part of brain regulates body temperature?
- Q.3 What is the role of corpus callosum?
- Q.4 What is the role of eustachian tube?
- Q.5 Name the chemical released by parasympathetic nervous system.
- Q.6 Name the three meninges or membranes of brain?
- Q.7 How many cranial and spinal nerves are present in man?
- Q.8 What is the coloured part of eye called?
- Q.9 Name the parts of Brain which form the brain stem.
- Q.10 Which muscles control the size of pupil?
- Q.11 Give the location of cristae, maculae and organ of Corti.
- Q.12 Where is the hunger centre located in human brain?
- Q.13 Where exactly are synaptic vesicles located? What is their role?
- Q.14 What is the threshold stimulus for a nerve cell?
- Q.15 Name the chemical which helps in transmitting nerve impulse at the synapse.
- Q.16 Where are bipolar nerve cells present in human body?
- Q.17 How do myelinated nerves help in faster transmission of nerve impulses?
- Q.18 Name the membranes constituting the cochlea.
- Q.19 Name the part of retina where no image is formed.
- Q.20 Which part of CNS acts as a master clock?
- Q.21 Which cells of retina enable us to see coloured objects?
- Q.22 Name the structures involved in protector of brain.

### Section B

- Q.1 Draw a neat well labelled diagram of
- Neuron
  - T.S. Human spinal cord
- Q.2 Comment on the role of ear in maintaining the balance of the body and posture.
- Q.3 What is the primary function of the neuroglia cells?
- Q.4 Describe the structure of cochlea.
- Q.5 Mention the events that take place at the point of stimulation of an axon?
- Q.6 Differentiate between :
- Pons and Medulla oblongata
  - Hypothalamus and Thalamus

- c. Cristae and macula
- d. Cerebrum and cerebellum
- e. Rods and cones
- f. Threshold potential and Action potential
- g. Parasympathetic and Sympathetic nervous system.

**Q.7** Enumerate the functions of hypothalamus.

- Q.8**
- a. What is the power of accommodation of the eye?
  - b. Differentiate between far - sightedness and near - sightedness.

**Q.9** How will the hearing be affected if the eustachian tubes get blocked?

- Q.10**
- a. If neural connection of heart is severed then the mammalian heart will continue beating or not? Explain.
  - b. Why do giant squids have a thick nerve fibre?

### **Section C**

**Q.1** Briefly explain the following structures.

- a. Synapse
- b. Ear ossicles
- c. Midbrain
- d. Organ of Corti

**Q.2** How do you perceive the colour of an object?

**Q.3** How does your eye regulate the amount of light that falls on the retina.

**Q.4** Draw a well labelled diagram of the human brain.

**Q.5** Compare different nerves on the basis of their origin.

**Q.6** What are the components of the limbic system? What is its function?

**Q.7** Describe the vestibular apparatus and its function.

**Q.8** Enumerate the events which occur during depolarisation of the membrane of a nerve fibre.

**Q.9** Explain briefly the structure and function of human middle ear.

**Q.10** How a nerve impulse is transmitted across a synaptic cleft.

**Q.11** Blind spot in the eye is devoid of ability of vision. Why is it so?

**Q.12** Why are nerve impulses conducted more rapidly in myelinated nerve fibre than in a non-myelinated one? Explain.

**Q.13** Give one function each of

- a. Temporal lobe
- b. Cerebellum
- c. Amygdala
- d. Cornea

**Q.14** What is the difference between electrical transmission and chemical transmission.

### **Section D**

**Q.1** Briefly explain the structure of

- a. Human ear
- b. Human eye

**Q.2** Give a brief account of mechanism of vision.

- Q.3** How does human ear help in maintaining equilibrium?
- Q.4** Draw a labelled diagram of the T.S. of spinal cord along with the schematic representation of the nerve pathway in the knee-jerk reflex arc.
- Q.5** What is Reflex action? Explain with the help of a line diagram.
- Q.6**
- Give differences between electrical impulses and chemical impulses which travel along the nerve.
  - Name the photoreceptors of the retina.
- Q.7** Describe the structure and functions of forebrain of human being.
- Q.8** Draw a neat well labelled diagram of
- human eye
  - human ear

### **Section E**

- Q.1** Raju was studying in XIth class. His elder brother was doing post graduation in ophthalmology. Raju asked following questions and wanted to know their answer from his brother.
- What is meant by eye donation? Which part is actually donated?
  - Which property of cornea makes its transplantation easy?
  - From where does cornea derives its nutrition?
- Q.2** Grima was ironing her school uniform, whenher palm accidentally touched the hot iron and suddenly she withdrew before getting burnt. She told about this incident to her biology teacher who explained it as simple reflex action.

Read the above passage and answer the following questions.

- What is reflex action?
  - What is the significance of simple reflex?
  - What is reflex arc?
- Q.3** Varsha usually suffered from headache, vomiting, and high temperature without any apparent reason. She visited a hospital, where the doctor after analyzing her cerebrospinal fluid (CSF), collected by a procedure known as a spinal tap, confirmed it as meningitis.

Read the above passage and answer the following questions.

- What is meningitis?
- What is meninges and its function?
- What causes meningitis?



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology MCQ's — 2016-17, Unit - I, Semester I

Class - XI

Topic : Nervous System

## MULTIPLE CHOICE TYPE QUESTIONS

- Q.1** Body coordination is maintained by :
- a. circulatory system
  - b. nervous system
  - c. endocrine system
  - d. both (b) and (c)
- Q.2** Which of the following is structural and functional unit of nervous system?
- a. Axon
  - b. Neuron
  - c. Osteocyte
  - d. Neuroglia
- Q.3** Which of the following part of a neuron is covered by fatty sheath?
- a. Axon
  - b. Cyton
  - c. Dendrite
  - d. Node of Ranvier
- Q.4** White matter is composed of :
- a. nerve cells
  - b. ependyma
  - c. nerve fibres
  - d. none of these
- Q.5** Glial cells that are phagocytic within the central nervous system are
- a. Microglia
  - b. Astrocytes
  - c. Ependymal cells
  - d. Oligodendrocytes
- Q.6** Myelin of the nerve fibres of the central nervous system is produced and maintained by
- a. Astrocytes
  - b. Microglia
  - c. Schwann cells
  - d. Oligodendrocytes
- Q.7** Potential difference across resting membrane is negatively charged. This is due to differential distribution of the following ions :
- a.  $\text{Na}^+$  and  $\text{K}^+$  ions
  - b.  $\text{Ca}^{2+}$  and  $\text{Cl}^-$  ions
  - c.  $\text{CO}_3^{3+}$  and  $\text{Cl}^-$  ions
  - d.  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions
- Q.8** Resting membrane potential is maintained by :
- a. Hormones
  - b. Ion pumps
  - c. Neurotransmitters
  - d. None of these
- Q.9** A typical value of resting membrane potential is :
- a.  $-40$  mV
  - b.  $-60$  mV
  - c.  $-70$  mV
  - d.  $-80$  mV
  - e.  $-90$  mV
- Q.10** In the resting state of the neural membrane, diffusion due to concentration gradients, if allowed would drive :
- a.  $\text{K}^+$  into the cell
  - b.  $\text{Na}^+$  into the cell
  - c.  $\text{Na}^+$  out of the cell
  - d.  $\text{K}^+$  and  $\text{Na}^+$  out of the cell
- Q.11** Excessive stimulation of vagus nerve in human may lead to :
- a. Hoarse voice
  - b. Peptic ulcers
  - c. Efficient digestion of proteins
  - d. Irregular contractions of diaphragm
- Q.12** One of the examples of the action of the autonomous nervous system is
- a. Knee-jerk response
  - b. Pupillary reflex
  - c. Peristalsis of intestine
  - d. Swallowing of food

- Q.13** In mammals organ of Corti occurs in
- a. Main canal
  - b. Ear canal
  - c. Cochlear canal
  - d. Tympanum
- Q.14** In myopia defect of the eye.
- a. Light rays come to focus at the back of the retina
  - b. Light rays come to focus in front of retina
  - c. Light rays come to focus in between retina and iris
  - d. Light rays do not enter at all in the eye.
- Q.15** Dark adaptation is due to
- a. Breakdown of visual pigment in cones
  - b. Synthesis of visual pigment in cones
  - c. Synthesis of visual pigment in rods
  - d. Break down of visual pigment in rods
- Q.16** A bipolar neuron has
- a. 2 dendrites and 1 axon
  - b. 2 axon and 1 dendrite
  - c. 1 dendrite and 1 axon
  - d. 2 axon and 2 dendrites
- Q.17** The shape of eye lens is changed by
- a. Yawning
  - b. Weeping
  - c. Coughing
  - d. Sneezing
- Q.18** Which of the following is the largest ear ossicle?
- a. Incus
  - b. Stapes
  - c. Stapedial plate
  - d. Malleus
- Q.19** Internal ear is filled with
- a. Perilymph
  - b. Endolymph
  - c. Lymph
  - d. both (a) and (b)
- Q.20** An area in the brain associated with strong emotions is
- a. cerebral cortex
  - b. Cerebellum
  - c. Limbic system
  - d. Medulla



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - I, Semester I

Class - XI

## Topic : Locomotion and Movement

### Section A

- Q.1 What are the locomotory organs in a star fish?
- Q.2 Which parts constitute axial skeleton and appendicular skeleton?
- Q.3 What causes Gouty arthritis?
- Q.4 Name the contractile protein of skeletal muscle having ATPase activity.
- Q.5 Name the autoimmune disorder affecting neuromuscular junction.
- Q.6 What lubricates the freely movable joint at the shoulder?
- Q.7 What is acetabulum?
- Q.8 Name the two contractile proteins of the thin filament of muscle fibre.
- Q.9 Name the kind of joint which permits movements in a single plane only.
- Q.10 Why are striated muscles called skeletal muscles?
- Q.11 What is a Sarcomere?
- Q.12 Name the heaviest and longest bone in human body.
- Q.13 Name the structure with which skull is articulated with the vertebral column.
- Q.14 What are tibia and fibula?
- Q.15 What is All-or-None principle?
- Q.16 What is a motor unit?
- Q.17 Name the various components of protein action.
- Q.18 Name the only movable bone in human skull.
- Q.19 How many vertebrae are present in sacral region.
- Q.20 What is Patella? Where is it located?
- Q.21 Name the substance which accumulates in a fatigued muscle.
- Q.22 Which type of Joint is found between sternum and the ribs of humans?
- Q.23 Name the joint between atlas and axis.

### Section B

- Q.1 Differentiate between true ribs, false ribs and floating ribs.
- Q.2 Give differences between (a) red and white muscle fibres (b) tendon and ligament (c) Rheumatoid arthritis and Gout.
- Q.3 Name the types of movements shown by cells of human body.
- Q.4 What is the significance of myoglobin?
- Q.5 What is sarcoplasmic reticulum? Give its function?
- Q.6 a. What are false ribs? Why are they so called?  
b. Name the largest and smallest bone in our body.

- Q.7** Differentiate between
- pectoral and pelvic girdle.
  - A band and I band
  - Striated and smooth muscles
  - Glenoid cavity and acetabulum
- Q.8** Give the main symptoms of
- Arthritis
  - Muscular dystrophy
- Q.9** Draw the diagram of a sarcomere of skeletal muscle showing different regions.
- Q.10** Differentiate between bone and cartilage.
- Q.11** Briefly explain the importance of :
- Myoglobin
  - Synovial joint
  - Fibrous joint
- Q.12** Name the bones which make up the pelvic girdle.
- Q.13** What is the difference between the matrix of bones and cartilage?

### **Section C**

- Q.1** Briefly explain sliding filament theory of muscle contraction.
- Q.2** What is sarcomere? Explain its structure with the help of a neat labelled diagram?
- Q.3** Write the difference between :
- Actin and Myosin
  - Red and White Muscle
  - Movable and Immovable joints
- Q.4** Name the different bones of hindlimb and their number in our body.
- Q.5** What is the role of sarcoplasmic reticulum, myosin head and F-actin during contraction of striated muscles of humans?
- Q.6** Represent diagrammatically the stages in the cross bridge formation.
- Q.7** Name the different bones of forelimb and their number in our body.
- Q.8** How does the muscle shorten during its contraction and lengthen during its relaxation?
- Q.9** Describe the detailed structure of skeletal muscle.
- Q.10** **Write a note on :**
- Muscle twitch
  - Ball - and - socket joint
  - Functions of human skeleton

### **Section D**

- Q.1** Draw a neat labelled diagram showing structural details of
- Actin filament
  - Myosin
- Q.2** Describe various kinds of skeletal joints in human body, according to their mobility, giving one example of each.
- Q.3** Name the different types of synovial joints in human body according to their mobility, giving one example of each.



- Q.4** Briefly describe the steps in muscle contraction.
- Q.5** Write a short note on the various parts of vertebral column. Also mention its function in human body.

### Section E

- Q.1** Harish's mother complained of pain in the back. After examination doctor told Harish that his mother was suffering from Osteoporosis.
- What is Osteoporosis?
  - In which sex, it is more commonly observed?
  - How Osteoporosis can be prevented?
- Q.2** Jyoti's mother was suffering from pain, swelling, and shiny redness over the base of her great toes. She used to have unbearable pain while walking. Jyoti took her mother to a doctor who diagnosed the disease as gouty arthritis.

Read the above passage and answer the following questions.

- What is gouty arthritis?
  - What is the cause of gouty arthritis?
  - Why gouty arthritis attacks occur most frequently in the joints of the feet and hands?
  - What values are shown by Jyoti?
- Q.3** Prakash is a good athlete, with a passion for running. He was chosen to run in a 100 meter dash during his school's annual sports event. However, after crossing finishing line he fell down, but a few minutes of rest helped him regain his energy and he started walking. Prakash narrated the incident to his brother who cited fatigue as a reason for his experience.

Read the above passage and answer the following questions.

- What is muscle fatigue?
- What is the cause of fatigue?
- Name the type of muscle immune to fatigue.



#### Topic : Locomotion and Movement

#### MULTIPLE CHOICE TYPE QUESTIONS

- Q.1** The generation of excitation-contraction coupling involve all the following events except:
- formation of cross-linkages between actin and myosin
  - generation of end-plate potential
  - release of calcium from troponin
  - hydrolysis of ATP to ADP
- Q.2** All or none law is not applicable for:
- single skeletal muscle fibre
  - single smooth muscle fibre
  - whole skeletal muscle
  - whole cardiac muscle
- Q.3** Nerve gas affects neuromuscular activity by:
- inhibiting acetylcholine sterase
  - inhibiting the release of acetylcholine
  - enhancing the release of acetylcholine
  - blocking the acetylcholine receptor sites
- Q.4** Achilles tendon is associated with:
- |                      |                         |
|----------------------|-------------------------|
| a. gluteus muscle    | b. hamstring muscle     |
| c. quadriceps muscle | d. gastrocnemius muscle |
- Q.5** The strongest muscle of human body is:
- |              |                    |
|--------------|--------------------|
| a. biceps    | b. masseter        |
| c. stapedius | d. gluteus maximus |
- Q.6** Smooth muscles are:
- involuntary, spindle shaped, uninucleated, tapering
  - voluntary, multinucleate and cylindrical
  - involuntary, cylindrical, multinucleate
  - voluntary, branched, uninuclear
- Q.7** Which one of the following statements is incorrect?
- Heart muscles are striated and involuntary.
  - The muscles of hands and legs are striated and voluntary.
  - The muscles located in the inner walls of alimentary canal are striated and involuntary.
  - Muscles located in the reproductive tracts are unstriated and involuntary.
- Q.8** The type of muscles present in our:
- upper arm are smooth muscle fibres fusiform in shape.
  - heart are involuntary and unstriated smooth muscles.
  - intestine are striated and involuntary.
  - thigh are striated and voluntary.

- Q.9** Myoglobin occurs in
- a. Red muscles fibres
  - b. White muscles fibres
  - c. Cardiac muscles
  - d. Both a and b
- Q.10** Hypersomotic urine secretion depends upon
- a. width of Bowman capsule
  - b. length of loop of Henle
  - c. length of PCT
  - d. length of DCT
- Q.11** The joint between ribs and sternum is
- a. hinge
  - b. cartilaginous
  - c. fibrous
  - d. angular
- Q.12** Which muscle is immune to fatigue?
- a. Striped
  - b. Unstriated
  - c. Cardiac
  - d. Voluntary
- Q.13** Which is the largest synovial joint?
- a. Shoulder joint
  - b. Knee joint
  - c. Hip joint
  - d. Elbow joint
- Q.14** Protein present in cartilage is
- a. Chondrin
  - b. Ossein
  - c. Cartilagin
  - d. Collagen



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-2017, Semester - II

Unit - II, Class - XI

## Topic – Cell - The basic Unit of Life

### Section-A

- Q.1 What does Omnis cellula - e.cellula means?
- Q.2 Name the nonmembranous organelles found in all cells.
- Q.3 Which is the non membrane bound cell organelle found in animal cell which helps in cell division.
- Q.4 Name the enzymes present in peroxisomes.
- Q.5 What are plasmids?
- Q.6 What is the the function of polysome?
- Q.7 What are Gram positive bacteria?
- Q.8 Give the composition of Glycocalyx.
- Q.9 Give one example each of gram +ve and gram -ve bacteria.
- Q.10 Name the cell wall composition of eubacteria.
- Q.11 Who discovered bacteria for the first time?
- Q.12 What are sulphur oxidizing bacteria?
- Q.13 How can archaebacterial cells tolerate extreme of heat and pH?
- Q.14 How is food stored in a bacterial cell?
- Q.15 What are chromatophores?
- Q.16 What is mesosome?
- Q.17 What will happen if RBC are placed in :
- Hypertonic solution and
  - Hypotonic solution
- Q.18 Define pinocytosis.
- Q.19 Where are extrinsic proteins in the cell membrane?
- Q.20 What is middle lamella?

### Section-B

- Q.1 What is the composition of cell sap of the vacuole? Besides sap vacuole, name the other vacuoles and give their functions.
- Q.2
- Give the term for the pile of thylakoids
  - What is carbon fixation? Where does it occur?
  - Name the lamellae that connect stroma and grana.
  - What is the unit structure of photosynthesis?
  - Name the plastids that store proteins and fat.
  - Name any three plastids which do not synthesize food.
- Q.3 Observe the relationship between the first two words and then fill in the suitable word at the fourth place.
- Centriole : 9+0 : : Cilia .....
  - Mitochondria : Cristae : : Chloroplast .....
  - Chloroplast : photosynthesis : : amyloplast .....
  - Nucleus : light microscope : : E.R. ....
- Q.4 Supply the specific scientific terms for the following :
- Cluster of ribosomes found in cytoplasm.
  - Extensive infoldings of the inner membrane of mitochondria.

- c. Stacks of closely packed thylakoid.
- d. Stalked particles on the inner membrane of the mitochondria.

**Q.5** Differentiate between Gram +ve and Gram -ve bacteria.

**Q.6** What do you understand by fluid mosaic model?

**Q.7** Describe structure of bacterial flagellum.

**Q.8** Briefly describe structure of cell wall of eukaryotic cell.

**Q.9** Differentiate between RER and SER.

**Q.10** Comment mitochondria are "semiautonomous bodies".

**Q.11** What are  $F_0 - F_1$  particles? What is their significance?

**Q.12** Briefly explain plastids.

**Q.13** What is Golgi complex? Give its function

**Q.14** What are lysosomes? Why are they called 'suicidal bags'?

**Q.15** Differentiate ribosomes and centrosome.

**Q.16** State the main functions of :

- i. Ribosome
- ii. Lysosomes
- iii. Peroxisome

**Q.17** Write the location of :

- i.  $F_0 - F_1$  particles
- ii. Thylakoid
- iii. Nucleolus

### Section-C

**Q.1** a. Name the scientist who discovered the Golgi complex.  
b. How many Golgi bodies are present in the animal cells?  
c. Name the cell in which Golgi apparatus is absent.  
d. Which organelles has a key role in the transformation and turnover of membranes within a cell?

**Q.2** How many types of bacteria are present on the basis of structure and flagella?

**Q.3** What are three coats of bacterial cell? Explain them.

**Q.4** Describe chemical composition of plasma membrane.

**Q.5** Sketch a fluid mosaic model of plasma membrane.

**Q.6** Compare structure and function of mitochondria and chloroplasts.

**Q.7** What is the role of ribosomes in a cell? How are they different in prokaryotic and Eukaryotic cell?

**Q.8** Explain the structure of flagellum.

**Q.9** Draw a labelled diagram of bacterial cell.

### Section-D

**Q.1** Give a few important features of bacteria. Distinguish between eubacteria and archaebacteria.

**Q.2** Draw a labelled diagram of ultrastructure of plant cell.

**Q.3** Draw a labelled diagram of ultrastructure of animal cell.

**Q.4** Sketch (i) Chloroplast and mitochondria

**Q.5** Draw T.S. of centriole.

**Q.6** Draw T.S. of flagellum.

### Section-E

**Q.1** How does the position of centromere form the basis of classification of chromosomes? Support your answer with diagrams.

**Q.2** Proteins in the cell membrane float like ice bergs in sea of Lipids. Discuss.

**Q.3** What is Endomembrane system. Explain.

**Q.4** How does presence of biological membranes significant in functioning of a Eukaryotic cells. Discuss.



- Q.13** Ability of a cell to form whole organism is called
- a. Totipotency
  - b. Cloning
  - c. Regeneration
  - d. Development
- Q.14** Function of peroxisome is
- a.  $H_2O_2$  destruction
  - b. oxidative phosphorylation
  - c. conversion of fats into carbohydrates
  - d. detoxification
- Q.15** Glyoxysome helps in
- a. fatty acid metabolism
  - b. glyoxylate cycle
  - c. beta-oxidation / digestion of fats
  - d. all of the above
- Q.16** Mitochondria are non-existent in
- a. red algae
  - b. bacteria
  - c. green algae
  - d. all of the above
- Q.17** GERL is associated with
- a. lysosome
  - b. Golgi body
  - c. lomasomes
  - d. ER
- Q.18** Mitochondria are found in the following all cells except
- a. Leucocytes
  - b. Hepatocytes
  - c. Erythrocytes
  - d. Adipocytes
- Q.19** Chromosomes as nuclear filaments were described by
- a. Waldeyer
  - b. Hofmeister
  - c. Brown
  - d. Hooke



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Semester II

Unit - II, Class - XI

## Topic - Cell Cycle

### Section-A

- Q.1** What is the G<sub>1</sub> phase of the interphase?
- Q.2** Name the following scientists who :
- Studied the equational cell division in animal cell and introduced the term mitosis.
  - First described mitosis
  - Coined the term meiosis.
- Q.3** In which phase do the centromeres split and chromatids move apart?
- Q.4** What term is used for a full set of DNA instructions in a cell?
- Q.5** What is a metaphase plate?
- Q.6** What is the significance of pachytene stage in cell cycle?
- Q.7** What is cytokinesis?
- Q.8** Name the parts of flowering plant where meiosis occurs.
- Q.9** Which of the following statements are related to following phases of mitosis.
- |              |               |             |
|--------------|---------------|-------------|
| A. Prophase  | B. Metaphase  | C. Anaphase |
| D. Telophase | E. Interphase |             |
- Reformation of nuclear membrane
  - Chromosomes are short and thick
  - Chromosomes are constricted
  - Division of centromere in two parts
  - Nucleus becomes active but chromosomes are indistinct
  - Stage after cytokinesis
  - Formation of chromatids from chromosomes
- Q.10** Give scientific terms for the following :
- Stage between two mitotic division
  - The process of cell division in which chromosome number is reduced to half
  - Point of attachment of two chromatids
  - Stage of cell cycle in which protein synthesis and RNA synthesis take place.
  - Division of nucleus
- Q.11** Define chiasmata.
- Q.12** In which phase of interphase does DNA replication occur?
- Q.13** Which type of cell-division does occurs in meristematic cells of root apex?
- Q.14** Name the cells in which meiosis occurs.
- Q.15** What is a dyad?
- Q.16** Give the terms for direct cell division, equational division and reductional division.
- Q.17** Name the stages in which synapsis and crossing over occur.
- Q.18** What are homologous chromosomes?
- Q.19** What indicates the beginning of diplotene?
- Q.20** What is endomitosis?
- Q.21** What is karyokinesis?
- Q.22** Can there be DNA replication without cell division?



### Section-B

- Q.1 What is genome? How many genomes are there in the haploid and in a diploid cell?
- Q.2 What is  $G_0$  (quiescent phase) of cell cycle?
- Q.3 Name the three phases of interphase of cell cycle and explain their significance.
- Q.4 What are kinetochores? What is their significance?
- Q.5 Mention the types of cell divisions and differentiate between them.
- Q.6 Describe the changes occurring in the nucleus during prophase of mitosis.
- Q.7 Differentiate between cytokinesis in animal cell and plant cell.
- Q.8 Differentiate between Interphase and prophase of mitosis.
- Q.9 What is the importance of cell cycle?
- Q.10 Write significance of mitosis.
- Q.11 What is effect of colchicine on cell division?
- Q.12 Define meiosis. How many daughter cells are formed at the end of cell meiosis.
- Q.13 Name the stages of prophase I of meiosis.
- Q.14 When and why does reduction in the number of chromosomes take place in meiosis?
- Q.15 Write a note on anaphase I of meiosis.
- Q.16 Differentiate between metaphase of mitosis and metaphase I of meiosis.

### Section-C

- Q.1 Find examples where the four daughter cells from meiosis are equal in size and where they are found unequal in size.
- Q.2 Represent diagrammatically the prophase stage of mitosis.
- Q.3 What is the importance of mitosis in life history of an organism?
- Q.4 Why can cytokinesis not occur in plant cells the same way as it occurs in animal cells?
- Q.5 Differentiate between pachytene and zygotene.
- Q.6 Sketch the changes which chromosome undergo during prophase I of meiosis.
- Q.7 What is (a) Dyad (b) Tetrad (c) Univalent (d) Bivalent
- Q.8 How will you distinguish between a cell undergoing diplotene and one undergoing diakinesis?
- Q.9 Analyse the events during every stage of cell cycle and notice how the following two parameters change.
  - a. number of chromosomes per cell.
  - b. Amount of DNA content per cell.
- Q.10 Meiosis II and Mitosis are similar, Comment.
- Q.11 Explain Crossing Over along with the diagram.

### Section-D

- Q.1 Explain various stages of mitosis.
- Q.2 Sketch different stages of mitosis.
- Q.3 Explain meiosis I.
- Q.4 Sketch various stages of meiosis.
- Q.5 List the main difference between mitosis and meiosis.

### Section-E

- Q.1 After meiosis I the chromosome number in the daughter cell has reduced to half, yet meiosis II occurs. Why?
- Q.2 Interphase is a resting phase. Discuss.
- Q.3 Plant cells do not have centriole, do they show spindle fibre formation?



# DELHI PUBLIC SCHOOL, FARIDABAD

## Biology Objective type Assignment — 2016-17

### Unit - II, Class - XI

#### Topic - Cell Cycle

- Q.1** Crossing over that results in genetic recombination in higher organisms occurs between.
- Two daughter nuclei
  - Two different bivalents
  - Sister chromatids of a bivalent
  - Non-sister chromatids
- Q.2** Colchicine prevents the mitosis of cell at
- Prophase
  - Anaphase
  - Metaphase
  - Telophase
- Q.3** Cell plate formation starts from
- Epiblast
  - Tonoplast
  - Phragmo plast
  - Protoplast
- Q.4** Synthesis of RNA and Proteins takes place in
- M-phase
  - S-phase
  - G<sub>1</sub>-phase
  - G<sub>1</sub> and G<sub>2</sub> phase
- Q.5** Spindle fibres are made up of
- Tubulin
  - Humulin
  - Intermediate filaments
  - Flagellin
- Q.6** A cell divides every minute. It will fill a 100 ml beaker in one hour. How much time would it take to fill 50 ml beaker?
- 30 minutes
  - 48 minutes
  - 50 minutes
  - 59 minutes
- Q.7** The correct sequence of phases in cell cycle is
- S - M - G<sub>1</sub> - G<sub>2</sub>
  - G<sub>1</sub> - S - G<sub>2</sub> - M
  - M - G<sub>1</sub> - G<sub>2</sub> - S
  - S - G<sub>1</sub> - G<sub>2</sub> - M
- Q.8** When paternal and maternal chromosomes mutually exchange their materials in cell division, the event is called
- Synapsis
  - Crossing over
  - Bivalent formation
  - Dyad formation
- Q.9** Which one is present on a chromosome?
- Centrosome
  - Centromere
  - Nucleus
  - Golgi body
- Q.10** If after mitotic division, cell activity is restricted to G<sub>1</sub> phase of the cell cycle, then the condition is known as
- G<sub>2</sub> phase
  - G<sub>0</sub> phase
  - Sphase
  - M phase
- Q.11** During cell division, the spindle fibres attach to \_\_\_\_\_ of chromosomes.
- Chromatids
  - Chromomeres
  - Kinetochores
  - All the above
- Q.12** Phragmoplast is found during
- Prophase
  - Metaphase
  - Anaphase
  - Cytokinesis
- Q.13** Number of chromatids at metaphase is
- Two each in mitosis and meiosis
  - Two in mitosis and one in meiosis
  - Two in mitosis and four in meiosis
  - One in mitosis and two in meiosis
- Q.14** Chromosome end is called
- Telomere
  - Centromere
  - Satellite
  - Metamere

- Q.15** Anaphase chromosomes appear J-shaped when the chromosomes are
- a. Metacentric
  - b. Submetacentric
  - c. Acrocentric
  - d. Telocentric
- Q.16** The haploid condition is reached by
- a. Prophase I
  - b. Metaphse I
  - c. Anaphase I
  - d. Telophase I
- Q.17** Which phase is called as invisible phase of cell cycle?
- a.  $G_1$  phase
  - b.  $G_2$  phase
  - c. S-phase
  - d. All of the above
- Q.18** Among the different stages of prophase I, which are is longest?
- a. Leptotene
  - b. Zygotene
  - c. Pachytene
  - d. Diplotene
- Q.19** Synthesis of DNA stops in
- a. Premitotic gap phase
  - b. Post mitotic gap phase
  - c. Synthetic phase
  - d. Prophase
- Q.20** The interphase period of human neuron is
- a. 270 days
  - b. 180 days
  - c. 90 days
  - d. Entire life



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - III, Semester I

Class - XI

**Topic : Excretory products and their elimination**

## Section - A

- Q.1** With respect to the mode of excretion, which type of organism bony fishes are?
- Q.2** Name the hormone released by JGA.
- Q.3** Name a substance which will be completely reabsorbed from glomerular filtrate under normal conditions in the nephron?
- Q.4** What is the normal GFR of humans?
- Q.5** Name the excretory organs in
- Tapeworm
  - Cockroach
  - Annelids
- Q.6** Name the substance which gives yellow colour to the urine?
- Q.7** If prostate gland is enlarged in old age, then what will be its effect on urination?
- Q.8** Name the two types of nephrons present in human kidney.
- Q.9** What is the main function of Henle's loop?
- Q.10** Besides water, name any two main components of human sweat.
- Q.11** Kidneys of man are asymmetrical in position. Give reasons.
- Q.12** Which hormone controls osmoregulation?
- Q.13** What is renal calculi?
- Q.14** What is the cortical portion projecting between the medullary pyramid in the human kidney known as?
- Q.15** What is Micturition?
- Q.16** Name the mechanism that acts as a check for the Renin-angiotensin mechanism.
- Q.17** What is the composition of dialysis fluid?
- Q.18** Name the type of cells that form the inner lining of PCT.
- Q.19** Which are the other organs of excretion besides kidneys.
- Q.20** What is Glomerulonephritis?

## Section B

- Q.1** **What is the functional unit of the kidney? Name its parts.**
- Q.2** Explain the autoregulatory mechanism of GFR.
- Q.3** What is counter current mechanism? Explain the function of Vasa Recta.
- Q.4** ANF mechanism, acts as a check on the renin - angiotensin mechanism. How? Explain.
- Q.5** Kidneys do not play a major role in excretion in ammonotelic animals. Justify.
- Q.6** Differentiate between Cortical nephrons and Juxtamedullary nephrons.
- Q.7** What are the functions of nephridia? Name an animal having protonephridia.
- Q.8** Name the cells which release Renin. Where are these cells located?
- Q.9** Mention the role of DCT in urine formation.
- Q.10** How do kidneys conserve water when the water content of the body is low?

- Q.11** Ureters do not have valves at their ends opening into the urinary bladder. Yet urine does not flow back into them. Give reason.
- Q.12** a. Which limb of loop of Henle is impermeable to water?  
b. Which part of nephron is directly influenced by ADH?
- Q.13** Terrestrial animals are generally ureotelic or uricotelic, not ammonotelic. Why?
- Q.14** How does PCT of nephron contribute in homeostasis?
- Q.15** What is uremia? Give its symptoms.
- Q.16** What are Podocytes? Where are they located? Give their function.

### **Section C**

- Q.1** Describe the role of juxtaglomerular apparatus (JGA) in kidney function?
- Q.2** What happens to the walls of DCT of nephron when vasopressin is released by pituitary into the blood stream?
- Q.3** Name the two structural components of renal tubule responsible for concentration of urine. Explain the mechanism.
- Q.4** Draw a simple diagram of a human nephron. Label any six parts.
- Q.5** Name the following :  
a. A chordate animal having flame cells as excretory structures.  
b. A loop of capillary running parallel to the Henle's loop.
- Q.6** Explain the autoregulatory mechanism of GFR.
- Q.7** Describe the process of Haemodialysis.
- Q.8** Draw a well labelled diagram of the human urinary system along with the associated main blood vessels.
- Q.9** a. Explain the process of reabsorption in the nephron during urine formation in humans.  
b. Why is kidney called as osmoregulator?
- Q.10** What are the factors that favour glomerulus filtration?
- Q.11** What factors cause an increase in renin production.
- Q.12** Where is aldosterone produced? What factors stimulate its secretions.

### **Section D**

- Q.1** Describe the mechanism of ultrafiltration in Bowman's capsule.
- Q.2** Briefly explain counter - current mechanism in humans. What is its significance?
- Q.3** Differentiate between :  
a. Afferent arteriole and efferent arteriole  
b. Cortex and medulla of kidney  
c. Ultra filtration and Renal reabsorption
- Q.4** Name the major excretory products. How are these products eliminated from the body.
- Q.5** Explain briefly the mechanism of urine formation in human kidney.
- Q.6** What are the functions of the ureters, urethra and urinary bladder?

### **Section E**

- Q.1** Mr. Verma was hospitalised for kidney problem. Verma's friend Mr. Bedi went to the hospital to enquire about Mr. Verma's health. The doctor told Mr. Bedi that Mr. Verma had been suffering from renal failure.  
a. What is Renal failure.  
b. What is meant by kidney transplant?  
c. What is an artificial kidney? What is the principle behind artificial kidney?



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - III, Semester I

Class - XI

Topic : Excretory products and their elimination

## MULTIPLE CHOICE TYPE QUESTIONS

- Q.1** A large quantity of one of the following is removed from our body by lungs:
- (a) CO<sub>2</sub> only (b) H<sub>2</sub>O only  
(c) CO<sub>2</sub> and H<sub>2</sub>O (d) Ammonia
- Q.2** The animal that excretes amino acids without deamination is:
- (a) *Rana* (b) *Unio*  
(c) *Musca* (d) *Labeo*
- Q.3** Which of the following is the most toxic nitrogenous waste?
- (a) TMO (b) Urea  
(c) Uric acid (d) Ammonia
- Q.4** Which of the following is both osmoregulator as well as nitrogenous product?
- (a) NH<sub>3</sub> (b) Urea  
(c) Uric acid (d) All of these
- Q.5** The animal which retains urea for hypertonicity is:
- (a) man (b) bird  
(c) amphibian (d) elasmobranch
- Q.6** Urea is transported by:
- (a) RBCs (b) Leucocytes  
(c) Blood plasma (d) Haemoglobin
- Q.7** Bowman's capsule is found in :
- (a) Nephron (b) Glomerulus  
(c) Uriniferous tubule (d) Malpighian capsule
- Q.8** Inner layer of Bowman's capsule consists of :
- (a) podocytes (b) nephridia  
(c) osteocytes (d) choanocytes
- Q.9** The region of the nephron found in the renal medulla is :
- (a) Glomerulus (b) Henle's loop  
(c) Malpighian corpuscle (d) Distal convoluted tubule
- Q.10** In a glomerulus, afferent :
- (a) arteriole is thicker than efferent arteriole  
(b) arteriole is thinner than efferent arteriole  
(c) capillaries are thicker than efferent capillaries  
(d) capillaries are thinner than efferent capillaries

- Q.11** Angiotensinogen is a protein produced and secreted by
- (a) JG cells
  - (b) Maculadensa cells
  - (c) Endothelial cells
  - (d) Liver cells
- Q.12** Which one does not enter nephron.
- (a) Water
  - (b) Glucose
  - (c) Plasma proteins
  - (d) Urea
- Q.13** Presence of blood in urine is
- (a) Glycosuria
  - (b) Haematuria
  - (c) Oligourea
  - (d) Anuria
- Q.14** Uric acid is formed from -
- a. Protein
  - b. Pyrimidine
  - c. Purines
  - d. Glucose
- Q.15** Diabetes insipidus is due to -
- a. Hyposecretion of Vasopressin
  - b. Hypersecretion of vasopressin
  - c. Hyposecretion of insulin
  - d. Hypersection of insulin.



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - III, Semester I

Class - XI

## Topic : Structural Organization in Animals

### Section - A

- Q.1** In which tissue you are likely to come across cell junctions most frequently?
- Q.2** Name the type of epithelial tissue present in :
- air sacs of lungs
  - tubular parts of nephron in the kidney
  - lining of stomach
- Q.3** What is the function of desmosomes?
- Q.4** Name the major protein of connective tissue.
- Q.5** What will happen if ligaments are cut or broken.
- Q.6** Name any two chemicals secreted by the mast cells.
- Q.7** What is diapedesis?
- Q.8** Name the materials which form the white and yellow fibres are formed?
- Q.9** Which protein constitutes bone matrix.
- Q.10** Name the pigment found in red muscle fibres.
- Q.11** Name the two connective tissues located mainly beneath the skin.
- Q.12** Give two examples of dense regular connective tissue.
- Q.13** Name the connective tissue present at the tip of the nose.
- Q.14** Which type of muscle tissue is present in
- biceps
  - internal wall of stomach
- Q.15** Name the non-excitabile cells found in nervous tissue.
- Q.16** What are sclerites?
- Q.17** How does head of the cockroach show great mobility?
- Q.18** What is the function of hypopharynx in the cockroach?
- Q.19** Where are Malpighian tubules located in the cockroach and what is their function?
- Q.20** What are spermatophores? Give their function.
- Q.21** Why blood plasma is pale yellow in colour?
- Q.22** What is the function of cholesterol?
- Q.23** What are Myoblasts?
- Q.24** Which connective tissue is known as packaging tissue.
- Q.25** Give the function of Adipose tissue?

### Section - B

- Q.1** Classify glands based on mode of secretion.
- Q.2** What is rigor mortis?
- Q.3** Name the tissue which performs following functions :
- Transmission of message
  - Locomotion
  - Protection against mechanical shocks
  - Coagulation of blood



- Q.4** Name the different cell junctions found in tissues.
- Q.5** a. What is the position of ovaries in cockroach?  
b. How many segments are present in the abdomen of cockroach?
- Q.6** What are the following and where do you find them in animal body?  
a. Chondrocyte  
b. Axons  
c. Ciliated epithelium
- Q.7** Distinguish between  
a. Cardiac muscle and striated muscle  
b. Simple gland and compound gland  
c. Dense regular and dense irregular connective tissues.  
d. Adipose and blood tissue.  
e. Axon and dendrite.  
f. Blood and lymph.
- Q.8** Differentiate between squamous, cuboidal and columnar epithelium on the basis of their functions.
- Q.9** How are tight junctions and Adhering junctions different from each other?
- Q.10** Draw a neat well labelled diagram of cartilage explaining it's structural details.
- Q.11** Briefly explain the Haversian canal system.
- Q.12** Diagrammatically differentiate between skeletal muscles and Cardiac muscles.
- Q.13** Draw a neat, well labelled diagram of neuron.
- Q.14** Differentiate between the Fore wings and Hind wings of the cockroach.
- Q.15** Give the structural detail and function of  
a. Crop  
b. Gizzard found in the cockroach
- Q.16** Briefly explain the structure and functioning of the heart of the cockroach.
- Q.17** Briefly explain about the compound eye and mosaic vision seen in cockroach.
- Q.18** Does lymph help in maintaining blood volume? How?

### **Section - C**

- Q.1** a. What are phallomere?  
b. What are spermatophores? Give their function.  
c. Briefly explain structural details of oothecae.
- Q.2** Draw a neat labelled diagram of alimentary canal of cockroach.
- Q.3** Briefly explain about the details of respiratory system in cockroach.
- Q.4** Name the various constituents of nervous tissue. Describe a neuron.
- Q.5** Differentiate between tendon and ligament.
- Q.6** Differentiate between  
a. Cyton and Axon  
b. Simple gland and compound gland
- Q.7** Where do you find the following in animals body.  
a. Chondrocytes  
b. Nissl's granules  
c. Haversian canal  
d. Axon  
e. Ciliated epithelium

- Q.8** Why are neurons called excitable cells? Mention special features of the neurons.
- Q.9** Write a short note on dense connective tissue.
- Q.10** Draw a neat labelled diagram showing details of Areolar tissue.
- Q.11** Write the functions of blood plasma.
- Q.12** Enumerate the cell types of connective tissue.
- Q.13** Describe the mouth parts of cockroach.
- Q.14** Differentiate between male and female cockroach.

#### **Section - D**

- Q.1** Discuss the histological structure of striated muscle.
- Q.2** Make a labelled sketch of the transverse section of mammalian bone.
- Q.3** Classify and describe epithelial tissue on the basis of structural modifications of cells.
- Q.4** Differentiate between bone and cartilage.
- Q.5** Briefly explain about all the structures found in the head region of the cockroach.
- Q.6** Describe the external characters of cockroach. What is the importance of the exoskeleton of this insect?

#### **Section - E**

- Q.1** Rohit was suffering from sprain. He went to a doctor. While the doctor was examining, he asked the following questions from Rohit.
- Which tissue is the most abundant and widely distributed tissue of the body?
  - What is Sprain?
  - What is a ligament?
- Q.2** Whenever Ramesh's mother switched on the light of kitchen store at night she saw numerous cockroaches moving very fast here and there, some cockroaches even got crushed under her feet. She noticed a whitish substance that came out of the body of crushed cockroaches. Whitish substance was fat body.
- Why are cockroaches seen at night only? What is the technical term for animals which run very fast?
  - What is the food of cockroaches?
  - Which feature in them makes their presence cosmopolitan?
- Q.3** Varun's grandfather developed some degenerative nerve diseases. It affected many of his activities, such as balance, movement, talking, breathing and heart function. Doctor on detailed examination explained that most of the nerve diseases have no cure as neurons exhibit very little repair and regenerating capacity. Treatment may help improve symptoms, relieve pain and increase mobility.
- What is nervous tissue?
  - What are the two types of cells found in nervous tissue?
  - Name two degenerative nerve diseases.



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - III, Semester I

Class - XI

Topic : Structural Organization in animals

## MULTIPLE CHOICE TYPE QUESTIONS

- Q.1** Mast cells of connective tissue contain :
- (a) Heparin and histamine (b) Serotonin and melanin  
(c) Heparin and calcitonin (d) Vasopressin and relaxin
- Q.2** This is not the cell of areolar tissue:
- (a) Plasma cell (b) Adipose cell  
(c) Schwann cell (d) Macrophage
- Q.3** Which of the following statements is true regarding adipose tissue?
- (a) White fat cells are multilocular  
(b) Brown fat cells are monolocular  
(c) White fat yields more heat than brown fat  
(d) Fat yields twice the energy as compared to carbohydrates
- Q.4** Tendons and ligaments are :
- (a) nerve tissue (b) epithelial tissue  
(c) muscular tissue (d) fibrous connective tissue
- Q.5** Pseudostratified columnar epithelium is found in :
- (a) ureter (b) trachea  
(c) kidney (d) blood vessels
- Q.6** The lining of intestine and kidneys in humans has :
- (a) ciliated (b) keratinized  
(c) brush border (d) none of these
- Q.7** Urinary bladder is lined by :
- (a) ciliated epithelium (b) cuboidal epithelium  
(c) transitional epithelium (d) pseudostratified epithelium
- Q.8** In which type of muscles, Mitochondria are expected to be found in largest numbers?
- (a) Eye muscle (b) Thigh muscle  
(c) Cardiac muscles (d) Thoracic muscle
- Q.9** Nissl granules found in cyton of a neuron and having affinity for basic dyes, are composed of
- (a) DNA (b) RNA  
(c) Proteins (d) Amino acids
- Q.10** Myelin sheath is derived from
- (a) Neuroglial cells (b) Schwann cells  
(c) Nerve cells (d) All of these
- Q.11** Keratinized dead layer of skin is made of
- (a) stratified squamous (b) simple cuboidal  
(c) simple columnar (d) stratified columnar
- Q.12** Most swollen segment in cockroach is
- (a) tarsus (b) coxa  
(c) femur (d) trochanter
- Q.13** In cockroach the food is crushed in which part?
- a. crop (b) gizzard  
(c) mesenteron (d) oesophagus
- Q.14** In cockroach fertilization occurs in
- (a) oothecal chambers (b) genital chamber  
(c) oviduct (d) spermatheca
- Q.15** Metamorphosis in cockroach is regulated mainly by
- (a) corpora cardiaca (b) prothoracic glands  
(c) corpora allata (d) brain



# DELHI PUBLIC SCHOOL, FARIDABAD

Biology Assignment — 2016-17, Unit - III, Semester I

Class - XI

**Topic : Control and Coordination – Endocrine System**

## **Section A**

- Q.1 Give one similarity between enzyme and hormones.
- Q.2 Due to degeneration of parathyroid gland, which activity is disturbed.
- Q.3 Name the disease characterized by a high plasma  $\text{Na}^+$ , low plasma  $\text{K}^+$ , rise in blood volume and high blood pressure.
- Q.4 Give four main features of hormone.
- Q.5 Name the hormones secreted by the alpha cells of Islets of Langerhans.
- Q.6 Which hormone is called 'ejection hormone'?
- Q.7 Name one gland in human body which secretes digestive enzymes as well as hormones.
- Q.8 Name the glands which are both endocrine and exocrine in nature.
- Q.9 Name two hormones secreted by anterior pituitary gland.
- Q.10 Name a gastrointestinal hormone?
- Q.11 Name the hormone secreted from outermost cellular layer of adrenal cortex.
- Q.12 Name the endocrine gland which releases cortisol.
- Q.13 Which disease is caused by deficiency of vasopressin?
- Q.14 Name two hormones released by pancreatic islets.
- Q.15 Which hormone regulates  $\text{Na}^+$  and  $\text{K}^+$  metabolism in our body?
- Q.16 Name the hormone which controls osmoregulation.
- Q.17 Which is the emergency hormone in the human body?
- Q.18 Enlist the hormones produced by placenta.
- Q.19 Name the hormone which is secreted by the Leydig's cells.
- Q.20 Which hormone deficiency causes Diabetes mellitus?
- Q.21 What stimulates the secretion of parathyroid hormone?
- Q.22 Name the diseases caused by deficiency of hormone Thyroxine.
- Q.23 Which three groups of hormones are secreted by adrenal cortex?
- Q.24 Which hormone promotes cell division, protein synthesis and bone growth?
- Q.25 Why a man-suffering from diabetes mellitus drinks water more frequently?

## **Section B**

- Q.1 What is erythropoiesis? Which hormone stimulates it?
- Q.2 Which hormone helps in cell mediated immunity.
- Q.3 Why is Posterior pituitary called storage, releaser centre?
- Q.4 How is corpus luteum formed? Give its significance in human female body.
- Q.5 Name the various diseases caused due to abnormal secretion of growth hormone.
- Q.6 Differentiate between Exocrine and Endocrine glands.
- Q.7 Is pituitary gland the master gland? Give reasons.
- Q.8 Glucagon and insulin are antagonistic in their function. Explain.

- Q.9** Name two types of hormones secreted from endocrine part of the thyroid and parathyroid which function antagonistic to each other?
- Q.10** What is feed back mechanism? Explain with an example.
- Q.11** Briefly explain various changes brought by release of emergency hormone in our body.
- Q.12** Give reason : Hypothalamus and pituitary gland function as an integrated system.
- Q.13** Name the hormones that regulate
- Widening of pelvis at birth
  - Milk production in mammary glands
  - Sperm production in testis.
- Q.14** what is the role of second messenger in hormone action

### Section C

- Q.1** A person was complaining of excessive thirst and excretion of large amounts of urine. The treating doctor gave some medicines but did not advise him to stop taking sugar in his food. Name the disease and explain what happens in it?
- Q.2** Write the names and sources of the hormones regulating :
- Metamorphosis of tadpole
  - Blood pressure in humans
  - Milk secretion
  - Maturation of Graafian follicles
- Q.3** Briefly explain the role of
- Thymosin
  - Cortisol
- Q.4** Briefly explain Hypothalamo hypophysial portal system.
- Q.5** Give the full form of ADH. Name the gland that secretes it. Under what condition of the body is it released? What is its role in forming hypertonic urine? What disease is caused due to the failure of this hormone?
- Q.6** Give the full form of FSH. Name the gland that secretes it. How does it differ in its function in a male and a female? What stops its secretion in a female?
- Q.7** Draw a labelled diagram to show the location of various endocrine glands in human body.
- Q.8** What is the role of the following hormones in female reproductive cycle : (i) FSH (ii) LH (iii) Progesterone?
- Q.9** Briefly explain with the help of diagram the mechanism of action of hormone FSH.
- Q.10** Name the gland which releases Growth hormone. Give it's functions.
- Q.11** What is the role played by Luvtenizing hormone in human male.

### Section D

- Q.1** Name the hormone that regulates each of the following function. Also mention the source of it.
- Urinary elimination of water
  - Storage of glucose as glycogen
  - Sodium and potassium ion metabolism
  - Basal metabolic rate
  - Descent of testes in scrotum
  - Heart beat and blood pressure
  - Secretion of growth hormone
  - Maturation of Graafian follicle
  - Rise in calcium secretion
  - Milk secretion

- Q.2** Briefly explain the various hormones released in human alimentary canal and give their function.
- Q.3** With the help of a neat labelled diagram explain the mode of action of steroid hormone.
- Q.4** Tabulate various pituitary hormones and give their sources and physiological functioning.
- Q.5** With the help of an example briefly explain positive and negative feed back mechanism.
- Q.6** Mention the difference between hypothyroidism and hyperthyroidism.
- Q.7** Illustrate the difference between the mechanism of action of a protein and a steroid hormone.

### **Section E**

- Q.1** Vivek lacks alertness and initiative. He is also characterized by puffy appearance due to accumulation of fat in the subcutaneous tissue because of low metabolic rate. He also suffers from slow heart beat and low temperature .
- a. From which disease Vivek is suffering?
  - b. Deficiency of which hormone leads to this disease?
  - c. How can we prevent occurrence of this disease?
  - d. In which areas is this disease common?

- Q.2** Seema went to the market with her mother to fetch some vegetables. There, they saw a woman with a swollen neck selling cauliflower. Seema told her mother that it is a case of simple goitre. The next day, Seema discussed the details of this disease with her biology teacher.

Read the above passage and answer the following questions.

- a. What is a simple goitre, is it a cancer?
  - b. Why is it commonly found in women than men and what is the cause of this disorder?
  - c. What is the value shown by Seema?
- Q.3** Rajni was pregnant and during one of her monthly check ups, her doctor asked her to include iodized salt in her diet as it is very important for the developing foetus' health.

Read the above passage and answer the following, questions.

- a. What are the health benefits of iodine?
  - b. What is the physiological role of iodine?
  - c. What value is shown by the doctor's advice?
- Q.4** Charu was undergoing a prolonged labour pain in the maternity ward of the hospital. Her parents called the doctor and requested to do something to relieve their daughter from the agony of the pain. Instead carrying out an immediate caesarean operation, doctor gave an injection of oxytocin which resulted in the normal delivery of a female baby.

Read the above passage and answer the following questions.

- a. What is oxytocin?
- b. How it helps to induce delivery?
- c. What is the value shown by the doctor?



- Q.14** Addison's disease results from
- a. hyposecretion of adrenal
  - b. hypertrophy of gonads
  - c. hyperactivity of cells of leydig
  - d. none of these
- Q.15** Ageing according to immunity theory starts with gradual atrophy of
- a. pituitary
  - b. thyroid
  - c. pineal
  - d. thymus
- Q.16** Progesterone in the contraceptive pills
- a. prevents ovulation
  - b. inhibits estrogen
  - c. avoids attachment of fertilized egg to attach to endometrium
  - d. all the above
- Q.17** Hormone used in sterile cows and to induce lactation is
- a. oestrogen
  - b. sebesterol
  - c. progesterone
  - d. relaxin
- Q.18** Myxoedema is caused due to hormone
- a. epinephrine
  - b. parathormone
  - c. thyroxine
  - d. somatotropin
- Q.19** Parathormone induces
- a. increase in blood sugar level
  - b. decrease in serum calcium level
  - c. increase in serum calcium level
  - d. decrease in blood sugar level
- Q.20** Steroid hormones are derived from
- a. cholesterol
  - b. amino acids
  - c. peptides
  - d. polypeptide