



Inter (Part-I)-A-2015

Roll No. _____ (To be filled in by candidate)

(NEW PATTERN)

Paper Code	6	4	6	3
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Biology (Objective Type) **Sessions; 2012-2014, 2013-2015 & 2014-2016****Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. The volume of dry seeds may increase upto 200 times after absorbing water by:
 (A) Osmosis (B) Diffusion (C) Imbibition (D) Active transport
2. Match heart attack with one of the followings:
 (A) Stroke (B) Oedema (C) Hypertension (D) Myocardial infarction
3. A group of similar cells that perform similar function is:
 (A) organ (B) organelles (C) Tissue (D) System.
4. In free state, glucose is present in:
 (A) Dates (B) Amylase (C) Glycogen (D) Cellulose
5. Lock and key model was proposed by:
 (A) Koshland (B) Emil fischer (C) Flemming (D) Watson
6. Cristae are found in:
 (A) Golgi complex (B) Chloroplast (C) Endoplasmic reticulum (D) mitochondria
7. Mad cow infection and mysterious brain infection in man are caused by:
 (A) Bacteria (B) Fungus (C) Prions (D) Viron
8. Curved or comma shaped bacteria are called:
 (A) Vibrio (B) Spirillum (C) spirochetes (D) Bacilli
9. Test of foraminifera, are made up of:
 (A) Silica (B) Calcium (C) Sulphur (D) Magnesium
10. Which of the following is not symptom of Ergotism?
 (A) Convulsion (B) Psychotic Delusion (C) Gangrene (D) Indigestion
11. The biological name of Kachnar is:
 (A) Tamarindus indica (B) Cassia fistula (C) Cassia renna (D) Bauhinia variegata
12. A free swimming trochophore larva is produced during life cycle of:
 (A) Annelida (B) Porifera (C) Coelentrata (D) Arthropods
13. The Excretory system of Flatworms is composed of:
 (A) Nephron (B) Nephridia (C) Flame cells (D) Ganglia
14. Pyruvic Acid is produced as a result of:
 (A) Krebs cycle (B) Glycolysis (C) Phosphorylation (D) Respiratory chain
15. The first part of small intestine is called:
 (A) Rectum (B) Ileum (C) Jeyunum (D) Duodenum
16. Haeme portion of Haemoglobin contains an atom of:
 (A) Magnesium (B) Iron (C) Calcium (D) Phosphorous
17. During photorespiration, Glycine is converted into serine in the:
 (A) Mitochondria (B) Ribosome (C) Golgibodies (D) Chloroplast

Roll No. _____ (to be filled in by the candidate)

(NEW PATTERN)

Subject Code 6 0 4 6

Biology (Essay Type)

Sessions; 2012-2014, 2013-2015 & 2014-2016

Time: 3:10 Hours

Section - I

Marks: 83

2. Write short answers of any eight parts from the following.

2x8=16

- i. Differentiate between theory and law.
- ii. Define phyletic lineage and biodiversity?
- iii. What are Waxes?
- iv. Give four characteristics of enzymes.
- v. What is active site of an enzyme?
- vi. What are enzyme inhibitors? Give two examples.
- vii. What is reverse transcriptase? Give its function.
- viii. What are pili? Give their functions.
- ix. What are lichens? Give their ecological importance.
- x. Differentiate between Karyogamy and Plasmogamy.
- xi. What is double fertilization? Give its importance.
- xii. Name four subdivisions of Tracheophyta.

3. Write short answers of any eight parts from the following.

2x8=16

- i. Write down salient features of cell theory.
- ii. Define congenital diseases. Give examples.
- iii. Give two differences between Fungi like protists and fungi.
- iv. How algae differ from plants?
- v. Differentiate between Foraminifera and Actinopoda.
- vi. What is chlorella? Give its importance.
- vii. Define placenta. What is its function?
- viii. Differentiate between polyps and medusae.
- ix. Why Annelids and Arthropods are considered having same origin?
- x. What is swim bladder? Give its function.
- xi. Differentiate between Absorption and Action spectrum?
- xii. Define redox process. Give example.

4. Write short answers of any six parts from the following.

2x6=12

- i. What are filter feeders? Give their two examples.
- ii. Distinguish between Nutrient and Nutrition.
- iii. Differentiate between appendix and appendicitis.
- iv. What is Rubisco? Give its function.
- v. Give effect of temperature on O₂ carrying capacity of haemoglobin.
- vi. Define tuberculosis? Give its causes.
- vii. Give two characteristics of diving mammals.
- viii. Define Guttation? What factors affect it.
- ix. What is brain Haemorrhage? Give its two preventive measures.

Section - II

NOTE: Answer any three questions from the following.

8x3=24

5. (a) Describe briefly the biological organization up to organism level. 4
- (b) Write a detail note on Mycorrhizae. 4
6. (a) Differentiate between Prokaryotic and Eukaryotic cell. (b) Describe the metabolic pathways of glycolysis. 4+4=8
7. (a) Describe Linnaean system of Binomial nomenclature in detail. 4
- (b) Write a note on digestion in oral cavity in man. 4
8. (a) Why carbon occupies the central position in the skeleton of life. (b) Describe in detail 'Evolution of leaf'. 4+4=8
9. (a) Give general character of cyanobacteria with special reference to Nostoc. 4
- (b) Transpiration is a necessary evil. Comment. 4

Section - III (Practical)

NOTE: Answer any three parts from the following.

5x3=15

- 10.A (i). You are provided with egg albumen and Millon's reagent. Write down Biochemical test for the substance which egg contains. (ii). Write two functions of proteins. 3+2=5
- B. (i). You are provided with flower of *Lythyrus adoratus*. Describe in technical terms. 3
- (i). Calyx. (ii). Corolla (iii). Androecium.
- (ii). Define placentation, name its one type. 2
- C. (i). Sketch and label digestive system of cockroach. 5
- D. (i). Write down the procedure to perform an experiment to measure factors affecting the rate of transpiration. 3
- (ii). Give the role of temperature and dry air on transpiration. 2
- E. (i). You are provided with following specimens. Give one character for each to identify. 5
- (i). Chlorella (ii). Euglena. (iii). Paramecium. (iv). Female cone of pinus. (v). T.S dicot stem.



Roll No. _____ (To be filled in by candidate)

(OLD PATTERN)

Paper Code	2	4	6	3
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Biology (Objective Type)

Session; 2011-2013

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Pepsin enzyme is secreted by:

(A) Mucous cell	(B) Zymogen cell	(C) Parietal cell	(D) Oxyntic cell
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2. Which one of the following is not a viral disease?

(A) Cowpox	(B) Mumps	(C) Tetanus	(D) Small pox
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3. Myoglobin occurs in:

(A) Red blood cell	(B) White blood cell	(C) Plasma	(D) Muscle fibers
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4. The infectious proteins are:

(A) Viruses	(B) Virions	(C) Prions	(D) Peptones
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5. Yeast, a member of fungi is:

(A) Unicellular	(B) Multicellular	(C) Prokaryotic	(D) None of these
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6. The glycosidic linkage in complex carbohydrate is:

(A) C-C	(B) C-H	(C) C-O	(D) C-N
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7. In male, a cubic millimeter blood contains $5-5\frac{1}{2}$ million of:

(A) Lymphocytes	(B) Erythrocytes	(C) Platelets	(D) Monocytes
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8. The feeding stage of slime mold is:

(A) Blastostyle	(B) Gastrozoid	(C) Plasmodium	(D) Sporozoid
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9. The ions involve in opening and closing of stomata are:

(A) Potassium	(B) Calcium	(C) Sodium	(D) magnesium
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10. In angiosperm the second male gamete fuses with secondary nucleus to form:

(A) Ectosperm	(B) Endosperm	(C) Mesosperm	(D) None of these
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11. In 1890, The lock & key model for enzyme action was proposed by:

(A) Robert Koch	(B) Koshland	(C) Loius Pasture	(D) None of these
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12. The plants of sphenopsida are also called as:

(A) Gymnosperm	(B) Angiosperm	(C) Arthophytes	(D) Mosses
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13. The largest invertebrate animal is:

(A) Octopus	(B) Dog fish	(C) cuttle fish	(D) Giant squid
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14. Which of the following pairs of structure-function is mismatched;

(A) Ribosome; protein synthesis	(B) Nucleolus; ribosome production
(C) Golgi; Muscle contraction	(D) Lysosome; Intracellular digestion
15. Which animal is cold blooded animal;

(A) Man	(B) Pigeon	(C) Robin	(D) Toad
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16. The phase in which no growth of bacteria occurs;

(A) Log phase	(B) Lag phase	(C) Stationary phase	(D) Death phase
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17. Magnesium is an important nutrient ion in green plants as it is an essential component of:

(A) Cell sap	(B) Protein	(C) Chlorophyll	(D) Glucose
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Roll No. _____ (to be filled in by the candidate)

(OLD PATTERN)

Subject Code 2 4 6

Biology (Essay Type)

Session; 2011-2013

Time: 2:40 Hours

Section - I

Marks: 68

2. Write short answers of any eight parts from the following.

2x8=16

- i. How we can determine the age of rocks?
- ii. Differentiate between organelles and organ.
- iii. What are fibrous proteins? Give examples.
- iv. What is heat of Vaporization of H_2O ?
- v. What are co-factors? Give its role.
- vi. What are competitive inhibitors? Give examples.
- vii. What is fluid mosaic model? Who gave it?
- viii. Differentiate between centriole and vacuole.
- ix. What are nucleoli? Give their function.
- x. What are the symptoms of Hepatitis?
- xi. On what basis, Margulis and Schwartz classify the organisms?
- xii. What is the work of C. Chamberland.

3. Write short answers of any eight parts from the following.

2x8=16

- i. Define plasmid. What role it plays in Biotechnology?
- ii. Give importance of earthworm.
- iii. What are methanogenic bacteria?
- iv. Diatoms are so important. Give reason.
- v. Define nuclear mitosis?
- vi. Explain parasexuality in fungi.
- vii. Define alternation of generation in bryophytes.
- viii. What are arthropytes?
- ix. Define circinate vernation.
- x. Differentiate between polyps and medusae?
- xi. Differentiate between facultative bacteria and microaerophilic bacteria?
- xii. What reptilian characters does prototheria possess?

4. Write short answers of any six parts from the following.

2x6=12

- i. Differentiate between catabolism and anabolism.
- ii. What is glycolysis? Where does it occur?
- iii. Differentiate between fluid feeders and Detritivores.
- iv. Name the important ingredients of saliva.
- v. What is respiratory distress syndrome?
- vi. What is Asthma and its causes?
- vii. Differentiate between symplast and apoplast path way.
- viii. What are blue babies?
- ix. Give two differences between arteries and veins.

Section - II**NOTE: Answer any three questions from the following.**

8x3=24

- 5. (a) Describe role of biology in disease control. (b) Describe economic gains due to fungi. 4+4=8
- 6. (a) Describe the characters and structure of acylglycerols. (b) Explain food poisoning in detail. 4+4=8
- 7. (a) Write a note on fluid mosaic model of cell membrane. (b) Discuss respiration in birds. 4+4=8
- 8. (a) What is immunity? Explain its types. (b) Write notes on nucleoid and plasmid. 4+4=8
- 9. (a) Explain the mechanism of enzyme action. 4
- (b) Describe the role of chlorophyll in photosynthesis. 4

898-011-A-



Roll No. _____ (To be filled in by candidate)

Session; 2015-2017

Biology (Objective Type)

Marks: 17

Time: 20 Minutes

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. The percentage of potassium in the human body is:
 (A) 0.15% (B) 0.05% (C) 0.35% (D) 0.25%
2. The covalent bond between two monosaccharides is called:
 (A) Ionic bond (B) Glycosidic bond (C) Peptide bond (D) Hydrogen bond
3. In an enzyme molecule, if the non-protein part is covalently bonded, it is called:
 (A) Co-enzyme (B) Apo-enzyme (C) Holo-enzyme (D) Prosthetic group
4. When cross-section of centriole is observed it shows as it consists of:
 (A) 9-microtubules (B) 3-microtubules (C) 11-microtubules (D) 6-microtubules
5. The process in which the phage is called a prophage is termed as:
 (A) Induction (B) Lysogeny (C) Deduction (D) penetration
6. The bacteria which can grow either in the presence or absence of oxygen are called:
 (A) Facultative bacteria (B) Aerobic bacteria (C) Microaerophilic bacteria (D) Anaerobic bacteria
7. Diatoms belong to phylum:
 (A) Rhodophyta (B) Phaeophyta (C) Chrysophyta (D) Pyrrophyta
8. The fungi which obtain their food from organic matter are called:
 (A) Saprotrophs (B) Autotrophs (C) Heterotrophs (D) Parasites
9. Zeamays is the biological name of:
 (A) Rice (B) Barley (C) Rye (D) Corn
10. The animals without a body cavity are called:
 (A) Eumetazoa (B) Pseudocoelomata (C) Coelomata (D) Acoelomata
11. Haeme portion of haemoglobin is same to porphyrin ring with a difference of:
 (A) Carbon atom (B) Hydrogen atom (C) Iron atom (D) oxygen atom
12. The animals which ingest food in liquid form are called:
 (A) Carnivores (B) Filter feeders (C) Macrophageous feeders (D) Fluid feeders
13. Oxygen contents of fresh air are:
 (A) 200ml/litre (B) 100ml/litre (C) 10ml/litre (D) 150ml/litre
14. Blood provides immunity by:
 (A) Leukocytes (B) Platelets (C) RBC (D) Lymphocytes
15. Garden snail belongs to class:
 (A) Gastropoda (B) Cephalopoda (C) Pelecypoda (D) Arthropoda
16. Acetic acid on entering the mitochondrion unites with co-enzyme-A to form:
 (A) Active acetate (B) Pyruvic acid (C) fumarate (D) α -ketoglutarate
17. The phenomenon associated with root pressure is:
 (A) Inhibition (B) Cohesion (C) Guttation (D) Tension

Roll No. _____ (to be filled in by the candidate)

Subject Code 2 4 6

Biology (Essay Type)

Session; 2015-2017

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2x8=16

2. Write short answers of any eight parts from the following.

- i. What are Lichens?
- ii. Define population and give its two attributes.
- iii. Draw structural formula of Glucopyranose.
- iv. Differentiate between co-factor and activator.
- v. How irreversible inhibitors inhibit enzyme activity?
- vi. How extreme changes in pH affect enzyme?
- vii. How are foraminiferans source of lime stone?
- viii. What are kelps? Give its parts.
- ix. Give two examples of unicellular green algae.
- x. How ciliates differ from other protozoans?
- xi. Differentiate between chemo therapy and radio therapy.
- xii. Name, methods of asexual reproduction in Fungi.

3. Write short answers of any eight parts from the following.

2x8=16

- i. Write down the salient features of cell theory.
- ii. How microtubule differ from microfilament?
- iii. Differentiate between thylakoid and granum.
- iv. What are Aerobic and Anaerobic respiration?
- v. What is syrinx? Give function.
- vi. Write any two basic characters of chordate.
- vii. Define the term protandrous and gemmule.
- viii. Differentiate between Glottis and Epiglottis.
- ix. Give two properties of respiratory surface.
- x. What is photorespiration? Name organelles involved in it.
- xi. Differentiate between proterostome and Deutrostome with two points.
- xii. How Pulmonary respiration differs from cutaneous respiration?

4. Write short answers of any six parts from the following.

2x6=12

- i. What are retroviruses? Give its causes?
- ii. What are mesosomes in bacteria? Give also function.
- iii. Define seed and fruit.
- iv. What is chyme?
- v. Differentiate between diarrhoea and constipation.
- vi. Differentiate between the plasmolysis and deplasmolysis.
- vii. What is the earliest group of vascular plants? Quote only two examples of its extinct plants.
- viii. What is the advantage of digestive tract as compared with a digestive cavity?
- ix. What are Hydathodes?

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- 5. (a) What is cloning? Describe its procedure.
- (b) What is megaphyll? Describe various steps of evolution of Megaphyll.
- 6. (a) Describe function of proteins.
- (b) Explain digestion in cockroach with diagram.
- 7. (a) Describe the fluid mosaic model of plasma membrane.
- (b) Explain sexual reproduction in fungi.
- 8. (a) Write a note on structure of virus.
- (b) Sketch non cyclic photo phosphorylation
- 9. (a) Give the characteristics of cyanobacteria.
- (b) Describe cohesion tension theory about ascent of sap.

882-011-A-



Roll No. _____ (To be filled in by candidate)

Paper Code	6	4	6	1
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Biology (Objective Type)**Sessions; 2012-2014, 2013-2015 & 2014-2016****Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Milk and milk products are preserved by:

(A) Vaccination	(B) Pasteurization	(C) Immunization	(D) Sterilization
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2. Keratin is an example of fibrous proteins present in:

(A) Muscles	(B) Bones	(C) Blood	(D) Nail and hair
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3. An activated enzyme consisting of polypeptide chain and co-factor is called:

(A) Holoenzyme	(B) Apoenzyme	(C) Core enzyme	(D) Eoenzyme
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4. Tay-Sach's disease is because of absence of an enzyme that is involved in the catabolism of:

(A) Proteins	(B) Carbohydrates	(C) Lipids	(D) Nucleic acids
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5. Independent evolutionary unit is:

(A) Species	(B) Population	(C) Genus	(D) Family
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6. Attenuated or less virulent bacteria that can stimulate the host to produce immunity are called:

(A) Antibiotics	(B) Antibodies	(C) Vaccination	(D) Vaccine
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7. Mosquitoes inject plasmodium to humans in the form of:

(A) Sporozoites	(B) Merozoites	(C) Cyst	(D) Gametocytes
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8. *Omphalotus olearius* is biological name of:

(A) Death Angel	(B) Yeast	(C) Truffle	(D) Jack-o-lantern
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9. Female gametophyte of flowering plants consist of:

(A) 6 cells	(B) 7 cells	(C) 8 cells	(D) 9 cells
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10. Which is not correct for bilaterally symmetrical body:

(A) Gastropods	(B) Bivalves	(C) Cephalopoda	(D) Pelecypoda
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11. Most important advancement in mammals is the evolution of:

(A) Heart	(B) Endoskeleton	(C) Embryonic development	(D) Brain
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12. The breaking of terminal phosphate of ATP release energy:

(A) 6.3 Kcal	(B) 7.0 Kcal	(C) 7.3 Kcal	(D) 7.8 Kcal
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13. Cytochrome b is oxidized by:

(A) Cytochrome a	(B) Cytochrome c	(C) Cytochrome a_3	(D) Cytochrome d
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14. Rodents and ungulates are famous as:

(A) Detritivores	(B) Carnivores	(C) Secondary carnivores	(D) Herbivores
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15. The respiratory system is most efficient and elaborate in:

(A) Reptiles	(B) Birds	(C) Mammals	(D) Fish
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16. The process that enables a root hair cell to absorb minerals by active transport is:

(A) Circulation	(B) Assimilation	(C) Digestion	(D) Respiration
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17. Cardiac muscles can be distinguished from other muscle fibers because cardiac muscles:

(A) contain only action	(B) voluntary in action
(C) have intercalated Discs	(D) lack regular arrangement of sarcomeres

Roll No. _____ (to be filled in by the candidate)

Subject Code 6 0 4 6

Biology (Essay Type)**Sessions; 2012-2014, 2013-2015 & 2014-2016****Time: 3:10 Hours****Section - I****Marks: 83****2. Write short answers of any eight parts from the following.****2x8=16**

- i. Differentiate between population and community.
- ii. Define Biological control with an example.
- iii. Define conjugate molecules with an example.
- iv. What are enzyme and co-enzyme?
- v. Differentiate between apo-enzyme and co-factor.
- vi. Write any three characteristics of enzyme.
- vii. What is Binomial nomenclature, Explain its two rules.
- viii. What are Plasmid and Mesosome?
- ix. Name any four Antibiotics obtained from Fungi.
- x. Differentiate between Lichen and Mycorrhiza.
- xi. Write any two differences between Monocot and Dicot.
- xii. How does Angiosperm differ from Gymnosperm, and where double fertilization occur in these two groups?

3. Write short answers of any eight parts from the following.**2x8=16**

- i. What is unit membrane model of cell membrane?
- ii. Differentiate between chromoplasts and Leucoplasts.
- iii. Who modified the five kingdom system of classification?
- iv. How ciliates differ from other protozoans?
- v. What are Kelps? Give their structure.
- vi. How does red algae take part in building coral reefs?
- vii. What are Choanocytes?
- viii. What is trochophore larvae?
- ix. What is radula?
- x. What is Syrinx?
- xi. What is non-cyclic Photophosphorylation?
- xii. What is alcoholic fermentation? Give equation.

4. Write short answers of any six parts from the following.**2x6=12**

- i. Define Photophosphorylation. Give its final products.
- ii. Differentiate between detritivores and Omnivores.
- iii. What is respiratory distress syndrome? How does it develop?
- iv. Give symptoms of Tuberculosis.
- v. Compare the CO₂ concentration of arterial and venous blood in man.
- vi. Name the inlet and outlet valves in human heart.
- vii. Define pressure potential. Give the equation for calculating the water potential.
- viii. What is the advantage of a digestive tract as compared with a digestive cavity?
- ix. Name the diseases caused by Clostridium botulinum and Salmonella bacteria.

Section - II**NOTE: Answer any three questions from the following.****8x3=24**

- 5. (a) Discuss role of Biology for protection and conservation of Environment. **4**
- (b) Describe different features of Fungi that adapt them to terrestrial mode of life. **4**
- 6. (a) Give the structure and role of mitochondria. **4**
- (b) What is oxidative phosphorylation? Write the equation to express the process. **4**
- 7. (a) Write a brief note on Hepatitis. **4**
- (b) Describe the role of Pancreas and liver in food digestion in Human. **4**
- 8. (a) Compare DNA with RNA. **(b) Draw life cycle of Adiantum (No description is needed).** **4+4=8**
- 9. (a) Characterize Cyanobacteria. **4**
- (b) Describe root pressure as mechanism of ascent of sap. **4**

Section -III (Practical)**NOTE: Answer any three parts from the following.****5x3=15**

- 10.A (i). You are provided with a solution and Millon's reagent. Write biochemical test for the substance which solution contains. **(ii). Define proteins.** **3+2=5**
- B. (i). You are given the flower, Rosa indica. Describe in technical terms its following parts:- **3**
 - (a). Calyx. (b). Corolla (c). Androecium.
- (ii). Define Racemose inflorescence. **2**
- C. Sketch and label diagram of digestive system of Cockroach. **5**
- D. (i). Describe the procedure of experiment to demonstrate rate of transpiration in plants. **3**
- (ii). Define Transpiration. **2**
- E. Give at least one character of identification of the following specimens: **5**
 - (i). Euglena (ii). Chlorella. (iii). Amoeba. (iv). Female cone of pinus. (v). T.S of Bifacial leaf.



5

Inter (Part-I)-A-2017

Roll No. _____ (To be filled in by candidate)

Paper Code	2	4	6	1
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Biology (Objective Type)**Sessions; 2015-2017 & 2016-2018**
Group-I**Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Which one of the following is not viral disease?

- (A) Cow pox (B) Mumps (C) Tetanus (D) Small pox

2. Animal obtain carbohydrate mainly from:

- (A) Glycogen (B) Glucose (C) Starch (D) sucrose.

3. If non-protein part is loosely attached to protein part, it is known as:

- (A) Co-factor (B) Co-enzyme (C) Holo-enzyme (D) Prosthetic group

4. The number of chromosomes in fruit fly *Drosophila*;

- (A) 16 (B) 26 (C) 8 (D) 48

5. The smallest known viruses are:

- (A) Bacteriophage (B) Small pox viruse (C) Polio (D) E-Coli

6. These are smallest and without cell wall:

- (A) Mycoplasma (B) Pseudomonas (C) Spirochete (D) E-coli

7. Algae which have shell composed of two halves that fit together like petridish are:

- (A) Brown Algae (B) Diatom (C) Green Algae (D) Red Algae

8. Histoplasmosis is:

- (A) Heart disease (B) Kidney disease (C) Lung disease (D) Skin disease

9. Which of following is not Extinct member?

- (A) Horneophyton (B) Psilotum (C) Psilophyton (D) Cooksonia

10. The pouched mammals are:

- (A) Prototheria (B) Metatheria (C) Eutheria (D) Egg Lying mammals

11. Pseudocoelom is characteristics feature of:

- (A) Aschelminths(Nematoda) (B) Annelida (C) Mollusca (D) Porifera

12. The Dark Reaction occurs in:

- (A) Cytoplasm (B) Ribosome (C) Stroma (D) Granum

13. The chemical links between catabolism and Anabolism is:

- (A) DNA (B) NAD (C) ATP (D) RNA

14. The animal having only intra-cellular digestion is:

- (A) Frog (B) Planaria (C) Amoeba (D) Hydra

15. Respiratory system is most efficient in:

- (A) Man (B) Bird (C) Fish (D) Frog

16. One cardiac cycle is completed in:

- (A) 0--3 Second (B) 0--4 Second (C) 0--8 Second (D) 0--5 Second

17. Guttation occur in plants through:

- (A) Caticle (B) Hydathodes (C) Lenticle (D) Stomata

5

Inter (Part-I)-A-2017

Roll No. _____ (to be filled in by the candidate)

Biology (Essay Type)

Sessions; 2015-2017 & 2016-2018
Group-I

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2. Write short answers of any eight parts from the following.

2x8=16

- i. What is Hydroponic culture techniques?
- ii. What does biodiversity mean?
- iii. Differentiate the nucleosides and Nucleotides
- iv. Define prosthetic group and Holo-enzyme.
- v. Give four characteristics of enzyme.
- vi. What is Lock and Key model?
- vii. How is chalk formed?
- viii. What is the evolutionary significance of Euglenoids?
- ix. What are Redtides?
- x. Define a thallus?
- xi. Name some Edible Fungi.
- xii. What are Aflatoxins?

3. Write short answers of any eight parts from the following.

2x8=16

- i. What are intermediate filaments?
- ii. Give two differences between Prokaryotes and eukaryotes.
- iii. Give economic importance of Shark. (two points).
- iv. What is Marsupium?
- v. What is pseudocoelom?
- vi. Give two characteristics of class Amphiba.
- vii. Give two symptoms of emphysema.
- viii. What is pulmonary respiration and cutaneous respiration?
- ix. Define photorespiration.
- x. What are Alveoli?
- xi. What is Rubisco?
- xii. What is Action spectrum?

4. Write short answers of any six parts from the following.

2x6=12

- i. What are prions?
- ii. What are mesosomes. Write its one function:
- iii. What is overtopping?
- iv. Define double fertilization.
- v. Define digestion.
- vi. What is heart burn?
- vii. How pepsinogen is activated?
- viii. What are blue babies?
- ix. Define stroke and write its effects.

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- 5. (a) Write a note on Biological method. (b) Write the economic importance of family poaceae. 4+4=8
- 6. (a) Discuss the importance of water in life. (b) Describe nutrition in insectivorous plants. 4+4=8
- 7. (a) Differentiate between prokaryotic and eukaryotic cell. 4
- (b) Describe the process of A-sexual reproduction occurs in fungi. 4
- 8. (a) Give an account of AIDS. (b) Describe respiratory chain. 4+4=8
- 9. (a) Write a comprehensive note on nutrition in bacteria. (b) Give an account of composition of blood plasma. 4+4=8

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7

Inter (Part-I)-A-2017

Roll No. _____ (To be filled in by candidate)

Paper Code	2	4	6	4
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Biology (Objective Type)

Sessions; 2015-2017 & 2016-2018
Group-II

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Transpiration taking place through cuticle is about:
(A) 5--7 % (B) 1--7% (C) 5--6% (D) 2--5%
2. Casparian strips are present in cells of root:
(A) Cortex (B) Epidermis (C) Endodermis (D) Phloem
3. The percentage of Hydrogen present in human body is:
(A) 20 (B) 15 (C) 10 (D) 5
4. In the α -helix protein structure, each turn of the helix has amino acids.
(A) 3.6 (B) 4.6 (C) 5.6 (D) 6.6
5. The optimum pH. of catalase is:
(A) 6.60 (B) 7.60 (C) 8.60 (D) 9.60
6. Chitin is found in cell wall of:
(A) Algae (B) Bacteria (C) Fungi (D) Plants
7. The number of capsomeres in capsid of adenovirus are:
(A) 152 (B) 252 (C) 352 (D) 452
8. Reserve food material in cyano bacteria is in the form of:
(A) Sucrose (B) Starch (C) Glycogen (D) Proteins
9. Amoebic dysentery in human caused by:
(A) Amoeba (B) Entamoeba histolytica (C) Trypanosoma (D) Plasmodium
10. The number of edible mushroom species are about:
(A) 100 (B) 200 (C) 300 (D) 400
11. After fertilization is changed into a seed:
(A) Fruit (B) Flower (C) Ovule (D) Ovary
12. Pseudocoelom is present in:
(A) Cnidaria (B) Flatworms (C) Round worms (D) Segmented worms
13. Voice producing organ in birds is:
(A) Syrinx (B) Larynx (C) Tongue (D) Pharynx
14. Haeme portion of Haemoglobin contains an atom of:
(A) Magnesium (B) Iron (C) Phosphorus (D) Copper
15. A common mussel has two large gills covered with:
(A) Shell (B) Pseudopodia (C) Flagella (D) Cilia
16. In the citric acid cycle acetyl-CoA reacts with oxaloacetate to form:
(A) Pyruvate (B) Citrate (C) NADH (D) ATP
17. A litre of H_2O contains ml of oxygen:
(A) 10 (B) 20 (C) 30 (D) 40

Roll No. _____ (to be filled in by the candidate)

**Sessions; 2015-2017 & 2016-2018
Group-II**

Biology (Essay Type)

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2. Write short answers of any eight parts from the following.

2x8=16

- | | |
|---|---|
| i. Define Biosphere. | ii. Define micromolecules with examples. |
| iii. What are oligosaccharides. | iv. Write down any four characteristics of enzymes. |
| v. How enzyme concentration affect rate of enzyme action? | vi. What are non-competitive inhibitors? |
| vii. What is zooflagellates? | viii. What are foraminiferans? |
| ix. What is the importance of Chlorella? | x. Give importance of algae. |
| xi. What is the function of constricting ring? | xii. What is the economic importance of fungi? |

3. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|--|
| i. Differentiate between chromoplast and leucoplast. | ii. Name two beneficial insects. |
| iii. What is placenta? | iv. Give three basic characters of chordates. |
| v. Why amphibians were not successful on land? | vi. What is "Z" scheme? Why is it called so? |
| vii. What is stroma? Give its function. | viii. Differentiate between bronchi and bronchioles. |
| ix. What is asthma? | x. Name different parts of air passage way of man. |
| xi. What are two subunits in ribosomes and how their attachment is controlled? | |
| xii. Give % age of O ₂ and CO ₂ inhaled and exhaled air (in an adult human). | |

4. Write short answers of any six parts from the following.

2x6=12

- | | |
|---|--|
| i. Sketch the labelled diagram of bacteriophage. | ii. Write down two postulates of Germ Theory of disease. |
| iii. What are fluid feeders? Give an example. | iv. Differentiate between Bolus and Chyme. |
| v. Name the pH and composition of saliva. | vi. Define active and passive immunity. |
| vii. How guttation differ from imbibition? | |
| viii. Name the two living and extinct representative of psilopsida. | |
| ix. How does gymnosperm differ from Angiosperm? Give two points only. | |

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- | | |
|--|---|
| 5. (a) What is Hypothesis? Discuss briefly the deductive and inductive reasonings. | |
| (b) Write down the Adaptive characters for land of Bryophytes. | |
| 6. (a) Describe fibrous and globular proteins. | (b) Describe digestion in cockroach |
| 7. (a) Write a note on Mitochondria. | (b) Describe land adaptation of Fungi. |
| 8. (a) Sketch non-cyclic phosphorylation. | (b) Explain the lytic cycle of reproduction of bacteriophage. |
| 9. (a) Describe nutrition of bacteria. | (b) Describe the mechanism of opening and closing of stomata. |

4+4=8

4+4=8



Roll No. _____ (To be filled in by candidate)

Paper Code	6	4	6	1
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Sessions; 2013-2015 & 2014-2016

Biology (Objective Type)**Group-I****Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. A large regional community primarily determined by climate is called:

(A) Biome	(B) Habitat	(C) Environment	(D) Niche
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2. - The specific heat of vaporization of water is:

(A) 374Kcal/Kg	(B) 574Kcal/Kg	(C) 674Kcal/Kg	(D) 774Kcal/Kg
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3. - The optimum pH of pepsin is:

(A) 02	(B) 04	(C) 06	(D) 08
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4. The ion which controls the attachment of two subunits of ribosome:

(A) Ca^{++}	(B) Mg^{++}	(C) Fe^{+}	(D) Na^{+}
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5. Pigs are reservoir of:

(A) Hepatitis A	(B) Hepatitis B	(C) Hepatitis C	(D) Hepatitis E
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6. Some bacteria require low amount of oxygen for the growth are called:

(A) Aerobic bacteria	(B) An-aerobic bacteria	(C) Facultative bacteria	(D) Microaerophilie
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7. The closest relative of fungi are:

(A) Aschamenthes	(B) Diatoms	(C) Water molecules	(D) Ferns
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8. Lovastatin is used in lowering the blood:

(A) Cholesterol	(B) Glucose	(C) Uric acid	(D) Urea
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9. The mega sperophylls bearing ovule are not folded and joined at the margins to form the ovary in:

(A) Filicineae	(B) Monocotyledens	(C) Dicotyledens	(D) Gymnosperms
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10. Which of the followings is placental mammal?

(A) Duckbill platypues	(B) Bat	(C) Opossum	(D) Kangaroo
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11. Dolphin is:

(A) Fish	(B) Bird	(C) Amphibian	(D) Mammal
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12. Glycolysis is the breakdown of Glucose into:

(A) Pyruvic acid	(B) Acetic acid	(C) Fumaric acid	(D) oleic acid
------------------	-----------------	------------------	----------------
13. The first step in Krebs cycle is union of acetyl CoA with oxaloacetate to form:

(A) Isocitrate	(B) α -Ketoglutarate	(C) Citrate	(D) Malate
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14. Pepsin is secreted by:

(A) Mucus Gland	(B) Zymogan Gland	(C) Pavictal Glands	(D) Oxynitic Gland
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15. The ions which are involved in the opening and closing of stomata are:

(A) Sodium	(B) Calcium	(C) Potassium	(D) Magnesium
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16. Guttation is the loss of water through:

(A) Stomata	(B) Lenticel	(C) Hydathode	(D) Cuticle
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17. The respiratory system is more efficient in:

(A) Birds	(B) Mammals	(C) Fishes	(D) Amphibians
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Roll No. _____ (to be filled in by the candidate)

Biology (Essay Type)

**Sessions; 2013-2015 & 2014-2016
Group-I**

Time: 3:10 Hours

Section - I

Marks: 83

2. Write short answers of any eight parts from the following.

2x8=16

- i. Differentiate between foraminiferans and actinopods.
- ii. What is a biome? How biomes are named?
- iii. Differentiate between septate and non-septate hyphae.
- iv. Differentiate apo-enzyme and holo enzyme.
- v. What are Lichens?
- vi. Define molecular biology and parasitology.
- vii. How plasmodium cause malaria in human body?
- viii. What are dinoflagellates?
- ix. Define specific heat capacity of water. Write down its importance.
- x. What are enzyme inhibitors? Give examples.
- xi. What is meant by lock and key model of enzyme action? Who proposed this model?
- xii. Write the causative agent and of amoebic dysentery and late blight of potatoes.

3. Write short answers of any eight parts from the following.

2x8=16

- i. Differentiate cytosol from cytoplasm.
- ii. What do you know about polysomes?
- iii. How ostia differ from osculum?
- iv. What are two basic forms of enidarians?
- v. What is swim bladder? Give its function.
- vi. Define placenta? Give its function.
- vii. What do you know about compensation point?
- viii. Differentiate stroma from stoma.
- ix. Give molecular formulae of chlorophyll a and b.
- x. Define photo respiration.
- xi. What are parabronchi? Give their role.
- xii. Give roles of larynx and vocalcords.

4. Write short answers of any six parts from the following.

2x6=12

- i. On what basis, viruses are classified?
- ii. What are the postulates of germ theory of disease?
- iii. What is circinate vernation? Give an example.
- iv. Give symptoms of tuberculosis.
- v. What are fluid feeders? Give examples.
- vi. What are the causes and symptoms of dyspepsia?
- vii. What are the ingredients of saliva?
- viii. What is hepatic portal system?
- ix. Define shock write its effects.

Section - II

NOTE: Answer any three questions from the following.

8x3=24

5. (a) Describe all the preventive measures to control diseases. **4**
(b) What is the significance of alternation of generations? Define also. **4**
6. (a) Explain the monosaccharides in detail. **4**
(b) Describe the digestion in amoeba. **4+4=8**
7. (a) Explain the structure and function of mitochondria. **4**
(b) Draw labelled life cycle of Rhizopus fungus. **4+4=8**
8. (a) Write a note on AIDS. **4**
(b) Describe and sketch respiratory chain. **4+4=8**
9. (a) Describe general characteristics of cyanobacteria with special reference to nostoc. **4**
(b) Define immunity. Discuss its types. **4**

Section -III (Practical)

NOTE: Answer any three parts from the following.

5x3=15

- 10.A (i). You are provided with Benedict's reagent and glucose solution. Write the biochemical test for the glucose. **3**
(ii). Give one example of each of the aldo and keto sugars. **2**
- B. (i). You are provided with solanum nigrum flower. Describe its following parts in technical terms **3**
(a).Corolla (b).Androecium (c).Gynoecium..
- (ii). Differentiate between actinomorphic and zygomorphic flower. **2**
- C. Sketch and label digestive system of Frog. **5**
- D. (i). Write down the procedure to perform an experiment to measure blood pressure before and after exercise. **3**
(ii). Differentiate between systolic and diastolic blood pressure. **2**
- E. You are provided with following specimens. Give one character to identify each of them. **5**
(i).T.S of dicot stem. (ii).Amoeba. (iii).Funaria male gametophyte. (iv).Spirogyra . (v).Male cone of Pinus.



Roll No. _____ (To be filled in by candidate)

Paper Code	6	4	6	2
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Biology (Objective Type)**Sessions; 2013-2015 & 2014-2016**
Group-II**Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. In cities, particularly the exhaust from automobiles is adding ____ into atmosphere.
(A) Zinc (B) Lead (C) Magnesium (D) Carbon dioxide
2. Human tissues e.g brain cells contain water about:
(A) 85 percent (B) 87 percent (C) 89 percent (D) 91 percent
3. If non protein part is loosely attached to protein part, it is known as:
(A) Prosthetic group (B) Co-factor (C) Co-enzyme (D) Holo-enzyme
4. Primary cell wall is composed of:
(A) Silica (B) Waxes (C) Cutin (D) Cellulose
5. The scientific name of Amaltas is:
(A) Cassia Fistula (B) Allium Cepa (C) Solanum tuberosum (D) Solanum melangena
6. The example of an anaerobic bacterium is:
(A) Pseudomonas (B) E.coli (C) Spirochete (D) Campylobacter
7. The feeding stage of slime mold is:
(A) Pseudopodium (B) Plasmodium (C) Mycelium (D) Rhizoids
8. Fungi can tolerate a wide range of pH from:
(A) 2--9 (B) 3--10 (C) 4--11 (D) 5--12
9. Which is naked seed group of plant:
(A) Bryophytes (B) Filicinae (C) Angiospermae (D) Gymnospermae
10. Syrinx is the organ of voice in:
(A) Mammals (B) Birds (C) Reptiles (D) Amphibians
11. Which is cold blooded animal:
(A) Kangaroo (B) Robin (C) Toads (D) Kiwi
12. The stomata covers leaf surface about:
(A) 1--2 percent (B) 2--3 percent (C) 3--4 percent (D) 4--5 percent
13. Most abundant protein on the earth is:
(A) Haemoglobin (B) Myoglobin (C) Fucoxanthin (D) Rubisco
14. Which deficiency causes leaf margins yellow and brown in colour and premature death of plant.
(A) Nitrogen (B) Phosphorus (C) Potassium (D) Magnesium
15. Respiratory pigment present in muscles is called:
(A) Haemoglobin (B) Myoglobin (C) Globin (D) Haemocyanin
16. Which protein play important role in body's defenses against disease.
(A) Prothrombin (B) Fibrinogen (C) Globulins (D) Immunoglobulins
17. Pure water has water potential.
(A) zero (B) one (C) two (D) three

Roll No. _____ (to be filled in by the candidate)

Biology (Essay Type)

Sessions; 2013-2015 & 2014-2016
Group-II

Time: 3:10 Hours

Section - I

Marks: 83

2. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|--|
| i. Differentiate between population and community. | ii. Define inductive reasoning. Give an example. |
| iii. Differentiate between nucleoside and nucleotide. | iv. What is lock and key model? |
| v. Differentiate between prosthetic group and co-enzyme. | vi. What are competitive inhibitors? |
| vii. What are choanoflagellates? | viii. Give symptoms of malaria. |
| ix. What is kelp? Name its parts. | x. What is chlorella? What is its significance. |
| -xi. Define nuclear mitosis | xii. What is Ergotism? |

3. Write short answers of any eight parts from the following.

2x8=16

- | | |
|---|--|
| i. Differentiate between primary and secondary lysosomes. | ii. What are storage diseases. Give two examples. |
| iii. Name any two harmful insects with functions. | iv. Differentiate between notochord and nerve cord. |
| v. What is nymph? | vi. Differentiate between hermaphrodite and protandrous. |
| vii. Define compensation point. | viii. What is the role of accessory pigment in light absorption. |
| ix. Define Rubisco. What is its importance? | x. What is pulmonary respiration and cutaneous respiration. |
| xi. What is myoglobin. Give its role. | xii. Differentiate between breathing and respiration. |

4. Write short answers of any six parts from the following.

2x6=12

- | | |
|---|--|
| i. What are the two objections on two kingdoms classification system? | |
| ii. Differentiate between streptococcus and diplococcus bacteria. | |
| ii. What is a protonema? In which group of bryophytes does it occur? | |
| iv. How do vascular bundles in monocot stem differ from that of dicot stem? | |
| v. What are filter feeders? Give an example. | vi. What is dyspepsia? Give its cause. |
| vii. How is secretion of gastric juice regulated? | viii. Differentiate between plasmolysis and deplasmolysis. |
| ix. What is cyanosis? Give its cause | |

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- | | |
|---|--|
| 5. (a) Discuss the role of Biology in protection and conservation of environment. | 4 |
| (b) Make sketch of life cycle of Adiantum(Description not needed). | 4 |
| 6. (a) Write down various functions of proteins. | (b) Describe digestion of food in duodenum. 4+4=8 |
| 7. (a) What are plastids? Describe their main types as well. | (b) Describe a detailed account of nutrition in fungi. 4+4=8 |
| 8. (a) Describe lytic cycle of bacteriophage. | (b) Explain cyclic photophosphorylation in detail. 4+4=8 |
| 9. (a) Discuss the growth and reproduction in bacteria. | (b) Write down the functions of blood in humans? 4+4=8 |

Section -III (Practical)

NOTE: Answer any three parts from the following.

5x3=15

- | | |
|---|---|
| 10.A (i). Give procedure, observations and results during Iodine Test. | 3 |
| (ii). What is the difference between Amylase and amylopectin. | 2 |
| B. (i). Describe in technical terms the Calyx, Corolla and Androecium of Rose indica. | 3 |
| (ii). Differentiate between epigynous and hypogynous flowers. | 2 |
| C. Sketch and label the digestive system of Cockroach. | 5 |
| D. (i). Write down the procedure, observations and results of experiment to show the transpiration in plants. | 3 |
| (ii). What is guttation? How does it occur? | 2 |
| E. Give reasons of identification for the following specimens. | 5 |
| (i). Nostoc. (ii). T.S of Dicot Root. (iii). Amoeba. (iv). Marchantia female plant. (v). Male cone of Pinus. | |



Roll No. _____ (To be filled in by candidate)

Paper Code	2	4	6	5
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Sessions; 2015-2017, 2016-2018 & 2017-2019

Biology (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Hepatic and pancreatic secretions are stimulated by a hormone called:

(A) Secretin	(B) Gastrin	(C) Zymogen	(D) Parietal
--------------	-------------	-------------	--------------
2. The number of air sacs in most birds are:

(A) 06	(B) 07	(C) 08	(D) 09
--------	--------	--------	--------
3. Guttation occurs in plants through:

(A) Cuticle	(B) Hydathodes	(C) Lenticels	(D) Stomata
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4. Discharge of Blood from blood vessel is called as:

(A) Stroke	(B) Heart attack	(C) Thromobosis	(D) Haemorrhage
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5. Which one is a trace element?

(A) Calcium	(B) Chlorine	(C) Zinc	(D) Phosphorus
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6. Keratin is an example of Fibrous protein present in:

(A) Blood	(B) Muscle	(C) Bones	(D) Nail and Hair
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7. The detachable co-factor of an enzyme is known as:

(A) Activator	(B) Prosthetic group	(C) Co-enzyme	(D) Apo-enzyme
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8. Tay-sach's disease results due to accumulation of:

(A) Proteins	(B) Lipids	(C) Glucose	(D) DNA
--------------	------------	-------------	---------
9. The infectious proteins are:

(A) Viruses	(B) Virions	(C) Prions	(D) Peptones
-------------	-------------	------------	--------------
10. Reserve food material in cyanobacteria is:

(A) Starch	(B) Glycogen	(C) Fats	(D) Glycerol
------------	--------------	----------	--------------
11. The feeding stage of slime mold is called:

(A) Plasmodium	(B) Pseudopodium	(C) Endocytosis	(D) Seizing
----------------	------------------	-----------------	-------------
12. The most common rust fungi are:

(A) Ustilago	(B) Puccinia	(C) Yeast	(D) Penicillium
--------------	--------------	-----------	-----------------
13. Living genus of psilopsida is:

(A) Cooksonia	(B) Psilophyton	(C) Horneophyton	(D) Psilotum
---------------	-----------------	------------------	--------------
14. Portugues man of war is the name used for:

(A) Physalia	(B) Obelia	(C) Hydra	(D) Aurelia
--------------	------------	-----------	-------------
15. The largest invertebrate animal is:

(A) Dogfish	(B) Cuttle fish	(C) Giant Squid	(D) Octopus
-------------	-----------------	-----------------	-------------
16. The first step in Krebs cycle is the union of acetylc CoA with oxaloacetate to form:

(A) Isocitrate	(B) α -Ketoglutarate	(C) Citrate	(D) Malate
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17. Plastocyanin protein contains:

(A) Iron	(B) Copper	(C) Magnesium	(D) Potassium
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Roll No. _____ (to be filled in by the candidate)

Sessions; 2015-2017, 2016-2018 & 2017-2019

Biology (Essay Type)

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|---|
| i. Differentiate between amylose and amylopectin starches. | ii. Define activators. Give examples. |
| iii. Define active site and also mention its sites. | iv. What are competitive inhibitors? |
| v. Define aflatoxins. | vi. What are toad stools? Give examples. |
| vii. What is madreporite? Give its function. | viii. Write down four harmful effects of insects. |
| ix. Differentiate between polyps and medusae. | x. Write down economic importance of sharks. |
| xi. What are the products of light reaction of photosynthesis? | xii. Define calvin cycle. Where does it occur. |

3. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|---|
| i. What is meant by integrated disease management? | ii. Differentiate between population and community. |
| iii. Differentiate between microtubules and microfilaments. | iv. What is Tay-sach's disease? |
| v. Write two characters of zooflagellates. | vi. What are choanoflagellates? |
| vii. What is the evolutionary significance of euglenoids? | viii. Write two characters of water molds. |
| ix. Write two scientific names of plants belonging to family solanaceae. | x. Define double fertilization. |
| xi. What is meant by systemic circulation? | xii. What do you mean by blue babies? |

4. Write short answers of any six parts from the following.

2x6=12

- | | |
|---|--|
| i. What are chemosynthetic bacteria? Give their function. | ii. What are the rules of binomial nomenclature? |
| iii. What is chlorosis? Give their causes. | iv. What are fluid feeders? Give their example. |
| v. What are nematocytes? Give their function. | vi. Differentiate between diaphragm and pleura. |
| vii. What is composition of exhaled air and inhaled air? | viii. What is emphysema? Write their causes. |
| ix. How pH and temperature effect capacity of haemoglobin to combine with oxygen? | |

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- | | |
|--|--|
| 5. (a) Explain organ and system and individual level of biological organization. | 4 |
| (b) Transpiration is a necessary evil. Comment. | 4 |
| 6. (a) What is RNA? Discuss its types. | (b) Discuss the role of large intestine in human digestion. 4+4=8 |
| 7. (a) Write a note on mitochondria. | (b) What is the role of water in photosynthesis? 4+4=8 |
| 8. (a) Describe the life cycle of bacteriophage. | (b) Write down the economic importance of family rosaceae. 4+4=8 |
| 9. (a) Give the economic losses due to fungi. | (b) Write physical and chemical methods to control bacteria. 4+4=8 |



Roll No. _____ (To be filled in by candidate)

Paper Code	6	4	6	5
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Session; 2014-2016

Biology (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Fresh saliva is alkaline with pH nearly:
(A) 5 (B) 6 (C) 8 (D) 10
2. No specialized organ for respiration is present in:
(A) Hydra (B) Crow (C) Fish (D) Cockroach
3. Oxygenated blood is never received by heart of:
(A) Mammals (B) Birds (C) Lizards (D) Fishes
4. The volume of dry seed may increase up to 200 times by:
(A) Diffusion (B) Osmosis (C) Imbibition (D) Active transport
5. The AIDS is caused by virus:
(A) HIV (B) MIV (C) AID (D) VIH
6. Our blood normally contains glucose:
(A) 0.6% (B) 0.8% (C) 0.06% (D) 0.08%
7. The enzymes are:
(A) Fibrous proteins (B) Globular proteins (C) Angular proteins (D) Spherical proteins
8. The movement of material against the concentration gradient is termed as:
(A) Passive transport (B) Diffusion (C) Active transport (D) Osmosis
9. Corn belongs to family:
(A) Brassicaceae (B) Fabaceae (C) Poaceae (D) Solanaceae
10. Some bacteria are neither aerobic nor anaerobic but:
(A) Obligate (B) Facultative (C) Commensal (D) Symbionts
11. Foraminiferans of past have created vast deposits of:
(A) Silica (B) Coal (C) Diamond (D) Limestone
12. The oyster mushroom pleurotus ostreatus is:
(A) Parasite (B) Predator (C) Symbiont (D) Saprophyte
13. In lycopods, the sporophyte have sporangia of two kinds:
(A) Seleginella (B) Lycopodium (C) Marchantia (D) Psilotum
14. The period in which mammal became dominant:
(A) Jurassic (B) Devonian (C) Cenozoic (D) Ordovician
15. The class cyclo-stomata includes most primitive vertebrates which are without:
(A) Lungs (B) Jaws (C) Back bone (D) Blood
16. Chlorophylls are insoluble in:
(A) Ethers (B) Acetone (C) Alcohol (D) Water
17. Glycolysis occurs in:
(A) Nucleus (B) Cytosol (C) Mitochondria (D) Chloroplast

Roll No. _____ (to be filled in by the candidate)

Session; 2014-2016

Biology (Essay Type)

Time: 3:10 Hours

Section - I

Marks: 83

2. Write short answers of any eight parts from the following.

2x8=16

- | | |
|---|---|
| i. Define conjugate molecules. Give an example. | ii. Differentiate between pepsin and pepsinogen. |
| iii. Define the lock and key model of enzyme. | iv. Define the term enzyme inhibitors. |
| v. Differentiate between endomycorrhizae and ectomycorrhizae. | vi. Define the term diakaryotic hyphae. |
| vii. Differentiate between polyps and medusae. | viii. What is meant by metamorphosis? |
| ix. Give two characters of chordata. | x. Write down the two beneficial aspects of insect. |
| xi. Define the term Bioenergetics | xii. What is spectrophotometer? Give its use. |

3. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|--|
| i. Define parasitology. | ii. Define bioremediation. Give an example. |
| iii. What are function of chromoplast and leucoplast? | iv. Define chromosome. |
| v. How is the green algae similar to plants? | vi. Why are the fungus like protist not fungi? Give two reasons. |
| vii. What is chlorella? How is it important to us? | viii. What is function of Micro and Macro nuclei in ciliates? |
| ix. Define double fertilization in angiosperm. | x. Write two differences between monocot and dicot. |
| xi. Differentiate between apoplast and symplast pathway. | xii. What is active immunity and passive immunity |

4. Write short answers of any six parts from the following.

2x6=12

- | | |
|---|--|
| i. What is prophage and lysogeny? | ii. Differentiate between antiseptics and disinfectants. |
| iii. What is botulism? Give its cause. | iv. List the properties of respiratory surface in animals. |
| v. Define photorespiration. Give its disadvantage to plants. | |
| vi. What are macrophagus feeders? Name common methods of macrophagus feeding. | |
| vii. Name three pairs of salivary glands with their respective location. | |
| viii. What are spiracles? How many spiracles are present in cockroach? | |
| ix. Write down the cause and effects of respiratory distress syndrome. | |

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- | | |
|---|-------|
| 5. (a) Discuss briefly phyletic lineage in biological organization. | 4 |
| (b) Describe the types of transpiration | 4 |
| 6. (a) Classify proteins on the basis of their structure. (b) Describe digestion in small intestine of man. | 4+4=8 |
| 7. (a) Write a note on mitochondria. (b) Sketch the events of glycolysis(no description required). | 4+4=8 |
| 8. (a) Write the lytic life cycle of Bacteriophage. | 4 |
| (b) Describe any four steps involved in the evolution of seed habit. | 4 |
| 9. (a) What are the general characteristics of cyanobacteria? | 4 |
| (b) What are the economic losses of fungi in plants? | 4 |

Section -III (Practical)

NOTE: Answer any three parts from the following.

5x3=15

- | | |
|--|---|
| 10.A (i). Write biochemical tests for carbohydrates(starch). | 3 |
| (ii). How reducing sugars differ from non-reducing sugars? | 2 |
| B. (i). You are provided with <u>Rosa indica</u> . Describe its Corolla, Androecium, and Gynoecium. | 3 |
| (ii). Define hypogynous and perigynous ovary. | 2 |
| C. (i). Draw and label digestive system of frog. | 3 |
| (ii). What is mesentery? | 2 |
| D. (i). How is transpiration measured with the help of potometer? Write materials, apparatus required for this purpose and record your observations and results. | 3 |
| (ii) What happens to transpiration, when wind is blowing? | 2 |
| E. (i) Give one character of T.S of dicot stem. | 1 |
| (ii) What is the shape of paramecium? | 1 |
| (iii) Which one is filamentous Nostoc or Volvox. | 1 |
| (iv) How does male gametophyte of marchantia differ from its female gametophyte? | 1 |
| (v) How is prothallus of adiantum identified? | 1 |



Roll No. _____ (To be filled in by candidate)

Paper Code	6	4	6	5
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Session; 2014-2016

Biology (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Fresh saliva is alkaline with pH nearly:
(A) 5 (B) 6 (C) 8 (D) 10
2. No specialized organ for respiration is present in:
(A) Hydra (B) Crow (C) Fish (D) Cockroach
3. Oxygenated blood is never received by heart of:
(A) Mammals (B) Birds (C) Lizards (D) Fishes
4. The volume of dry seed may increase up to 200 times by:
(A) Diffusion (B) Osmosis (C) Imbibition (D) Active transport
5. The AIDS is caused by virus:
(A) HIV (B) MIV (C) AID (D) VIH
6. Our blood normally contains glucose:
(A) 0.6% (B) 0.8% (C) 0.06% (D) 0.08%
7. The enzymes are:
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8. The movement of material against the concentration gradient is termed as:
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9. Corn belongs to family:
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(A) Obligate (B) Facultative (C) Commensal (D) Symbionts
11. Foraminiferans of past have created vast deposits of:
(A) Silica (B) Coal (C) Diamond (D) Limestone
12. The oyster mushroom pleurotus ostreatus is:
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13. In lycopods, the sporophyte have sporangia of two kinds:
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14. The period in which mammal became dominant:
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15. The class cyclo-stomata includes most primitive vertebrates which are without:
(A) Lungs (B) Jaws (C) Back bone (D) Blood
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(A) Ethers (B) Acetone (C) Alcohol (D) Water
17. Glycolysis occurs in:
(A) Nucleus (B) Cytosol (C) Mitochondria (D) Chloroplast

Roll No. _____ (to be filled in by the candidate)

Session; 2014-2016

Biology (Essay Type)

Time: 3:10 Hours

Section - I

Marks: 83

2. Write short answers of any eight parts from the following.

2x8=16

- | | |
|---|---|
| i. Define conjugate molecules. Give an example. | ii. Differentiate between pepsin and pepsinogen. |
| iii. Define the lock and key model of enzyme. | iv. Define the term enzyme inhibitors. |
| v. Differentiate between endomycorrhizae and ectomycorrhizae. | vi. Define the term diakaryotic hyphae. |
| vii. Differentiate between polyps and medusae. | viii. What is meant by metamorphosis? |
| ix. Give two characters of chordata. | x. Write down the two beneficial aspects of insect. |
| xi. Define the term Bioenergetics | xii. What is spectrophotometer? Give its use. |

3. Write short answers of any eight parts from the following.

2x8=16

- | | |
|--|--|
| i. Define parasitology. | ii. Define bioremediation. Give an example. |
| iii. What are function of chromoplast and leucoplast? | iv. Define chromosome. |
| v. How is the green algae similar to plants? | vi. Why are the fungus like protist not fungi? Give two reasons. |
| vii. What is chlorella? How is it important to us? | viii. What is function of Micro and Macro nuclei in ciliates? |
| ix. Define double fertilization in angiosperm. | x. Write two differences between monocot and dicot. |
| xi. Differentiate between apoplast and symplast pathway. | xii. What is active immunity and passive immunity |

4. Write short answers of any six parts from the following.

2x6=12

- | | |
|---|--|
| i. What is prophage and lysogeny? | ii. Differentiate between antiseptics and disinfectants. |
| iii. What is botulism? Give its cause. | iv. List the properties of respiratory surface in animals. |
| v. Define photorespiration. Give its disadvantage to plants. | |
| vi. What are macrophagus feeders? Name common methods of macrophagus feeding. | |
| vii. Name three pairs of salivary glands with their respective location. | |
| viii. What are spiracles? How many spiracles are present in cockroach? | |
| ix. Write down the cause and effects of respiratory distress syndrome. | |

Section - II

NOTE: Answer any three questions from the following.

8x3=24

- | | |
|---|-------|
| 5. (a) Discuss briefly phyletic lineage in biological organization. | 4 |
| (b) Describe the types of transpiration | 4 |
| 6. (a) Classify proteins on the basis of their structure. (b) Describe digestion in small intestine of man. | 4+4=8 |
| 7. (a) Write a note on mitochondria. (b) Sketch the events of glycolysis(no description required). | 4+4=8 |
| 8. (a) Write the lytic life cycle of Bacteriophage. | 4 |
| (b) Describe any four steps involved in the evolution of seed habit. | 4 |
| 9. (a) What are the general characteristics of cyanobacteria? | 4 |
| (b) What are the economic losses of fungi in plants? | 4 |

Section -III (Practical)

NOTE: Answer any three parts from the following.

5x3=15

- | | |
|--|---|
| 10.A (i). Write biochemical tests for carbohydrates(starch). | 3 |
| (ii). How reducing sugars differ from non-reducing sugars? | 2 |
| B. (i). You are provided with <u>Rosa indica</u> . Describe its Corolla, Androecium, and Gynoecium. | 3 |
| (ii). Define hypogynous and perigynous ovary. | 2 |
| C. (i). Draw and label digestive system of frog. | 3 |
| (ii). What is mesentery? | 2 |
| D. (i). How is transpiration measured with the help of potometer? Write materials, apparatus required for this purpose and record your observations and results. | 3 |
| (ii) What happens to transpiration, when wind is blowing? | 2 |
| E. (i) Give one character of T.S of dicot stem. | 1 |
| (ii) What is the shape of paramecium? | 1 |
| (iii) Which one is filamentous Nostoc or Volvox. | 1 |
| (iv) How does male gametophyte of marchantia differ from its female gametophyte? | 1 |
| (v) How is prothallus of adiantum identified? | 1 |



Roll No. _____ (To be filled in by candidate)

(For all sessions)

Paper Code	6	4	6	1
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Biology (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers

A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. The most recent era is:

- (A) Proterozoic (B) Paleozoic (C) Cenozoic (D) Mesozoic

2. The specific heat of vaporization of water in Kcal/kg is:

- (A) 580 (B) 574 (C) 597 (D) 602

3. Optimum pH for Arginase enzyme is:

- (A) 4.50 (B) 5.50 (C) 9.70 (D) 7.60

4. Cisternae are associated with:

- (A) ER (B) Mitochondria (C) Nucleus (D) Chloroplast

5. Madcow infection is caused by:

- (A) Bacteria (B) Prions (C) Virions (D) Protozoans

6. Reserve food material in cyanobacteria is:

- (A) Starch (B) Glucose (C) Glycogen (D) Cellulose

7. *Pelomyxa palustris* is an example of:

- (A) Bacterium (B) Ciliate (C) Algae (D) Amoeba

8. *Aspergillus* belongs to Phylum:

- (A) Zygomycota (B) Deuteromycota (C) Ascomycota (D) Basidiomycota

9. Fern Prothallus is:

- (A) Sporophyte (B) Saprophyte (C) Gametophyte (D) Seed

10. kangaroo belongs to sub-class:

- (A) Eutheria (B) Metatheria (C) Prototheria (D) Megatheria

11. Sea urchin belongs to phylum:

- (A) Arthropoda (B) Echinodermata (C) Annelida (D) Protozoa

12. The number of chloroplast in each mesophyll cell is about:

- (A) 10-100 (B) 10-200 (C) 20-100 (D) 20-200

13. The breaking of terminal bond of ATP releases energy of about:

- (A) 4.5Kcal (B) 3.7Kcal (C) 6.8Kcal (D) 7.3Kcal

14. Casparian strips are present in cells of root:

- (A) Cortex (B) Epidermis (C) Endodermis (D) Xylem

15. The valves present in the veins are called:

- (A) Bicuspid (B) Semi-lunar (C) Tricuspid (D) Aortic

16. Excess gastric secretions is an important factor of:

- (A) Peptic ulcer (B) Obesity (C) piles (D) Food poisoning

17. Respiratory system is most efficient in:

- (A) Fish (B) Man (C) Snake (D) Bird

Roll No. _____ (to be filled in by the candidate)

(For all sessions)

Biology (Essay Type)

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2x8=16

2. Write short answers of any eight parts from the following.

- i. What are Dikaryotic hyphae?
- ii. Differentiate between radiotherapy and gene therapy.
- iii. Draw labelled diagram of HIV.
- iv. Differentiate between pepsin and pepsinogen.
- v. How pH affects the rate of enzyme action?
- vi. How temperature affects the rate of enzyme action?
- vii. Give two important characteristics of mammals.
- viii. Give some affinities of Echinoderms with hemichordates.
- ix. What is the agricultural importance of Earthworms.
- x. Differentiate between infestation and disinfestation.
- xi. Define Biodiversity? Give its percentage of different groups of organisms discovered so far.
- xii. Differentiate between septate and non-septate hyphae?

3. Write short answers of any eight parts from the following.

2x8=16

- i. Write down main physical methods to control bacteria.
- ii. Write down two important characteristics of diatoms.
- iii. How algae differ from plants?
- iv. What is Trypanosoma? What disease does it cause?
- v. Give two examples each of Red algae and Green algae.
- vi. Name the classes of division bryophyte.
- vii. Differentiate between homosporous and heterosporous.
- viii. What is biological oxidation?
- ix. Differentiate between absorption and assimilation.
- x. Differentiate between aerobic and anaerobic respiration.
- xi. What is botulism?
- xii. Differentiate between carnivores and omnivores.

4. Write short answers of any six parts from the following.

2x6=12

- i. What is glycogenosis type-II disease?
- ii. What is differentially permeable membrane?
- iii. Differentiate between amylose and amylopectin starches.
- iv. What do you know about blue babies?
- v. Compare guttation with transpiration.
- vi. Write four properties of respiratory surface in animals.
- vii. What is respiratory distress syndrome?
- viii. Define photorespiration.
- ix. Differentiate between breathing and cellular respiration.

Section - II**NOTE: Answer any three questions from the following.**

8x3=24

- 5. (a) What is Biological Method? Describe its various steps. 4
- (b) Give four differences between arteries and veins. 4
- 6. (a) Describe polysaccharides in detail. 4
- (b) Fungi are well adapted to live on land. Give reasons. 4
- 7. (a) What are plastids? Describe structure and function of chloroplast. 4
- (b) Explain the process of digestion in cockroach. 4
- 8. (a) Give characteristics of viruses. 4
- (b) Draw glycolysis. Give its energy balance. 4
- 9. (a) Discuss bacteria under the given headings: (i). Ecological importance. (ii). Economic importance. 4
- (b) Define alternative of generation. Explain significance of Alternation of generation. 4

Biology (Objective Type)**Time: 20 Minutes****Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Flame cells collect waste products from body fluid, so part of:

(A) Respiratory system	(B) Digestive system	(C) Excretory system	(D) Nervous system
------------------------	----------------------	----------------------	--------------------
2. Some fishes fill their swim bladder by gulping of air, it shows their swimmer bladder is connected with:

(A) Pharynx	(B) Larynx	(C) Esophagus	(D) Epiglottis
-------------	------------	---------------	----------------
3. The number of CO₂ molecules required to produce one molecule of Triose sugar are:

(A) 3	(B) 6	(C) 4	(D) 2
-------	-------	-------	-------
4. Energy is required for nerve conduction which is provided by the Phenomenon of:

(A) Photosynthesis	(B) Respiration	(C) Digestion	(D) Excretion
--------------------	-----------------	---------------	---------------
5. In root nodules, nitrogen fixing bacteria convert nitrogen into:

(A) Ammonia	(B) Urea	(C) Nitrates	(D) Uric Acid
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6. In earthworm, exchange of gases mainly occurs through:

(A) Gills	(B) Lungs	(C) Book Lungs	(D) Skin
-----------	-----------	----------------	----------
7. Average velocity of sugar movement in Phloem is 1m/hour but rate of diffusion is 1m/eight years. It shows diffusion is:

(A) Too fast	(B) Medium process	(C) Slow and fast	(D) Too slow
--------------	--------------------	-------------------	--------------
8. During day time, solute concentration in plant guard cells increases, then water potential in guard cells:

(A) Decreases	(B) Increases
(C) Not change	(D) Increases and then Decreases
9. Mammals became dominant in:

(A) Cenozoic era	(B) Mesozoic era	(C) Palaeozoic era	(D) Proterozoic era
------------------	------------------	--------------------	---------------------
10. Fats are insoluble in:

(A) Ether	(B) Alcohol	(C) Water	(D) Chloroform
-----------	-------------	-----------	----------------
11. Co-enzyme is closely related to:

(A) Minerals	(B) Proteins	(C) Enzymes	(D) Vitamins
--------------	--------------	-------------	--------------
12. Haploid Chromosome number in Drosophila melanogaster is:

(A) 8	(B) 4	(C) 23	(D) 13
-------	-------	--------	--------
13. Micro-organisms which are composed of only proteins:

(A) Viroids	(B) Virion	(C) Prions	(D) Bacteria
-------------	------------	------------	--------------
14. Prokaryotes that do not have peptidoglycan cell wall are:

(A) Cyanobacteria	(B) Gram-Positive Bacteria	(C) Archaeobacteria	(D) Gram-Negative Bacteria
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15. Protozoans having two kinds of Nuclei are called:

(A) Actinopods	(B) Ciliates	(C) Zooflagellates	(D) Apicomplexans
----------------	--------------	--------------------	-------------------
16. Histoplasmosis is a serious infection of:

(A) Heart	(B) Brain	(C) Kidney	(D) Lungs
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17. Pteropsida is further sub-divided into:

(A) 2-classes	(B) 3-classes	(C) 4-classes	(D) 5-classes
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Roll No. _____ (to be filled in by the candidate)

(For all sessions)

Biology (Essay Type)

Time: 2:40 Hours

Marks: 68

Section - I

2x22=44

2. Write short answers of any eight parts from the following.

2x8=16

- i. Which type of Carbohydrate is stored in our liver and muscle cells? Give its two characteristics.
- ii. Why poisons act as inhibitors?
- iii. How can the effect of reversible inhibitors be neutralized?
- iv. Why co-factors are necessary for proper functioning of enzymes?
- v. What is Nuclear mitosis? In which organisms it occurs?
- vi. What are Conidia? How they differ from spores?
- vii. What is Pseudocoelom. In which group of organisms it is found?
- viii. Differentiate between radial and bilateral symmetry.
- ix. Name the three bones of middle ear.
- x. What is the role of Swim bladder in fishes?
- xi. What are accessory pigments? Give examples.
- xii. What is oxidative phosphorylation?

3. Write short answers of any eight parts from the following.

2x8=16

- i. Define Chemotherapy. Mention its disadvantages.
- ii. Differentiate between inductive and deductive reasoning.
- iii. In what way mitochondrial matrix is of vital importance?
- iv. Narrate any four functions of smooth endoplasmic reticulum.
- v. Do you know about flagellate who lives as symbiont?
- vi. On what basis it is accepted that green algae are ancestor of plants?
- vii. What are actinopods?
- viii. What are diatoms?
- ix. Distinguish between monocots and dicots.
- x. What is annulus and stomium?
- xi. Define bleeding.
- xii. What do you know about myocardial infarction?

4. Write short answers of any six parts from the following.

2x6=12

- i. Write down four symptoms of AIDS.
- ii. State the postulates of germ theory of disease.
- iii. What is heart burn?
- iv. How Jaundice is caused?
- v. What is omnivorous mode of nutrition in animals?
- vi. How breathing is different from cellular respiration?
- vii. What is photorespiration? How it affects the plant growth?
- viii. What is vocal cord? Write its function.
- ix. Why respiratory system of birds is most elaborated?

Section - II**NOTE: Answer any three questions from the following.**

8x3=24

5. (a) How reasoning is used to tentatively explain a set of observations? 4
(b) Define osmosis and describe different pathways adopted by water to reach xylem tissue. 4
6. (a) Compare fibrous proteins with globular proteins. (b) Discuss various methods of asexual reproduction in Fungi. 4+4=8
7. (a) How bacterial walls show different colours during staining? Discuss differences between major bacterial groups based upon cell wall. (b) How seed formation is important for land plants? Write any two steps of seed evolution. 4+4=8
8. (a) Give classification of corn plant. (b) What is glycolysis? Draw its scheme of reactions and give its energy balance. 3+5=8
9. (a) Explain the structure and functions of Golgi apparatus (b) Explain the phenomenon of digestion in Cockroach with diagram. 4+4=8