

M.Sc. (Sem.-II) Examination

409

Life Science

May-2017

Time : 3 Hours]

[Max. Marks : 70

Instructions:

All questions are compulsory.

Illustrate your answers with neat diagrams wherever necessary

1. (A) Discuss the Genetic and Hereditary aspects of Behaviour. Add its role in propagation of life. [7]

OR

- (A) Explain the role of Sense Organs in behavioural output with reference to Physical stimulus.

- (B) Explain the types of Individual Behavioural Patterns. [7]

OR

- (B) Explain the comparative aspects of Ingestion and Locomotory Patterns with their significances.

2. (A) Explain the Courtship Behaviour in Animals along with one example. [7]

OR

- (A) Explain concepts of Social Behaviour with suitable examples. Add a note on related terms.

- (B) Discuss the Stickle back behaviour. [7]

OR

- (B) Elaborate the components and message sets of Animal Communication.

3. (A) Explain "Greek Theories". [7]

OR

- (A) Give a brief note on postulates of Darwinism.

- (B) Write an essay on "Lamarckian Inheritance". [7]

OR

- (B) Give an account on Pre-modern concept of Evolution.

4. (A) Write a note on: Adaptation [7]

OR

- (A) Explain Mimicry with suitable examples.

- (B) Write a note on: Mesozoic era [7]

OR

- (B) Describe Evolution of Man.

5. **Answer in Brief:** [14]

A Define Behaviour and emphasize 1st school of thought.

B Explain: Proximate and Ultimate Causation

C Define Parental cares with examples.

D Define Seasonality in Reproduction and its dependency on Gestation.

F What is Epigenesis?

G What is Ploidy? Elaborate the types.

H What is Extinction?

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1. All questions are compulsory and carry equal marks.
2. Illustrate your answers with neat and labelled diagrams wherever necessary.

Q.1. Discuss the major food groups giving examples of each and their importance with reference to nutrients. **14**

OR

- (A) Differentiate between fats and oils. Classify fatty acids with example along with their properties.
- (B) What is a balanced diet? Plan a balanced diet for a college-going girl for the whole day mentioning the RDA for calories and protein.

Q.2. What is ICMSF? Discuss types of sampling plans with suitable examples. **14**

OR

- (A) Explain HACCP concept by taking an example of any dairy product.
- (B) Discuss concept and importance of 'Quality Assurance' in food-processing industry.

Q.3. Write an easy on – 'Prebiotics, Probiotics and Synbiotics'. **14**

OR

- (A) Explain the sources of contaminating microorganisms in food.
- (B) Explain various factors affecting the growth of microbes and foods.

Q.4. Discuss principles and use of high temperature methods for preservation of food. **14**

OR

- (A) Explain use of various chemical food preservatives.
- (B) Explain how drying and irradiation methods are useful as food-preservation methods.

Q.5. Answer very briefly. **14**

- (A) What are essential amino acids? Give any two examples.
- (B) Mention any two rich food sources for vitamin A and C.
- (C) Mention types of quality criteria.
- (D) Explain any two benefits of fermented foods.
- (E) Explain any two types of microbial spoilage of foods.
- (F) Define 'Hurdle Concept'.
- (G) What is MAP technology?

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Instructions:

All questions are compulsory.

Illustrate your answers with neat diagrams wherever necessary

1. (A) Describe the structure of Endoplasmic Reticulum. List its functions. [7]
OR
 (A) Discuss the Organization and component of Plant Cell's Nucleus.
 (B) Explain the Molecular organization of Plasma Membrane with support of appropriate model. [7]
OR
 (B) Emphasis the role of Plant Vacuoles and elaborate structural organization.
2. (A) Explain the physiological effects of Gibberellins. [7]
OR
 (A) Write short note on Salicylic acid.
 (B) Describe the requirements of a Plant tissue culture experiment. [7]
OR
 (B) Describe the difference between a Bioassay and a Test with example.
3. (A) Discuss the Laws of Limiting Factors with suitable examples. [7]
OR
 (A) Describe Competition, Antibiosis and Predation as negative interactions of community.
 (B) Define Ecological Succession and explain various types of successions with emphasis on climax community. [7]
OR
 (B) Define Ecosystem and describe Abiotic and Biotic components involved in the ecological organization.
4. (A) Explain steps in breeding Clonal crops. [7]
OR
 (A) Elaborate the outline of objectives of Plant breeding. Add its applications.
 (B) Explain the steps in Plant Hybridisation. [7]
OR
 (B) Discuss the NBPGR and add its importance.
5. Answer the following in **one** or **two** line/s only [14]
 - A Enlist the functions of Chloroplasts.
 - B What is the full form of PCD?
 - C Name the contents of a plant Cell Wall.
 - D What is the difference between Growth and Development?
 - E Define a Callus culture.
 - F What is Morphogenesis?
 - G Name a Natural aquatic ecosystem.
 - H What are Fragile ecosystems?
 - I What is Energy flow?
 - J Define Natality and mention its significance.
 - K What is Emasculation?
 - L What is a Pure line?
 - M Explain Mass selection.
 - N Define Progeny test.

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1. (A) Describe the Organization of Body and Characteristics of Life. [7]
OR
 (A) Discuss the Skeletal muscle and Mechanism of Contraction.
 (B) Discuss the Endocrine Glands with special emphasis on Pituitary hormones and their mechanism of action. [7]
OR
 (B) Discuss the mechanism of action of hormone with reference to Protein hormones.
2. (A) Discuss the Inspiration and expiration and role of diaphragm. [7]
OR
 (A) Discuss the exchange of O₂ in pulmonary respiration. [7]
 (B) Discuss the Gastric digestion. [7]
OR
 (B) Explain the secretion of Digestive Glands.
3. (A) What is Heart Beat? Discuss the structure and function of Mammalian heart. [7]
OR
 (A) Discuss the composition of Blood and its role in transport to various body parts.
 (B) Explain Physiology of Blood Circulation in detail. [7]
OR
 (B) Describe the Extrinsic pathway of Blood clotting using a flow diagram.
4. (A) Explain the Ultrastructure of Glomerulus and its role in Ultrafiltration. State its significance. [7]
OR
 (A) Give a detailed account on: Physiology of Excretion.
 (B) Give an account on Ovary and its functions. [7]
OR
 (B) Discuss the Menstrual Cycle and its control through hormone.
5. **Answer in Brief:** [14]
 A Explain: Autoimmune Diseases
 B Differentiate between Localized infection and Systemic infection.
 C Explain: Enuresis nocturna
 D Enlist various blood clotting factors.
 E Explain Chloride shift and backshift in transport of CO₂.
 F Define Sarcomere. State its significance in muscle contraction.
 G Explain the Pancreas as Endocrine and Exocrine gland.