MODEL ANSWERS

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SEMESTER END THEORY EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	**:**	**I**	**Term**	**:**	I	**Academic Year**	**:** 2021-22
Course No.	**:**	**BIO-111**	**Title**	**:**	**Introductory Biology**		
Credits	**:**	2 (1+1)					
Day & Date	**:**	**26.11.2021**	**Time**	**:**	1.00 Hr	**Total Marks**	**:** 40

Note : 1) Solve ANY FOUR questions from SECTION-A
2) Solve ANY SIX questions from SECTION-B
3) ALL questions from SECTION-C are compulsory
4) Send the PDF file of answer sheet to the email id of respective course teacher

SECTION - A

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

Que.1 Describe the vegetative and reproductive plant parts with diagram and functions.

Ans Well labeled diagram of flowering plant comprising following vegetative and reproductive plant parts should be drawn. I] vegetative plant parts: Roots, stem and leaf II] Reproductive parts: Flower, fruit and seed. ***(Well labeled diagram- 2 marks and 1 mark for vegetative and 1- mark for reproductive parts)***

Que.2 What is seed? Enlist the types of seed germination and explain any one.

Ans Seed is defined as fertilized, matured ovule consisting of an embryonic plant together with a store of food, all surrounded by a protective coat. (*1 Mark*) [1] Epigeal germination [2] Hypogeal germination [3] Viviparous germination. Description of any one stage. ***(Short description of any type for 2 marks)***

Que.3 Define meiosis. Explain stages of meiosis II with the help of diagram.

Ans Meiosis: Meiosis is the process in which a single cell divides twice to form four haploid daughter cells (1 mark). Description of following stages with diagram [a] prophase II [b] metaphase II [c] anaphase II [d] telophase II. ***(Short description of each step with diagram 3 marks)***

Que.4 Write the characteristic features of *Fabaceae* family with examples.

Ans Characteristics of *Fabaceae* family with examples are as follows: [1] Root: Dicotyledons, taproot with root nodules. [2] Stem: Erect or climber [3] Fabaceae includes shrubs, herbs, trees and majorly climbers. [4]Leaves: Petiolate, pinnately compound or simple. [5]Flower: Complete, bisexual, zygomorphic, hypogynous, bracteate/ ebracteate. [6]Calyx: Five sepals, gamosepalous; valvate or imbricate aestivation. [7] Corolla: Five petals, polypetalous, papilionaceous, vexillary aestivation. [8] Androecium: Ten stamens (9+1), diadelphous, anther dithecous and Gynoecium is monocarpellary with superior ovary. [9] Fruit is legume. Examples: pigeon pea (*Cajanas)*, groundnut (*Archis*), chickpea (*Cicer*), pea (*Pisum*), Soybean (*Glycine*), etc. ***(At least major characteristics should be given with short description ½. Maximum 3 marks and 1 mark for any two correct examples)***

Que.5 Enlist rules of Binomial nomenclature.

Ans Rules of binomial nomenclature: [1] In this method. Every species of living organisms is given a Latinized scientific name consisting of two parts. [2] The first word in the name indicates the genus, while the second word denotes its specific epithet. [3] When the name is handwritten, both the words are separately underlined. [4] When printed, the name is in italics. [5] The first letter of the first word is always written in capital, while the first letter of the specific epithet, i.e. the second word, is a small letter. [6] The name or abbreviated name of the scientist describing the species for first time should be written after binomial. E. g. *Pseudomonas syringae* Val Hall. ***(1 mark each for correct each rule)***

SECTION B

(Write the answers in one sentence only. Each question carries 2 marks)

1) Give two types of inflorescence. [1] Racemes [2] Spike [3] Capitulum [4] Panicle [5] Cymose ***(2 mark for 2 correct type)***
2) Enlist the names of kingdoms in the five kingdom classification system. [1]Monera [2] Protista [3] Fungi [4] Plantae [5] Animalia ***(2 marks for correct 5 kingdoms)***
3) What is seed germination? Seed germination is defined as the fundamental process by which different plant species grow from a single seed into a plant. ***(2 marks for correct definition***
4) Write important functions of Ribosomes. Ribosomes serve as the site of protein synthesis. Hereditary information from mRNA is translated into the protein. ***(1 mark each for correct function)***
5) Define Metabolism. The chemical processes that occur within a living organism in order to maintain life. ***(2 marks for correct definition)***
6) Give any two theories of origin of life. [1]Theory of special creation. [2] Theory of spontaneous generation. [3] Theory of biogenesis. [4] Theory of biochemical evolution. [5] Theory of panspermia. [6] Deep sea hydrothermal vent theory. ***(1 mark for each correct theory)***
7) Enlist the stages of mitosis. [1] Interphase [2] Prophase [3] Metaphase [4] Anaphase [5] Telophase ***(2 marks for all the stages with sequence)***

SECTION C

Que. 7 **(Choose the correct option. Each question carry 1 mark)**

1) Maize is the member of _____family.
a) *Fabaceae* b) *Brassicaceae*
c) ***Poaceae*** d) None of these

2) In plants _____ produces food.
a) Mitochondria b) **Chloroplast**
c) Lysosomes d) Nuclear membrane

3) Ginger is an example of _____ type of stem modification.
a) **Rhizome** b) Tuber
c) Corm d) Bulb

4) _____ is the outermost whorl of the flower.
a) Androecium b) Gynoecium
c) **Calyx** d) Corolla

5) Root hair plays role in _____.

a) Food Preparation
b) Water Transportation
c) Food Transportation
d) **Water Absorption**

6) _____ is the member of *Brassicaceae* family.

a) Wheat
b) **Broccoli**
c) Groundnut
d) Castor

7) _____ is the typical root system in dicot plants.

a) Annulated root
b) Adventitious root
c) Fibrous root
d) **Tap root**

8) Fruit of mustard is called as _____.

a) **Siliqua**
b) Earhead
c) Pod
d) Panicle

9) Binomial Nomenclature was given by _____.

a) Morgan
b) **Carl Linnaeus**
c) Gregor Mendel
d) R. Hooke

10) Cattle are used as _____ in agriculture.

a) Source of raw material
b) Source of food
c) **Motive Force**
d) Source of dairy products

11) Parallel venation is found in _____.

a) **Banana**
b) Soybean
c) Castor
d) Mango

12) _____ is called as the powerhouse of the cell.

a) Endoplasmic Reticulum
b) Ribosomes
c) Vacuoles
d) **Mitochondria**

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