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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B,Tech.

SEM: III - THEORY EXAMINATION (2022 - 2023)

Subject: Plant and Animal Science

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

20

1. Attempt all parts:-

- | | | |
|------|------------------------------------------------------------------------------------------|---|
| 1 | Polarity is (CO1) | 1 |
| | (a) Unidirectional | |
| | (b) Bidirectional | |
| | (c) Both of the above | |
| | (d) None of the above | |
| 1 | Vernalization means treatment of : low temperature to induce / enhance flowering. (CO1) | 1 |
| | (a) Low temperature | |
| | (b) Induce flowering | |
| | (c) Enhance flowering | |
| | (d) All of the above | |
| 1-c. | Cyclic photophosphorylation (CO2) | 1 |
| | (a) Produces ATP only | |
| | (b) Operates under low light intensity | |
| | (c) when CO2 availability is low | |

- (d) All of the above
- 1-d. Calvin cycle is (CO₂) 1
- (a) Dependent on light
- (b) Not dependent on light
- (c) All of the Above
- (d) None of the above
- 1-e. Ammonification is the formation of (CO₃) 1
- (a) Ammonia from nitrates by decomposers
- (b) Ammonia from nitrogen
- (c) Ammonia from amino acids
- (d) Ammonia from nitrates by nitrogen fixers
- 1-f. Which of these is a pigment? (CO₃) 1
- (a) Codeine
- (b) Ricin
- (c) Carotenoid
- (d) Curcumin
- 1-g. Name the place where digestion of proteins occurs. (CO₄) 1
- (a) Pancreas
- (b) . Rectum
- (c) Liver
- (d) Ileum
- 1-h. Contraction of the heart muscles is known as (CO₄) 1
- (a) Systole
- (b) Diastole
- (c) Pace maker
- (d) Tricuspid
- 1-i. How many microspore mother cells are required to produce 1000 microspores/pollen grains? (CO₅) 1
- (a) 100
- (b) 150
- (c) 200

- 1-j. Autogamy can occur in a chasmogamous flower if (CO5) 1
- (a) pollen matures before maturity of ovule.
 - (b) ovules mature before maturity of pollen.
 - (c) both pollen and ovules mature simultaneously.
 - (d) both anther and stigma are of equal lengths.

2. Attempt all parts:-

- 2.a. Explain the term totipotency? (CO1) 2
- 2.b. What are the site of light reaction and the dark reaction of the process of photosynthesis? (CO2) 2
- 2.c. What is Ammonification? (CO3) 2
- 2.d. What are the functions of bile? (CO4) 2
- 2.e. Where is acrosome present in humans? Write its function. (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Discuss the different types of apoptosis? (CO1) 6
- 3-b. Discuss the role of cytokinin in plant tissue culture? (CO1) 6
- 3-c. Distinguish between photorespiration and respiration. (CO2) 6
- 3-d. Explain the Calvin cycle? (CO2) 6
- 3.e. How mycorrhizal association helpful in absorption of water and minerals in plants? (CO3) 6
- 3.f. Draw the diagram of human urinary system? (CO4) 6
- 3.g. Differentiate between 'self-pollination' and 'cross-pollination'. Describe double fertilisation in plants. (CO5) 6

SECTION C

50

4. Answer any one of the following:-

- 4-a. Explain the different types and theories of senescence? (CO1) 10
- 4-b. Explain the structure and functions of rough and smooth endoplasmic reticulum? Draw their structure also? (CO1) 10

5. Answer any one of the following:-

- 5-a. Describe the Hatch-Slack cycle and write its significance. (CO2) 10
- 5-b. Explain briefly the anatomy of C 4 plants? How this anatomy reduce the occurrence of 10

photorespiration? (CO2)

6. Answer any one of the following:-

- 6-a. Discuss the Pressure Flow or Mass Flow Hypothesis? (CO3) 10
- 6-b. Differentiate between the following: (CO3) 10
- (a) Diffusion and Osmosis
- (b) Transpiration and Evaporation

7. Answer any one of the following:-

- 7-a. Explain the major features of human lymphatic systems? (CO4) 10
- 7-b. What are the seven principle hormone produced by the anterior pituitary? What function does each serve? (CO4) 10

8. Answer any one of the following:-

- 8-a. Explain in detail the difference between the meiotic division of oogenesis and spermatogenesis. (CO5) 10
- 8-b. Explain the development of an embryo in a dicotyledonous plant with neatly labelled diagrams. (CO5) 10