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**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)**



B. Sc. (Ag.) (Sixth Semester - Regular) Examinations, April – 2026
SWE(Ag.)-322 – Protected Cultivation and Secondary Agriculture

Time: 2 hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A

Q.1. Fill in the blanks with suitable word / figure.

(0.5 x 10 = 5 Marks)

- In Protected cultivation the mist chamber is normally used for
- In Protected cultivation the soil solarisation can be done with the help of
- Inside temperature of greenhouse is greater than the outside, because of
- In greenhouse the desired level of CO₂ concentration is
- In mediterrian climate the ventilation percentage of greenhouse should be about
- The perimeter heat loss from greenhouse depends on
- In greenhouse for proper plant growth the humidity level should be
- Grain will achieve critical moisture content at of Constant drying rate period.
- Even span type greenhouse is installed in region.
- Black colour plastic mulch is used for

Q. 2. Define (or) Explain the following in one or two sentences.

(1 x 5 = 5 Marks)

- Greenhouse Effect
- Perimeter watering
- Compensation Point
- Equilibrium Moisture Content
- Unit Heater

Q3. Match the following

(0.5 x 10 = 5 Marks)

Column – A

Column – B

- | | |
|-------------------------------|---|
| (a) Oasis Cube | (i) Boiler |
| (b) Water Pump or Valve | (ii) Material Handling Equipment |
| (c) Lean-to design | (iii) Heat and Mass Transfer |
| (d) Even span type greenhouse | (iv) Size of any irregular shaped material |
| (e) Eave | (v) Growing Media |
| (f) Saw tooth type Greenhouse | (vi) Gadget |
| (g) Central Heat | (vii) against the side of an existing building |
| (h) Conveyor Belt | (viii) level ground |
| (i) Drying | (ix) carry rain and melted snow away |
| (j) Equivalent diameter | (x) Specific natural ventilation flow path develops |

Q4. Write True or False against each statement

(0.5 x 10 = 5 Marks)

- a. As a rule, 10 to 15% excess of water is supplied to leach out water soluble salt from root zone of plant.
- b. A nozzle is installed at the top of each riser.
- c. The quantity of water delivered per unit area of plants is adjusted by the speed at which the boom travels.
- d. Dehydration means removal of moisture to very low levels usually to bone dry condition.
- e. All commercial flow dryers are designed on thin layer drying principle.
- f. The drying front indicates the level of grains in the bin at which, the grain have just started losing moisture to the drying air.
- g. The dripper is used as energy dissipater in drip irrigation system.
- h. The fertigation system is installed between sand filter and screen filter.
- i. Convection tube cooling system is example of Active summer cooling system.
- j. Sun drying is example of radiation drying.

PART – B

Attempt ANY FIVE questions. All question carries equal marks

(6 x 5 = 30 Marks)

- 5. Explain Convection tube cooling system with help of schematic diagram.
- 6. Explain rules of Watering.
- 7. Explain different components of micro-climate.
- 8. What amount of natural gas is required by grower to raise the CO₂ concentration from 100 to 800 ppm inside his greenhouse of 80 m³? Assume 1 m³ of natural gas yields 538.715 m³ of CO₂.
- 9. Explain Mixed mode type Greenhouse dryer with help of schematic diagram.
- 10. Enlist various engineering properties of Agricultural Products. Explain Sphericity and Roundness of Agricultural products.

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