GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

B. Sc. (Ag.) (Sixth Semester) Examinations, April – 2025
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)**

a. …… is called miniature greenhouse.
b. …….. is also called as contact drying.
c. ……. drying is heterogeneous drying.
d. Thermal Conductivity is …… Property of Agricultural Product.
e. The requirement of filter cleaning is assessed based on the …….
f. The diameter of lateral line varies from ……..
g. Ball valve is placed at the inlet end of …….
h. The gromate take off (GTO) is used for connecting ……..
i. ……. is defined as the percentage volume of inter- grain space of the total volume of grain in bulk.
j. …… drying is the example of radiation drying.

Q. 2. Define (or) Explain the following in one or two sentences. **(1 x 5 = 5 Marks)**

a. Compensation Point
b. Greenhouse Range
c. Volume Concentration
d. Roundness
e. Thin layer Drying Method

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. The equivalent diameter is generally defined as the diameter of a sphere having the same volume as that of the particle.

b. As a rule, 10 to 15% excess of water is supplied to leach out water soluble salt from root zone of plant.

c. PVC pipe tends to roll if it is not anchored firmly to the side of the bench.

d. A nozzle is installed at the top of each riser.

e. The quantity of water delivered per unit area of plants is adjusted by the speed at which the boom travels.

f. Sprinkler irrigation is often referred to as trickle irrigation

g. Application efficiency of drip is 90 to 95%.

h. Dehydration means removal of moisture to very low levels usually to bone dry condition.

i. All commercial flow dryers are designed on thin layer drying principle.

j. The drying front indicates the level of grains in the bin at which, the grain have just started loosing moisture to the drying air.

PART – B

Attempt *ANY FIVE* questions. All question carries equal marks **(6 x 5 = 30 Marks)**

5. Explain types of Greenhouse based on shape with help of schematic diagram.

6. What amount of natural gas is required by grower to raise the CO_2 concentration from 100 to 800 ppm inside his greenhouse of 80 m^3? Assume 1 m^3 of natural gas yields 538.715 m^3 of CO_2.

7. Explain various components of greenhouse with help of schematic diagram.

8. Explain fan and Pad cooling system with help of schematic diagram.

9. Explain advantages and limitations of mechanical dryer over sun drying.

10. Explain various material handling equipment with help of schematic diagram.

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