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

B. Sc. (Ag.) (Fifth Semester - Regular) Examinations, November – 2025

AG (E)-312 – Weed Management

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. The quantity of glyphosate 41 SL required, if recommended dose is 1.5 lit. *a.i.*/ha is ______________.

b. Enzyme responsible for selectivity of propanil in rice is ___________________.

c. _______________ weeds responsible for allergy in human..

d. In ____________ dormancy, seeds germinate immediately after the favourable conditions restored and no dormancy breaker required.

e. The dispersal mechanism where weed seeds dispersed by cattle dung is called as _____________.

f. _______________ herbicide is known as Tailor made herbicide, which belongs to dinitroaniline group.

g. __________________ is the common biocontrol agent for *Parthenium hysterophorus*.

h. Herbicide resistance was 1st recorded for _____________________weed and ___________ group of herbicides.

i. The mode of action of glyphosate works by inhibiting __________________ enzyme.

j. When a single mechanism confers resistance to multiple herbicides with different mode of action, it is known as _______________ resistance.

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

a. WCE

b. Weed Succession

c. Conjugation

d. Herbicide Selectivity Index

e. Censor mechanism

Q3. Match the following (0.5 x 10 = 5 Marks)

	Column – A		Column – B
(a)	*Phalaris minor*	(i)	Trifluralin
(b)	PPO inhibitor	(ii)	Glufosinate
(c)	Microtubule inhibition	(iii)	Glyphosate
(d)	ACCase Inhibitors	(iv)	Paraquat
(e)	EPSP Synthase	(v)	Cladinafop
(f)	Herbicide Tolerance	(vi)	Atrazine
(g)	Electron divertor	(vii)	Tembotrione
(h)	PS-II Inhibitor	(viii)	Halosulfuron
(i)	ALS Inhibitors	(ix)	Oxyflurofen
(j)	HPPD Inhibitors	(x)	Phospholipid inhibition

Q4. Write True or False against each statement **(0.5 x 10 = 5 Marks)**

a. Cuscuta is a semi stem parasite in pearlmillet.

b. Low retention, high translocation, rapid metabolic activity leads to high rate of herbicide selectivity in crops.

c. In case of hydroxylation, the toxic herbicide molecule losses its toxicity.

d. *Chenopodium album* is a perennial weed.

e. Crop bound weeds have parasitic relationship with host crops.

f. Ligules and auricles are characteristics of sedges.

g. WSE is related to yield of crops.

h. Half-life period of Atrazine is 60 days.

i. Depth protection is an example of physical selectivity.

j. Combination of Ammonium sulphate with glyphosate has an antagonistic effect on control of weeds.

PART – B

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

5. a) Define Herbicide Persistence with graph. (2)

   b) What is difference between weed hardiness and persistence. Briefly discuss the mechanism of weed persistence. (4)

6. a) Differentiate between crop associated weed and crop bound weed. (3)

   b) Classify the herbicides based on selectivity, mode of action and time of application with examples. (3)

7. a) Discuss in brief regarding decomposition of herbicide and its types on soil. (4)

   b) What is critical period of crop-weed competition. (2)

8. A farmer applied 14 knap-sac spray in his field. Each knap-sac spray contained 40 gram of herbicide. Calculate the field area and amount of herbicide applied in the field, if the recommended spray volume is 500 lit/ha and capacity of sprayer is 15 litre.

9. A tractor mounted sprayer spray herbicide in a field in 4 hours with speed of 5 km/hr. The width of spray is 4m. Calculate the area covered by tractor, volume of water sprayed and amount of pendimethalin (30 EC), if the rate of application is 0.75 kg a.i/ha. Also calculate the concentration of herbicide solution in ppm. (Given, tractor delivers spray @ 500 l/ha.

10. What is herbicide resistance. Difference between herbicide resistance and tolerance. Write down the management strategies to reduce the development of herbicide resistance.

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