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

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

AG(E)-323 – Agricultural Waste 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. _____ zero till seed drill implements is the most efficient for sowing of wheat under residue re condition.
b. The minimum time gap should be _____ days between rice straw incorporation and wheat sowing to avoid nitrogen deficiency in wheat resulted from immobilization.
c. GWP of CO_2 is _____.
d. 1kg earth worm convert _____ kg waste material into compost per day.
e. Most abundant gas in biogas is _____.
f. _____ is the function of the amount and nature of agricultural waste generated in AWMS.
g. Rice straw is more problematic than managing wheat straw in rice-wheat cropping system due to _____.
h. With increase in rate of eutrophication, depth of water bodies will_____.
i. If the organic carbon content in waste residue is 0.6 %, then organic matter is of _____ %.
j. C: N of saw dust is _____.

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

a. BOD
b. Hot manure
c. CEC
d. SPAD
e. Van bemmelen factor

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

Column – A		Column – B	
(a)	Rice straw	**i.**	More silica content
(b)	Rice leaves	**ii.**	1900 ppb
(c)	Water vapour	**iii.**	0.001%
(d)	Geosmin	**iv.**	Fungi
(e)	*Sesbania rostrata*	**v.**	Narrow C: N
(f)	Poultry manure	**vi.**	Less silica content
(g)	Lignin decomposition	**vii.**	Wider C: N
(h)	Methane	**viii.**	In-situ green manuring
(i)	Cow manure	**ix.**	Stem nodulating
(j)	*Sesbania acuelata*	**x.**	actinomycetes

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

a. Low level of organic carbon in waste material increases the thermal conductivity.
b. Rice crop produces highest amount of surplus residue potential in India
c. Application of raw FYM leads to immobilization of nitrogen is soil.
d. Rice straws are more digestible than leaves, because of less silica content of leaves.
e. The 'K' content in straw among cereals follow order i.e. Maize > rice > wheat.
f. Contribution of India is 14 % towards residues burning out of total global crop residue burning.
g. "APSIM" model is an important one to study C and N dynamics in soil amended with crop residues.
h. Zero tillage is mostly followed in coarse textured soil.
i. Pyrolysis occurs in absence of oxygen.
j. Additive series of intercropping system is mostly followed in Odisha.

PART – B

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

5. a) What is Agricultural waste management system. Briefly discuss its Function. (5)
   b) Enlist the different methods of composting. (1)
6. a) What is Gobar gas. Write down its composition and different stages. (3)
   b) What is ozone depletion. Discuss it briefly. (3)
7. a) What is IIFS. Enlist the components of IIFS with regards to waste recycling. (2)
   b) Calculate the organic N content in kg/ha as well as in ppm basis, if the soil has 0.6% OC. (4)
8. What is conservation agriculture. Briefly explain its principles with relation to waste management in field condition.
9. a) What is Agricultural waste? Classify them and explain the agronomical practice to manage the waste. (4)
   b) What are the methods for management of solid waste. (2)
10. Explain the role of soil in waste management by highlighting the effect of C: N, CEC, Bulk Density, Organic matter etc.

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