

RDL700 Major Exam
Biomass Production

Total Marks: 46

(Part A=41, Part B=5)

Note: Attempt all questions

PART -A

- Q.1 (A) Enumerate the causes of biodiversity depletion. 2
- (B) Classify the biomass on the basis of cell type and discuss the important features of all classes / groups. 3
Part: eukaryotic
- Q.2 (A) Fill in the Blanks (3.5)
- a) Lithophytes grow onand Psammophytes on 0.5
- b) The name of bacteria present on the stem of *Sesbania rostrata* is 0.25
- c) Pneumatophores are found in.....and animals that feed on blood are called..... 0.5
- d) The available forms of Phosphorus and Molybdenum are 0.5
- e) $\text{NH}_4^+ + \text{OH}^- \longrightarrow \dots \text{NH}_3 + \text{H}_2\text{O} \dots$ 0.5
- f) Decomposed cattle dung, bedding mat and cattle urine is called *organic matter* 0.25
- g) Application of plant nutrients (org.manures/fertilizers etc.) for the standing crops is called *top* 0.25
- h) Molybdenum is the constituent of *Fe¹³*enzyme. *protein* 0.25

- i) Spilling of unripe fruits occurs because the deficiency of.....in soil. 0.25
- j) The unique feature of *A. beijerinckii* is to produce..... 0.25

(B) True or False

- (1) *Bradyrhizobium* grows faster than *Rhizobium*. ✓
- (2) Acetobacter is found on the stem of *Sesbania sesban*
- (3) Melanin is formed by *Azotobacter insignis* ✓ (handwritten: *Azotobacter*)
- (4) Siderophores are the substrates chelating Cu and Zn. ✓
- (5) Formation of RNA from DNA in presence of RNA polymerase is transcription. ✓
- (6) Translation is carried out by ribosome.
- (7) The name of enzyme which takes part in untwisting of DNA in its replication is helicase.
- (8) Nitrosomonas and Nitrobacter take part in ammonification. ✓
- (9) Homoserine amino acid is preferred C and N source for *Azospirillum*. 4.5

(8)

Q.3. Short notes on any two of the following:

- a) DNA
- b) Plant nutrient uptake mechanisms
- c) Nitrogenous and phosphatic chemical fertilizers

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(6)

Q.4 (A) Give the percentage of Nitrogen in Urea and DAP, Phosphorus in TSP and SSP and Potassium in MOP. 1.25

(B) At a farm, a farmer wants to give 84 kg N, 62 kg P and 32 kg K for his wheat crop. Calculate the quantity of DAP, Urea, SSP and MOP judiciously to meet the need of major nutrients NPK to be added to his crop. The use of DAP is mandatory as discussed in the class. 4.75 (6)

Q.5 (A) What is the difference between traditional composting and Vermicomposting? Give the name of earthworm's species being employed in different countries largely and also give the reason why it is so popular.

Or

What do you understand by green manuring and why it is highly suitable for alkali soils? How does it differ from the Farm Yard Manure? 3

(B) Calculate the length of a windrow to accommodate 650 tons of MSW for vermicomposting if height and width of windrow are kept 0.5 m and 1 m respectively. 3 (6)

Q.6 (A) Classify nitrogen fixing biofertilizers. Also, give the quantity of nitrogen fixed by them.

(B) Describe recombinant DNA technology, discussed in the class, in developing desired characteristic organism. (3X2=6)

Q.7 (A) What do you mean by mycorrhiza, mycorrhizal plants and mycorrhizal fungi? 0.75

(B) Discuss the potential role of mycorrhizal fungi as bio-control agents. 1.25

(C) Give the method to determine % AMF root infection. 2

Or

(A) What do you mean by AM and VAM. 0.5

(B) Describe the factors affecting the mycorrhizal development in the plants. 2.25

(C) Give the method to isolate AMF from soil. 1.25

(4)

PART B

I. Write only 2-3 line answer

(All questions are compulsory)

(1 x 5 = 05)

- Oleosomes
- Tonoplast
- Companion cell
- Aquaporin
- CAM idling.