

U.G. 3rd Semester Examination - 2019

BOTANY**[HONOURS]****Skill Enhancement Course (SEC)****Course Code : BOT(H)SEC-01A&B-T**

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***Answer all the questions from Selected Options.****OPTION - A****BOT(H)SEC-01A-T****[Biofertilizers]**

1. Answer any **five** of the following : 2×5=10
- a) What is rhizosphere?
 - b) Abundance of which element in soil restrict *Rhizobium* in nodule formation? Why?
 - c) Name a plant where haemoglobin is present. Who synthesize haemoglobin there?
 - d) Name the groups of *Azotobacter*.
 - e) What is the full form of AM?
 - f) What is green manure?
 - g) Name the animal associated with vermicomposting.
 - h) Why do plants seek association with mycorrhiza?

[Turn over]

2. Answer any **two** from the following : $5 \times 2 = 10$

- a) Define biofertilizer. Write importance of biofertilizer. $1+4$
- b) What is broth? Write down the dilution technique in isolation of any bacteria. $1+4$
- c) Name the diazotroph associated with *Azolla*. State the response of agricultural crops in *Azolla* application. $1+4$
- d) What are mycorrhizal? Classify mycorrhizal based on morphological and anatomical characters. $1+4$

3. Answer any **two** from the following : $10 \times 2 = 20$

- a) What is vermicomposting? Write down different types of vermicomposting. Describe briefly the method of vermicomposting. $2+3+5$
- b) Name two free living cyanobacteria used as biofertilizer. Write briefly the oxygen problem in dinitrogen fixation. How do the cyanobacteria overcome oxygen problem? $2+5+3$
- c) Name a plant where actinorrhiza remain as symbiont. Write down isolation and mass multiplication of *Rhizobia*. $2+4+4$
- d) Name a species of *Azotobacter* used as biofertilizer. Write about cross inoculating groups of *Rhizobium*. Write down the method of carrier based inoculum preparation. $2+4+4$

OPTION - B

BOT(H)SEC-01B-T

[Plant Diversity and Human Welfare]

1. Answer any **five** of the following : $2 \times 5 = 10$
- a) Define Genetic diversity.
 - b) Differentiate between cultivated and wild plant taxa.
 - c) Name any two organisations associated with biodiversity management.
 - d) What is Red Data Book?
 - e) What is species diversity?
 - f) Name one National Park and one Botanical Garden of West Bengal.
 - g) Mention two importance of forestry.
 - h) Name two Avenue trees.
2. Answer any **two** from the following : $5 \times 2 = 10$
- a) What is ecological niche? Briefly describe the plant diversity at the ecosystem level. $1+4$
 - b) Mention any four strategies to conserve plant diversity. Mention one role of NBPGR. $4+1$
 - c) What is sustainable development? Mention a few approaches towards sustainable development. $2+3$

- d)) What are ornamental plants? Write down the scientific names of four ornamental plants from four different family. $1+4$

3. Answer any **two** from the following : $10 \times 2 = 20$

- a) Briefly discuss the ethical and aesthetic values of biodiversity. What is microbial diversity? Mention some of the uses of microbial diversity in human welfare. $4+2+4$
- b) Briefly describe any four of the major reasons behind the loss of biodiversity. $2\frac{1}{2} \times 4$
- c) Distinguish between *in situ* and *ex situ* conservation. Briefly describe two *in situ* conservation facilities and two *ex situ* conservation facilities. $2+(2+2)+(2+2)$
- d) Mention the scientific names of four timber yielding plants and four fruit crops with their families. Name any two alcoholic beverages.

$$\left(\frac{1}{2} + \frac{1}{2}\right) \times 4 + \left(\frac{1}{2} + \frac{1}{2}\right) \times 4 + 2$$