

**M. SC. (BIOTECHNOLOGY) SEM-IV (2012 COURSE)(CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017  
SUBJECT: HERBAL BIOTECHNOLOGY**

Day : **Wednesday**  
Date : **01/11/2017**

Time : **02.00 PM TO 05.00 PM**  
Max. Marks : 60

**W-2017-0978**

**N. B. :**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Answer **ANY TWO** from questions 2, 3, 4 and 6, 7, 8.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat and labelled diagram **WHEREVER** necessary.

**SECTION - I**

- Q. 1** Answer **ANY FIVE** of the following questions in brief: (10)
- a) Indian medical systems.
  - b) Forms in herbal drugs.
  - c) Need of authentication of herbs.
  - d) Traditional uses of plants.
  - e) Dosage forms in herbal drugs.
  - f) Definition of Ethnobotany.
- Q. 2** Answer the following questions: (10)
- a) Enlist major groups of plants with their medicinal uses.
  - b) Explain different systems for identification of herbs.
- Q. 3** Explain the following: (10)
- a) Quality assurance and stability testing of herbal drugs.
  - b) Methods of isolation of secondary metabolites.
- Q. 4** Write short notes on **ANY TWO** of the following: (10)
- a) Storage and validation of herbal formulations
  - b) Classification of natural products
  - c) Future prospects of herbal medicines in India

**SECTION - II**

- Q. 5** Answer the following questions: (10)
- a) Role of Biotechnology in the production of phytopharmaceuticals.
  - b) WHO guidelines for assessment of quality of herbal products.
- Q. 6** Answer **ANY TWO** the following questions: (10)
- a) Name some important medicinal plants with their active ingredients and action.
  - b) Advances in the field of pharmacognosy of antioxidants drugs of plant origin.
  - c) Enlist the herbal formulations frequently used in Ayurvedic system.
- Q. 7** Write short notes on the following: (10)
- a) Pre-formulation studies in herbal drugs
  - b) Quality control of herbal crude drugs
- Q. 8** Design and experiment for: (10)
- a) To detect heavy metals in herbal products.
  - b) Scientific validation of a traditional herb known for antiinflammatory properties.

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