



INDIAN FOREST SERVICE P (EXAM)-2014

**C-HENT-N-ANSMA**

**BOTANY**

**Paper – I**

**Time allowed : Three Hours**

**Maximum Marks : 200**

**Question Paper Specific Instructions**

**Please read each of the following instructions carefully before attempting questions :**

There are **EIGHT** questions in all out of which **FIVE** are to be attempted.

Questions no. **1** and **5** are compulsory. Out of the remaining **SIX** questions, **THREE** are to be attempted selecting at least **ONE** question from each of the two Sections A and B.

Attempts of questions shall be counted in chronological order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in **ENGLISH** only.

Neat sketches may be drawn, wherever required.

**SECTION A**

**Q1. Answer the following keeping your answers brief and to the point : 5×8=40**

- |     |   |   |
|-----|---|---|
| (a) | What are the pigments that are found in red algae ?   | 5 |
| (b) | What are the different types of flagella found in fungi ?   | 5 |
| (c) | How significant is the parasexuality in <i>Aspergillus</i> ?  | 5 |
| (d) | Comment on the structure, location and function of transfusion tissue.                                | 5 |
| (e) | Comment on the contractile vacuoles in <i>Euglena</i> .   | 5 |
| (f) | What is the heterotrichous habit of moss protonema growth ?   | 5 |
| (g) | What are the xerophytic and hydrophytic characters found in the rhizome anatomy of <i>Equisetum</i> ? | 5 |
| (h) | Differentiate between prokaryote and eukaryote.   | 5 |

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- Q2.** (a) Explain the molecular basis of plant-pathogen interaction. 10
- (b) Explain variations in male reproductive structures in liverworts. 10
- (c) Briefly discuss the phylogeny of algae. 10
- (d) Write notes on the distribution of bryophytes and pteridophytes in deciduous and evergreen forests of India. 10
- Q3.** (a) What is meant by modelling and how does it help in disease forecasting? 10
- (b) Giving suitable reasons, discuss inter-alia evolutionary status of *Psilotum*, *Selaginella* and *Marsilea*. 15
- (c) Discuss the role of amphibious plants in the evolution of land plants. 15
- Q4.** (a) Explain to what extent has the technique of micropropagation been successful in achieving our goals. 15
- (b) Citing suitable examples, explain how laxity in quarantine procedure can have disastrous effects. 15
- (c) Write a brief note on the advantages of diploid carposporophyte generation in red algae. 10



## SECTION B

- Q5. Answer the following keeping your answers brief and to the point : 5×8=40**
- (a) Differentiate between megasporogenesis and megagametogenesis. 5
  - (b) Differentiate between Palaeozoic and Coenozoic plants. 5
  - (c) Differentiate between Isotype and Syntype. 5
  - (d) Comment on the stratification of pollen grain walls. 5
  - (e) Why are gymnosperms called naked-seeded plants ? 5
  - (f) Comment on *Plumbago* type of embryo sac development. 5
  - (g) What are the angiospermic features of *Gnetum* ? 5
  - (h) What are the unique features of Brassicaceae ? 5
- Q6. Draw scientifically accurate diagrams of the following and label the parts : 10×4=40**
- (a) Floral formula and floral diagram of Ranunculaceae and Rosaceae 10
  - (b) L.S. of capsule of *Funaria* 10
  - (c) Anatomy of *Pinus* needle 10
  - (d) Stages depicting the formation of vegetative and generative cells during male gametophyte development in angiosperms 10
- Q7.**
- (a) "Ethnobotany provides important clues to the discovery of modern drugs." Justify the statement giving suitable examples. 15
  - (b) "*Gnetum* is a link between seed plants and seedless plants." Justify the statement. 10
  - (c) Differentiate between normal and abnormal secondary growth in dicot stem. Discuss with diagrams wherever necessary. 15
- Q8.**
- (a) Compare Bentham and Hooker's system of classification with the system of classification of Hutchinson. 15
  - (b) Give a concise account of Cordaitales and justify why they form an important group. 10
  - (c) Write the botanical name, family, active constituents and uses of any five medicinal plants of commercial importance in India. 15