भारतीय वन सेवा परीक्षा ..... 2011 .....
Indian Forest Services Examination .....

Sl. No. 1071 D–VSF–L–OBA

BOTANY

Paper—I

Time Allowed : Three Hours	Maximum Marks : 200

INSTRUCTIONS

Candidates should attempt Question Nos. 1 and 5 which are compulsory, and THREE of the remaining questions, selecting at least ONE question from each Section.

All questions carry equal marks. Marks allotted to parts of a question are indicated against each.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

Section—A

1. Answer any *four* of the following in not more than *200* words each [*(i)* and *(ii)* together] : 10×4=40

(a) Write critical notes on the following :

(i) Phyllody

(ii) Use of cybrids in plant improvement

(b) Write short notes on the following :

(i) Dikaryotization in *Ustilago*

(ii) Androgenic haploids

(c) Differentiate between the following :

(i) Chlorosis and Necrosis

(ii) Polarity and Symmetry

(d) Write about the following :

(i) Defense structures in plants against the attacking pathogen

(ii) Bacterial cell wall

(e) Write critical notes on the following :

(i) Flagellar apparatus in algae

(ii) Evolutionary significance of heterospory

2. (a) "The coexistence of host plants and their pathogens in nature indicates that the two have evolved together." Elaborate the above statement with examples. 20

(b) "Somatic hybrid cell lines can be developed by fusing the protoplasts from two different sources." How will you distinguish the somatic hybrid lines from the parental cells? 20

3. (a) Give an account of sexual fruiting bodies in ascomycetes. 20

(b) "There is progressive sterilization of sporogenous tissue in bryophytes." Critically examine this statement and give examples for the same. 20

4. (a) Give an account of microorganisms involved in biological nitrogen fixation. 20

(b) What is heterothallism? Give an account of different types of it in fungi. 20

Section—B

5. Answer any *four* of the following in not more than *200* words each [*(i)* and *(ii)* together] : 10×4=40

(a) Give brief accounts of the following :

(i) Male germ unit

(ii) Types of stomata in dicotyledons

(b) Distinguish between the following :

(i) Fertilization in *Ephedra* and *Gnetum*

(ii) Leaf anatomy of C_3 and C_4 plants

(c) Comment critically on the following :

(i) Why are ethnobotanical studies important in India?

(ii) Floral characters in Asclepiadaceae

(d) Write short notes on the following :

(i) Apomixis and its economic importance

(ii) Archaeopteris

(e) Write short notes on the following :

(i) Botanical gardens and their utility

(ii) Composition and products of latex

6. Draw scientifically accurate diagrams of the following and label the parts correctly : 10×4=40

(a) TS coralloid root of *Cycas*

(b) Ray and disc florets of *Helianthus annuus* and their floral diagrams

(c) Floral (reproductive fructification) morphology and LS of ovule of *Cycadeoidea* (Bennettitales)

(d) LS of caryopsis of any cereal

7. Write short notes on the following : 10×4=40

(a) Economic importance of Brassicaceae and Solanaceae

(b) Distinguishing features of successive cambia and interxylary phloem

(c) Pollination by birds and bats

(d) Embryo development in *Paeonia*

8. (a) Give a comparative account of the systems of classification of angiosperms proposed by Hutchinson and Takhtajan. 20

(b) Give the botanical name, family and part used of each of the following : 2×10=20

(i) Sesame

(ii) Avocado

(iii) Cassava

(iv) Flax

(v) Saffron

(vi) Cocoa

(vii) Cedar

(viii) Annatto

(ix) Pyrethrum

(x) Belladonna

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