Indian Forest Service Examinati- -2013 वियोज्य *DETACHABLE*

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.

Question no. **1** & **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 answer book 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'

1.	Answer the following keeping your answers brief and to the point :	8×5=40
1.(a)	Differentiate between the following :	8
1.(a) (i)	Holocarpic and Eucarpic fungi	
1.(a) (ii)	Eusporangiate and Leptosporangiate ferns	
1.(b)	Write short notes on the following :	8
1.(b) (i)	Myxomycete bearing some characters similar to animals but placed under fungi	
1.(b) (ii)	Soil solarization and its use to control nematodes in soil	
1.(c)	Write critical notes on the following :	8
1.(c) (i)	Phytoanticipins with suitable examples	
1.(c) (ii)	Different types of prothallus in ferns	
1.(d)	Write about the following :	8
1.(d) (i)	Structure and functions of scales, gemma and elaters of Bryophytes	
1.(d) (ii)	Algae as Biofertilizer	
1.(e)	Discuss briefly the following :	8
1.(e) (i)	Importance of Heterospory	
1.(e) (ii)	Biopesticides	
2.	Discuss briefly the following :	10×4=40
2.(a)	Evolution of sexual method of reproduction in algae	10
2.(b)	Endospore formation in bacteria and its significance	10
2.(c)	Economic importance and distribution of Bryophytes	10
2.(d)	Diversity and distribution of Indian Pteridophytes	10

3.	Write a brief account of the following :	10×4=40
3.(a)	Lytic and Lysogenic cycle	10
3.(b)	Dissemination of pathogens by insects	10
3.(c)	Morphological nature of sporocarp of *Marsilea*	10
3.(d)	Causal organisms, symptoms and control of wheat rusts in India	10
4.(a)	Explain the role of arbuscular mycorrhizal fungi as biofertilizer.	15
4.(b)	Discuss critically the range of sporophyte in Bryophytes.	15
4.(c)	Comment critically on integrated disease management.	10

SECTION 'B'

5.	Answer the following keeping your answers brief and to the point :	8×5=40
5.(a)	Distinguish between the following :	8
5.(a) (i)	Totipotency and Pluripotency	
5.(a) (ii)	Somatic embryogenesis and Organogenesis	
5.(b)	Write short notes on the following :	8
5.(b) (i)	Cycadofilicales	
5.(b) (ii)	Methods of protoplast fusion	
5.(c)	Comment critically on the following :	8
5.(c) (i)	Advanced features of Asteraceae	
5.(c) (ii)	Double fertilization and triple fusion in Angiosperms	
5.(d)	Write short notes on the following :	8
5.(d) (i)	Ethnobotany	
5.(d) (ii)	Magnoliaceae – Primitive characters	
5.(e)	Make a comparison of the following :	8
5.(e) (i)	Long shoot and dwarf shoot of *Pinus*	
5.(e) (ii)	Inflorescence of Apiaceae and Euphorbiaceae	
6.	Draw scientifically accurate diagrams of the following and label the parts :	10×4=40
6.(a)	T.S. of any stem showing interxylary and intraxylary phloem	10
6.(b)	T.S. of coralloid root of *Cycas*	10
6.(c)	Typical embryo sac of dicots	10
6.(d)	Floral diagram of Solanaceae	10
7.	Write brief and critical notes on the following :	10×4=40
7.(a)	Embryo development in a dicotyledonous plant	10
7.(b)	Affinities of Gymnosperms with Angiosperms	10
7.(c)	Manoxylic and Pycnoxylic wood	10
7.(d)	Energy plantation	10
8.(a)	Write the botanical name, family and part used of each of the following :	2×10=20

8.(a) (i)	Carrot	**8.**(a) (vi)	Mint
8.(a) (ii)	Turmeric	**8.**(a) (vii)	Finger millet
8.(a) (iii)	Belladona	**8.**(a) (viii)	Eggplant
8.(a) (iv)	Clove	**8.**(a) (ix)	Areca nut
8.(a) (v)	Castor	**8.**(a) (x)	Jasmine

8.(b) "Origin and evolution of cultivated plants are much more complex and intricated than was originally conceived by Vavilov." Substantiate the above statement with examples and recent developments. 20