UG/II/BOT/H/IV/17(Old)

2017

BOTANY

[Honours]

PAPER – IV

Full Marks : 90

Time : 4 hours

Answer the following questions as directed

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

[OLD SYLLABUS]

GROUP – A

1. Answer any *ten* questions from the following : 2 × 10

(*a*) What *is Incepient* Plasmolysis ?

(*b*) What is autoecology and synecology ?

(*c*) What is ISO enzyme ?

(*d*) Under what circumstances, RO of plant tissue may become zero and infinity ?

(*e*) What is photorespiration ?

(*f*) The productivity of C_4 plants are high then C_3 but C_4 is more energy consuming – why ?

(*g*) All phytohormones are plant growth regulators but all plant growth regulators are not phytohormones' – Explain.

(*h*) Write full form of

(*I*) Rubisco

(*II*) IBA.

(*i*) Biopesticides are more environment trendly than chemical pesticides – why ?

(*j*) State the causes of deforestration.

(*k*) What do you mean by Ecological niche ?

(*l*) GIS is a sophisticated tool for vegetational study – why ?

(*m*) State the consequences when the population growth curve is positive.

(*n*) Name the organelles involved in photo-respiration. How does it differ to normal respiration.

(*o*) What is ecological niche ?

GROUP – B

2. Answer any *five* questions : 8 × 5

(*a*) Krebs Cycle is called TCA Cycle – why ? Explain this cycle diagrammatically highlighting the oxidative steps of this cycle mentioning the enzymes involved in these steps. 2 + 6

(*b*) State the criteria of essentiality of mineral nutrients in plants. State briefly the active mechanisms of Ion uptake. 3 + 5

(*c*) State the methods of module formation and biochemistry of N_2 fixation in plants. What is role of 'nef' and 'nod' genes in biological N_2 fixation. 6 + 2

(*d*) What are trace elements ? Write down in brief, role of Iron, Manganese and Zinc in plants metabolism. 2 + 6

(*e*) What do you mean by sedimentary biogeochemical cycles. Explain briefly the phosphorous cycle. What is nutrient pool ? 2 + 5 + 1

(*f*) What do you mean by Endemism ? Briefly explain the vegetation types of Eastern Himalaya. State some adaptive features of mangroves. 1 + 5 + 2

(*g*) What do you mean by community ? State the characteristics of a composition of community. What is Edge effect. 2 + 5 + 1

(*h*) What is greenhouse effect ? Explain the process of plant succession. Which takes place in aquatic environment. 2 + 6

GROUP – C

3. Answer any *two* questions from the following : 15 × 2

(*a*) (*i*) What is Emerson's Enhancement effect ? Describe non-cyclic photo-phosphorylation and critically point out its importance. 2 + 5

(*ii*) Compare between C_3 and C_4 plants. Briefly explain the CAM cycles in plants. 4 + 4

(*b*) (*i*) Mention the chemical nature of GA. Discuss the roles of GA in plant growth and development. 2 + 6

(*ii*) Discuss importance of organic farming. 4

(*iii*) Differentiate apoenzyme with holo-enzyme. 3

(*c*) (*i*) State the different adaptive features as found in halophytes. What is salt respiration ? 6 + 2

(*ii*) State the pollutants and its monitoring of air pollution. What is SPM ? 6 + 1

(*d*) Write short notes on any *five* of the following: 3 × 5

(*i*) Role of ABA a blue light on stomatal movement

(*ii*) Translation phase in protein synthesis

(*iii*) Global warming and Ozone hole

(*iv*) Environmental Impact Assessment (EIA)

(*v*) Joint Forest Management (JFM)

(*vi*) Primary, secondary and derived proteins

(*vii*) Cyanide resistant respiration

(*viii*) Biological clock and biorythm.
