Govt. General Degree College at Kaliganj

Test Examination 2019

Part-III Botany (Honours)

Paper-I

Full Marks = 80 Time = 4 hrs.

Group-A[Plant Physiology]

Q.1. Answer *any fifteen* of the following: 15 x 1 = 15

a) If cell A has an osmotic pressure(o.p.) of 26 atm and turgor pressure(t.p.) of 16 atm and cell B has o.p. of 30 atm and t.p. of 10 atm , then movement of water will occur in which direction?
b) Name a molybdenum containing enzyme.
c) What is 'permanent wilting percentage' or 'wilting coefficient' ?
d) What are passage cells ?
e) What is hydropassive control of stomatal opening & closure?
f) What is CO_2 compensation point?
g) Name a plant where stomata are open at night but close during the whole day ?
h) What is P/O ratio?
i) Calculate R.Q. of the following reaction :

$$C_6H_{12}O_6 \longrightarrow 2CO_2 + 2C_2H_5OH$$

j) Which (-COOH) he containing hormone can cause bolting (rapid elongation of stem & conversation into floral axis bearing flowering primordia) of a herbaceous resette plant even under noninductive short day photoperiod?
k) What is "super auxin " ?
l) Which hormone can be used to break dormancy of eyes of potato tubers?
m) Which of the following is a nonclimactric fruit : Apple / Mango / Tomato / Pineapple
n) What is phytochromobilin?
o) Which herbicide is used to block non-cyclic photosynthetic electron transport chain?
p) What are the symptoms of ' Triple response ' .

Q.2. Answer *any two* the following: 2x2= 4

a) How many molecules of NADPH & ATP are required to fix 1 CO_2 molecule in C3 and C4 cycle respectively?
b) Write the reaction catalyzed by glyceroldehyde-3-phosphate dehydrogenase during Glycolysis

c) State the significance of pentose phosphate pathway.
d) What is vernalization?

Q.3. Answer <u>any one</u> the following: 6 x 1= 6

a) Describe the mechanism of stomatal movement induced by blue light. 6

b) Write the reactions of GS/GOGAT pathway of ammonium assimilation in plants. What is the difference between N_2 fixation and N_2 assimilation . 4+2

Q.4. Answer *<u>any one</u>*** the following: 10x1= 10**

a) Schematically represent photosynthetic carbon oxidation (PCO) cycle. What is "Emerson's enhancement effect ". 8+2=10

b) Describe in detail how GA cause mobilization of food stored in the endosperm of seeds during their germination. 10

Group-B [Plant Biochemistry]

Q.5. Write a short note on the following: 2 ½ x 4 = 10

a) What is zymogen?
b) What is the difference between lyase and ligase type of enzyme ?
c) What is turnover number?
d) Name a trisaccharide. Mention whether it is reducing or non reducing.
e) Name a saturated and an unsaturated fatty acid.
f) What is secondary active transport?
g) Write difference between enantiomer &diastereoisomer.

Q.6. Answer *<u>any one</u>*** of the following: 10x 1 = 10**

a) Mention the various stabilizing interactions found in biological system and also describe each briefly. 10

b) Classify amino acids based on "R" group . Write steps of beta-oxidation of fatty acid. 5+5

Group- C [Anatomy]

Q.7. Answer *<u>any two</u>*** of the following: 1 x 2 = 2**

a) What is conjunctive tissue?
b) Distinguish tracheid and vessel.
c) Mentions two xerophytic adaptaion of *Nerium.*

Q.8. Answer *<u>any one</u>*** of the following: 2 x 1 = 2**

a) Differentiate Procambium from Cambium.
b) Distinguish mesogenous and perigenous stomata.

Q.9. Answer *<u>any one</u>*** of the following: 6 x 1= 6**

a) What is included phloem? Write a short note on the anomalous secondary in *Tecoma* stem. 1+ 5 = 6

b) Make a comparison of Ecological adaptation of *Nerium* and *Nymphaea.*

c) Write a brief note on Tunica-Corpus Theory. Mention its demerits. 4+2=6

d) Add a short notes on evolution of stele. 6

Group-D [Ecology & Environmental Botany]

Q.10. Answer *<u>two</u>*** of the following: 1 x 2 = 2**

a) Define Ecocline.
b) Mention two hot spots in Indian region.
c) What do you mean by Critically Endengered plant?

Q.11. Answer *<u>any one</u>*** of the following: 2 x 1 = 2**

a) What is the significance of Carrying capacity?
b) Differentiate autogenic and allogenic sucession with example.
c) What do you mean gamma diversity?

Q.12. Answer *<u>any one</u>*** of the following: 6 x 1 = 6**

a) Give an account of main flora of Western Himalaya.
b) Classify the phytogeographical regions of India according to D. Chatterjee and mention the floral elements of Malabar region. 2+4=6

Group-E [Natural Resources]

Q.13. Answer *<u>any one</u>*** of the following: 5 x 1 = 5**

a) Give a brief account of the method of Cultivation of Rice in India.
b) Name the Sources and use of the following (*any two)*-
(i) Catechin, (ii) Vindoline (iii) Diosgennin. 2 ½ x 2= 5