Govt. General Degree College at Kaliganj

Test Examination 2020
Part-III Botany (Honours)
Paper-VII & IX

Full Marks = 80   Time = 4 hrs.

[Use separate answer script for Module-I and Module-II]

Module-I [Physiology and Biochemistry]

(Marks: 45)

Group-A[Plant Physiology]

Q.1. Answer _any five_ of the following: **5 x 1 = 5**

   a) What is Symport?
   b) What do you mean by turgour pressure?
   c) What is exosmosis?
   d) What is Kranz anatomy?
   e) Write down the components of water potential.
   f) What is root pressure?

Q.2. Answer _any four_ of the following: **4x2= 8**
   a) Differentiate between apoplast and symplast.
   b) What is carboxylation step in C_3 Cycle?
   c) What is regeneration step in C_3 Cycle?
   d) Mention the various types of C_4 Cycle found in C_4 Plants. Mention the plant names for each type.
   e) What is meant by quite mobile and sparingly mobile?

Q.3. Answer <u>any one</u> of the following: **6 x 1= 6**
   a) Write down the deficiency syndrome for Ca, Fe, Mg and Mn. (1 ½ x 4)=6
   b) Why osmosis is called one type of diffusion. Why does water absorption occur mainly by root hairs? State the role of CO_2 and ABA in stomatal movement.   2+2+2=6

Q.4. Answer _any one_ of the following: **10x1= 10**
   a) Briefly discuss about C_3 Cycle. Write down the physiological role of Nitrogen.   7+3=10
   b) What is phloem loading and unloading?Write down the stomatal movement theory. Write down the cohesion and tension theory. 3+4+3=10

Group-B [Plant Biochemistry]

Q.5. Answer _any six_ of the following: **6 x 1 = 6**
   a) What is meant by pH?
   b) What is buffer?
   c) What are Isozymes?
   d) What is electrogenic Pump?
   e) What is allosteric enzyme?
   f) Mention the functions of lipid in animal body?
   g) Define K_m.

Q.6. Answer _any five_ of the following: **5 x 2 = 10**
   a) What is induced-fit model? Discuss about it.
   b) Write down the classification of enzyme.
   c) Difference between holoenzyme and apoenzyme.
   d) What is lipid? Differentiate between unsaturated and saturated fatty acid.
   e) Write down the structure of pentadecnoic fatty acid.
   f) In which type of protein α-helix and β-pleated sheet occur? Name one reducing sugar.
   g) What is Chemical bond? What is van der waal force?

Module- II [Anatomy, Ecology, Natural Resources]

(Marks: 35)

Group- C [Anatomy]

Q.7. Answer _any two_ of the following: **1 x 1 = 1**

   a) What is Mesoperigenous stomata?
   b) What is meristele?
   c) Mentions two xerophytic adaptaion of _Nerium._

Q.8. Answer _any one_ of the following: **2 x 2 = 4**

   a) Differentiate Procambium from Cambium.
   b) Distinguish endarch, exarch and mesarch protoxylem.

Q.9. Answer _any one_ of the following: **6 x 1= 6**

   a) Write a short note on ontogeny of Sieve elements.   6
   b) State the Korper-Kappe Theory on root apex organization.   6

   c) Write a short note on anatomical adaptation of hydrophytes.   6

Q.10. Answer _any one_ of the following: **10 x 1= 10**

   a) Mention the Secondary growth in dicotyledons. What is anomalous secondary growth?   8+2=10
   b) Describe the anatomical speciality of stem-root transition. Comment on the significance.   7+3=10
   d) Briefly describe the anomalous secondary growth of _Tinospora._ What do you mean by Amphicribal vascular bundle.   8+2=10

Group-D [Ecology & Environmental Botany]

Q.11. Answer _any two_ of the following: **1 x 2 = 2**

   a) Define Ecological niche.
   b) Mention two invasive alien species in Indian region.
   c)What do you mean by Red Data Book?

Q.12. Answer _any one_ of the following: **2 x 1 = 2**

   a) State the exponential and logistic growth equations for Population growth.
   b) Define Endemism. Mention two endemic species of Indian flora.
   c) Differentiate alpha diversity and beta diversity.

Q.13. Answer _any one_ of the following: **6 x 1 = 6**

   a) Give acomparative floral account of Western Himalaya and Eastern Himalaya.
   b) Classify the phytogeographical regions of India according to D. Chatterjee. Name two floral elements of Indus Region.   4+2=6

Group-E [Natural Resources]

Q.14. Answer _any one_ of the following: **5 x 1 = 5**
   a) Give a brief account of the method of Cultivation of Potato in India.
   b) Name the Sources and use of the following (_any two_)-
   (i) Curcuminoids, (ii) Vindoline (iii) Conesine.   2 ½ x 2= 5

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