

GURUDAS COLLEGE

B. Sc. SEMESTER IV (Honours) Examination Online Internal Examination, 2020

Subject: BOTA

Subject Category: Honours

Course: CC 8

Course Name: Ecology, Plant Geography and Evolution

Full Marks: 50

Date of Examination: 7th December, 2020

The figures in the margin indicate full marks

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

Answer each group in a new page

GROUP-A: (THEORY) Ecology, Plant Geography and Evolution

(BOT-A-CC-4-8-TH) FM=25

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

- a. Define ecosystem diversity. Give one example.
- b. Name two hot spots in India.
- c. Define *ex situ* conservation with one example.
- d. What is cryopreservation? Give one example of method for cryopreservation.
- e. Define 'Endemism'.
- f. What do you mean by phytogeography.
- g. Give one example of true mangrove plant.
- h. Name an endemic plant of India.
- i. What is edge effect
- j. What is Microclimate?
- k. What is Ecotype?
- l. Write differences between individual selection and group selection.
- m. State two differences between autogenic and allogenic succession.
- n. Mention the seral stages of hydrosere.
- o. Define metallophytes along with an example.

2. Write short note on the one from the following

5 X1

a. Flora of Sundarban.

OR

b. Phytoremediation.

OR

c. Punctuated equilibrium and stasis.

Group B: (Practical): Ecology, Plant Geography and Evolution

(BOT-A-CC-4-8-P) FM-15

Answer all questions

1. Calculate the frequency, percentage frequency from the data. Write down the frequency class of each species. 2.5 + 2.5

Sl. No.	Name of the species	Q _A	Q _B	Q _C	Q _D	Q _E
1	<i>Amaranthus viridis</i>	+	+	+	+	+
2	<i>Boerhaavia repens</i>	-	-	-	+	+

Note

Q _A	Q _B	Q _C	Q _D	Q _E
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Are 5 quadrats of the same size placed randomly in the area of study.

2.

a. Refer to the picture below. What type of ecological sampling is being carried out? State one reason for the answer. 1+1



b. From the species area curve in the picture below determine which the minimal area for quadrat study in that particular area. 2

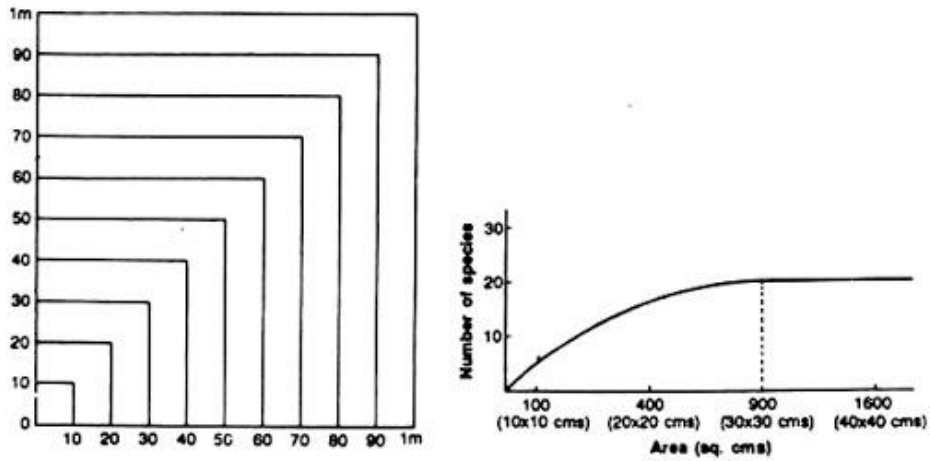
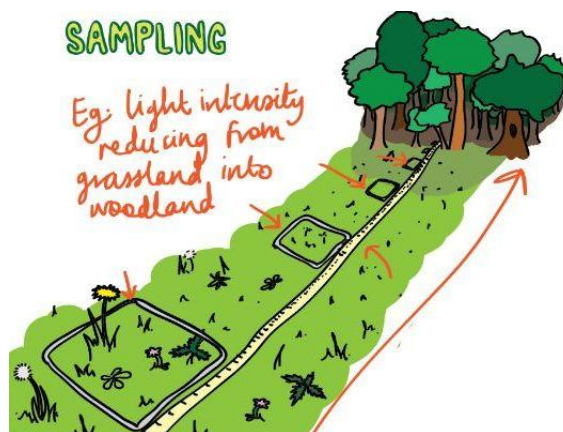


Fig. 67. A, Procedure for determining minimum required size of the quadrat; B, Species area-curve to determine the size of the quadrat.

c. Does the picture below show transect method of ecological sampling? 1



3. Write down the formula to calculate density and abundance of components during ecological sampling by quadrat method. If a particular species shows high abundance what does it mean? 2+2+1

GROUP- C (Internal assessment) FM-10

Answer any five from the following 2×5

1. When liquid nitrogen is used for cryopreservation what is the temperature?
 - a. 196°C
 - b. -196°F
 - c. -196°C
 - d. -96°C

2. Which one of the following is not a criterion to qualify as biodiversity hotspot.
 - a. High endemism
 - b. High species diversity
 - c. Have lost at least 70 percent of its primary native vegetation.
 - d. Contain at least 1,500 species of vascular plants found nowhere.

3. Which one of the following terms describes not only the physical space occupied by an organism but also its functional role in the community of organisms?
 - a. Ecotone
 - b. Ecological Niche
 - c. Habitat
 - d. Home Range

4. When the two ecosystems overlap each other, the area is called
 - a. Habitat
 - b. Niche
 - c. Ecotone
 - d. Ecotype

5. The term ecosystem was coined by
 - a. Odum

 - b. Clements

- c. Arthur G Tansley
 - d. Elton
6. The theory of natural selection was explored by
- a. Wallace
 - b. Odum
 - c. Lamark
 - d. Darwin
7. Speciation caused by geographical barrier is known as
- a. Sympatric
 - b. Peripatric
 - c. perapatric
 - d. Allopatric
8. *Rhododendron* is found at
- a. W. Himalaya
 - b. E. Himalaya
 - c. Sundarban
 - d. Gangetic plain
9. Which type of phytoremediation causes uptake of contaminants by plant roots and gets converted to gaseous state which further releases into the atmosphere.
- (a) Phytostabilization
 - b) Phytodegradation
 - (c) Phytovolatilization
 - (d) Phytoextraction
10. Order of basic processes involved in succession is
- (a) nudation -> invasion -> completion and coaction -> reaction -> stabilization
 - (b) nudation -> stabilization -> completion and coaction -> invasion -> reaction
 - (c) invasion -> nudation -> completion and coaction -> reaction -> stabilization
 - (d) invasion -> stabilization -> completion and coaction -> reaction -> nudation

Instructions for submission of answer scripts

1. Write the front page/top sheet as per instruction. Give page numbers to each page.
2. Scan the pages in sequence and make a single PDF file.
3. Rename file as per instruction.
4. Email the PDF file within the stipulated time to **botasem4GDC@gmail.com** and also give CC email to **honsbota@gmail.com** and **honsgenexam@gmail.com**