Assignment 1

Instructions

Consider this as an open book exam that means you can use your study materials but plagiarism is not allowed, you cannot copy-paste. Write your answers in your own words, use diagrams whenever necessary, write according to the marks and to the point.

Topic : Unit 4 - Classifications and Contributions of various taxonomists

Answer the following questions:

1. Bentham and Hooker divided Class Dicotyledonae into three subclasses Polypetalae, Gamopetalae and Monochlamydae based on nature of non-essential floral whorls (petals and sepals). Linnaeus also classified plants based on number and arrangement of floral sexual parts, still Linnaeus classification is considered an artificial classification whereas Bentham and Hooker classification is considered a natural one. Justify. (5)
2. Engler and Prantl classification is not considered as a true phylogenetic classification. Discuss.(5)
3. Discuss how Hutchinson's work influenced plant systematics.(5)

Assignment 2

Instructions

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Topic : Unit 5 and Unit 6 – Plant Systematics

Answer the following questions:

1. What is the difference between an autapomorphy and a synapomorphy? What is the rationale for using synapomorphies in recognizing monophyletic groups? (2+3)
2. What is the principle of parsimony? What is outgroup comparison and how is it used for determining character state polarity? Review the precautions to be taken in a cladistic analysis. (1+2+2)

3. For the following data sets: (a) draw the three possible (dichotomously branching) cladograms; (b) for *each* of the three cladograms indicate (with arrows and corresponding characters and states) the minimum character state changes that are needed to explain the data; (c) indicate which of the three trees would be accepted by a cladist as the best estimate of phylogeny and why.(2+2+1)

1

	1	2	3	4	5
A	1	1	1	1	1
B	1	0	0	0	0
C	0	0	1	1	1
OUTGROUP	0	0	0	0	0

2

	1	2	3	4	5
A	0	1	1	1	0
B	0	0	1	0	0
C	1	0	1	1	1
OUTGROUP	0	0	0	0	0