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University Examinations 2024/2025

FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL MICROBIOLOGY

HMM 3112: PLANT DIVERSITY

DATE: JANUARY 2025 **TIME: 3 HOURS**

INSTRUCTIONS:
Answer ***All*** *questions*
Ensure that all your answers are properly numbered
Part I multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark
Part II: Short Answer Questions – Answer questions following each other on the answer booklet
Part III: Long Answer Questions – Answer each question on the answer booklet

SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)

1. One of the following statements is not true about dicotyledons:

   A) Leaf venation is net pattern

   B) It has a tap root

   C) Flower parts are in groups of four or five

   D) Vascular bundle is arranged in a circle

   E) Dicotyledons include bean and lily

2. The following are some of the most popular uses of Phaeophyceae EXCEPT ONE:
   A) Phaeophyceae is very popular as edible seaweeds especially Sargassum and Kelp
   B) Phaeophyceae is rich in alginic acid which is extracted commercially and used as a c thickening agent in various packaged food items across the world
   C) Phaeophyceae is very popularly used in the baking industry and making ice cream where as a stabilizing agent
   D) The cell walls of Phaeophyceae are rich in alginic acid that are extracted commercially for making battery anode to stabilize
   E) Phaeophyceae is used as a natural source of Hepatitis A vaccine production
3. The following are examples of Myxomycetes EXCEPT:
   A) Stemonitis
   B) Acrasiomyceta
   C) Physarum
   D) Dictyostellida
   E) Lycogala
4. Regarding myxomycetes, circle the WRONG STATEMENT:
   A) The diploid Plasmodium in myxomycete is holocarpic, free living and active
   B) They are found in all terrestrial ecosystems
   C) They exhibit characteristics of both protozoans (one-celled microorganisms) and fungi.
   D) They are distributed worldwide and they usually occur in decaying plant material.
   D) They belong to the division Protista
   E) The thallus consists of uninucleate spindle shaped cells forming extensive filaments
5. The following is INCORRECT about features of phycomycetes:
   A) Aseptate coenocytic hyphae.
   B) Hyphal wall can be made of cellulose (sometimes chitin or fungal cellulose)
   C) They are known as algal fungi

D) Reproduction can be isogmanous or heterogamous.

E) Sexual reproduction takes place through the formation of sporangia

6. The following statements are true about Chlorophyceae EXCEPT:

A) Are usually green due to the dominance of pigments chlorophyll a and chlorophyll b.

B) The chloroplast may be discoid, plate-like, reticulate, cup-shaped, spiral- or ribbonshaped in different species.

C) Most of the members have one or more storage bodies called pyrenoids located in the chloroplast.

D) The plant body is always enveloped in calcium carbonate.

E) They usually have a cell wall made up of an inner layer of cellulose and outer layer of pectose.

7. The following are orders in the class Chlorophyceae•EXCEPT:

A) Chaetopeltidales

B) Chaetophorales

C) Ochrophytinales

D) Oedogoniales

E) Sphaeropleales

8. The following are examples of Myxomycetes EXCEPT:

A) Stemonitis

B) Acrasiomyceta

C) Physarum

D) Dictyostellida

E) Lycogala

9. The following statements are true about Rhodophyceae EXCEPT:

A) The body appears red because the red pigment r-phycoerythrin predominates in the algae.

B) Loridean starch serves as the stored food.

C) Chlorophyll a, chlorophyll c and phycoerythrin are the main pigments.

D) Are eukaryotic organisms.

E) Rhodophyta is pigmented with phycoerythrin, phycocyanin and allophycocyanins.

10. Rhodophyta possesses the following phycobilin pigments EXCEPT:

A) Phycoerythrin

B) Phycocyanin

C) Xanthophylls

D) Carotenoids

E) Phycophylls

11. The following are classes of division Myxomycota EXCEPT ONE:

A) Class: Acrasiomycetes

B) Class: Hydromyxomycetes

C) Class: Myxomycetes

D) Class: Echinostemycetes

E) Class: Plasmodiophoromycetes

12. The following are examples of Rhodophyceae EXCEPT:

A) Amphipleura

B) Gracilaria

C) Gelidium

D) Porphyra

E) Polysiphonia

13. Phaeophyceae are distinguished by chloroplasts that have four surrounding membranes EXCEPT ONE:

A) Thylakoids in stacks

B) Fucoxanthin that masks chlorophyll-a and chlorophyll —c

C) Laminarin as the photosynthetic reserve

D) Have contents of tannins, terpenoids/steroids & flavonoids

E) Alginates commonly as the wall matrix

14. The following statements are true about the structure of Bacillariophyceae EXCEPT:

A) They comprise a homogeneous assemblage of unicellular and colonial forms that differ generally from other algae in possessing highly sculptured and symmetrically ornamented cell walls

B) Unicellular pill-box type of plant body composed of two valves.
Silica impregnated cell wall with beautiful markings.

C) Cell wall deposition produces diatomaceous earth which has great economic importance.

D) They have specialized vegetative cell division and possess Auxospore formation.

E) The morphology is filamentous structures up to 70 to 90 meters.

15. The following are characteristics of Chlorophyceae EXCEPT:

A) It has a plant body that is not filamentous or multicellular, but unicellular.

B) Most chlorophytes feature one or more pyrenoids and central proteinaceous body is surrounded by a starch sheath that is positioned around the chloroplast.

C) The inner layer of the cell wall is cellulose, while the outside layer is pectose.

D) It is differentiated primarily by its ultrastructure morphology.

E) Because chlorophyll a and chlorophyll b dominate, they are often green.

16. The following are the correct definitions in plant diversity EXCEPT ONE:

A) Cytology is the study of the cell

B) Histology is the study of tissues

C) Anatomy is the study of the organization of tissues into the organs of the plant

D) Fragmentation is the saprophytic spore-producing phase in the life cycle of a plant.

E) Reproductive morphology is the study of life cycles

17. The following statements in plants diversity are true EXCEPT ONE:

A) Sexual reproduction is the reproduction involving the fision of male and female gametes

B) Asexual reproduction: Reproduction that does not involve gametes

C) Haploid has one set of chromosomes

D) Diploid have two sets of chromosomes

E) Alternation of generations is alternation between sporophyte and gametophyte generations

18. The following are involved in sexual reproduction EXCEPT ONE:

A) Sperm

B) Mitosis

C) Zygote

D) Meiosis

E) Egg

19. Gymnosperms are heterosporous because of one of the following statements:

A. They produce male and female gametes.

B. They have different types of pollen.

C. They produce microspores and megaspores.

D. They produce haploid and diploid spores.

E) They have true leaves and roots

20. Rhodophyta possesses the following phycobilin pigments EXCEPT:

A) Phycoerythrin

B) Phycocyanin

C) Xanthophylls

D) Carotenoids

E) Phycophylls

SECTION B: SHORT ANSWER ALL QUESTIONS (40 MARKS)

QUESTION ONE

Briefly write on the structural characteristics of Phycomycetes? (5 Marks)

QUEST10N TWO:

State the economic Importance of Myxomycetes? (5 Marks)

OUESTION THREE:

Briefly write on Pteridiophytes? (5 Marks)

OUESTION FOUR:

Briefly write on Angiosperms? (5 Marks)

QUESTION FIVE

State the economic importance of Ascomycetes? (5 Marks)

OUESTION SIX:

Write on similarity and differences between myxomycetes and fungi? (5 Marks)

QUESTION SEVEN:

Briefly write on the Economic Importance of Myxomycetes? (5 Marks)

OUESTION EIGHT:

Briefly explain any five characteristics of Phaeophyceae? (5 Marks)

SECTION C: LONG ANSWER TWO QUESTIONS (40 MARKS)

a. Explain the structural differences between Red Algae, Brown Algae and Green Agae (15 Marks)

b. List at least one example of Red Algae, Brown Algae and Green Agae (3 Marks)

c. State the Economic importance of Vaucheria (2 Marks)

OUESTION TWO:

Discuss and illustrate on alternation of generations in plants diversity (20 Marks)

OUESTION THREE:

a. Briefly write on structural characteristics of Oedogonium (8 Marks)

b. Write on reproduction in Oedogonium (6 Marks)

c. Draw and briefly write on holdfast, stripe and frond or blade (6 Marks)