

**UNIVERSITY OF BALOCHISTAN QUETTA  
MA/MSC ( ANNUAL) EXAMINATION .2015.**

- Attention:-
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**Subject:** **BOTANY** **Paper: 1 (Prev)**  
**Phycology, Bryology Research Methodology**

**Time Allowed :- 3 Hours** **Max: Marks: 75.**

**Note:** Attempt any Five Questions in All But Question No. 1- in section -I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

**Section 1 (Total Marks-15)**

**Q. No. 1 Answer only 15 questions out of 20.**

**A. Chose the-correct answer**

1. Diplobiontic type of life cycle is found in:  
(a) Vaucheria (b) Oedogonium (c) Polysiphonia (d) Ectocarpus
2. The, centric diatoms mostly found in..... water  
(a) Fresl; (b) marine (c) Stagnant (d) Both A & B
3. The storage products in blue-green algae are:  
(a) Mannitol (b) Cyanophycean starch and proteins (c) align (d) ager-ager
4. In Archegonium the cell above the egg cell is  
(a) Neck canal cell (b) Neck cell (c) Cover cell (d) Venter canal cell
5. Spore mother cell in bryophytes is ..... in nature.  
(a) Haploid (b) Diploid (c) Triploid (d) Tetraploid
6. Abrupt growth of algae due to high nutrition is called:  
(a) Eutrophication (b) Algal blooms (c) Red tides (d) All of these

**B. Fill in the blanks.**

7. The organ by which Ulothrix attached to its substratum is called .....
8. The measure of the variability of a set of data is known as .....
9. Dominant generation in Bryophytes is .....
10. Development of sporophyte directly from the sporophytic tissue is called.....
11. Hyaline cell are present in the leaves of the bryophyte member.....
12. There is no flagellate stages in life cycle of.....Algae

**C. What are the followings?**

13. Conjugation.....
14. Cryptocarp: .....
15. Paraphysis: .....
16. Research:.....
17. Factors.....

**D. True False**

18. In mosses the sporophytes is differentiated in to stem and leaves. T F
19. In Funaria spores are released in installments T F
20. In Summery / Abstract of any research article references are added. T F

**SECTION-II&III (SUBJECTIVE PORTION 60 MARKS) TIME ALLOWED 2:20**  
**Attempt any Four (04) questions. One question from each section is must**

**Section- II**

- Q.No.2 Describe with the help of labeled diagrams, position and structure of sex organs of Chara and discuss its systematic position? 15
- Q.No.3 What types of life cycles are found in Chlorophyceae, supplement you answer with suitable example? 15
- Q.No.4 Write a note on the following 15
- (a) Economic importance of Phaeophyceae
  - (b) General characters and Phylogenetic relationship in Rhodophyceae

**Section III**

- Q.No.5 Describe the progressive sterilization or sporogenous tissues in Bryophytes, supplement your answer with diagram? 15
- Q.No.6 Describe the various views on the origin of Bryophytes in plants kingdom? 15
- Q.No.7 Give 'a comprehensive account on affinities of Anthocerotopsida, with Algae and other groups of Bryophytes? 15
- Q.No.8 Write a note on data analysis and how is research paper is writing supplement different parts of research paper? 15
- Q.No.9 Define the followings: 15
- (a) Sampling
  - (b) Probability and-non-probability
  - (c) Scaling measurement
  - (d) Data analysis
  - (e) Parameters

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Subject:-

**BOTANY.**

Paper:- II (Prev:)

Time Allowed :- 3 Hours **Bacteriology , Virology , Mycology Plant pathology .** Max : Marks : 75

**Note** :- Attempt **05** Questions. in All But Question No. 1- in section -I is compulsory and the time for Section-I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

**SECTION -I (OBJECTIVE PORTION 15 MARKS)**

Q.No.1

Short Questions (Attempt All)

a) **Fill in the blanks appropriate words .**

- i) Formation of merosporangia is characteristic feature of \_\_\_\_\_.
- ii) Perfect stage of *Rhizoctonia solani* is known as \_\_\_\_\_.
- iii) In some fungi septum wall near the central pore is swollen to form a barrel shaped structure. This pore of septum is known as \_\_\_\_\_.
- iv) *Peziza* species belongs to the class \_\_\_\_\_.
- v) Chestnut blight is caused by \_\_\_\_\_.
- vi) From columella three dimensional networks are formed in *Stemonitis* this network is called \_\_\_\_\_.
- vii) Conidial state of *Neurospora* is known as \_\_\_\_\_.
- viii) Penicillin was initially derived on a commercial basis from a fungus \_\_\_\_\_.
- ix) Umbrella like expansion of *Agaricus*-bears gills is called \_\_\_\_\_.
- x) Fusion of two compatible hyphae (conjugation) during sexual reproduction results the formation of \_\_\_\_\_.
- xi) A distinctive form of flask shape conidiomata is known as \_\_\_\_\_.
- xii) Sexual spores, usually eight in number are produced within a sac-like zygote cell are called \_\_\_\_\_.
- xiii) Extensive necrosis of twigs beginning at their tips and advancing toward their bases, this type of symptoms commonly known as \_\_\_\_\_.
- xiv) Types of Bacteria have only cell membrane and lack cell wall are known as \_\_\_\_\_.
- xv) Flagella distributed over the entire surface of bacterial cell, this condition called as \_\_\_\_\_.
- xvi) *Erwinia amylovora* causes \_\_\_\_\_ in pear and apple.

vii) \_\_\_\_\_ causing crown gall in plants and

consider a the natural genetic engineer

- xviii) The phylum Zygomycota consists of two classes, Zygomycetes and \_\_\_\_\_
- xix) \_\_\_\_\_ is the only Phylum of true Fungi producing zoospores.
- xx) Single cell Basidium is known as \_\_\_\_\_
- b) Write the names of plant diseases cause by the followings
- Spongospora subterranea*
  - Plasmopara viticola*
  - Claviceps purpurea*
  - Venturia inaequalis*
  - Ustilago maydis*

**SECTION -II( SUBJECTIVE PORTION 60 MARKS ) TIME ALLOWED 2:20**

Note: Attempt any Four Questions. All carry equal marks. Illustrate with labeled diagram where necessary

- Q. 2. a) Write characters and classification of Bacteria.  
b) Describe viral architecture. Also explain the symptoms appear in viral infected plants.
- Q. 3. a) Describe the characteristic feature of Oomycetes  
b) Describe life cycle of *Pythium* with the help of diagram.
- Q. 4. What is Smut? Describe the Symptoms, Control and Life Cycle of *Ustilago tritici*.
- Q. 5. What are the principles of plant disease control? Describe physical and biological methods of plant diseases control.
- Q. 6. Write Symptoms, Disease cycle and control of plant disease causes by *Erysiphe*
- Q. 7. a) Describe the general characters of Chytridiomycota.  
b) Describe types of mycelium in Basidiomycetes. Also write the structure of sporophore of *Agaricus* species (with the help of diagram).
- Q. 8. Write notes on any two of the following:  
i) Non filamentous Ascomycetes    ii) Mycorrhizal Fungi  
iii) Ergot of rye
- Q. 9. Describe structure, general characters and life cycle of Myxomycetes.

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**SUBJECT: - Botany**  
**Plant Physiology**

**PAPER: - III (Prev.)**

Time Allowed: - 3 Hours

Max: Marks: 15+60= 75

*NOTE:* Attempt any five questions in all, but question No. 1 in section-I is compulsory. The time for this section is only 40 minutes. After expiry of the time the answer sheet should be handed over to the examiner.

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SECTION-I (Marks 15)

Q. No. 1:- Attempt any 15 out of 25 Questions. All Questions carry equal marks.

1. Name the three stages of Calvin cycle.
2. CAM stands for what?
3. What is photon?
4. Write down the empirical formula of chlorophyll b.
5. Differentiate between absorption spectrum and action spectrum.
6. Name the place of the cell where Krebs cycle occurs.
7. Write down the names of any three C<sub>4</sub> and CAM plants.
8. What is glycolysis?
9. Write down the structural formula of Indole-3-acetic acid (IAA).
10. Name the naturally occurring cytokinins.
11. Name the hormone which regulates cell division in shoots and roots.
12. What is mineral nutrition? Name at least 4 macronutrients obtained from soil.
13. Differentiate between straight fertilizers and compound fertilizers.
14. What is photoperiodism? Name any three day-neutral plants.
15. Differentiate between apoplast and symplast pathways.
16. Write down any two deficiency symptoms of nitrogen in plants.
17. Which chemical element is at the Centre of the chlorophyll molecule?
18. Write down the general equation for respiration.
19. In sulfur photosynthetic bacteria, which molecule donates hydrogen for photosynthesis?
20. What is tree girdling?
21. Name the bacteria that converts nitrite (NO<sub>2</sub>) to nitrate (NO<sub>3</sub>).
22. What is respiratory quotient?
23. Name the cell organelle where glycolysis occurs.
24. What is denitrification?
25. What is bidirectional flow in phloem?

BOTANY PAPER-III

**SECTION- II (Subjective Type)**

Time allowed for this section: 2:20 Hours

Max. Marks: 60

- Q. No. 2. Define photosynthesis. Also discuss the mechanism of Calvin cycle and significance of photosynthesis.
- Q. No. 3. What are the different steps involved in glycolysis? Discuss briefly the efficiency of respiration as an energy releasing process.
- Q. No. 4. What are cytokinins? Describe their chemical nature. Also discuss the functions of cytokinins in plants.
- Q. No. 5. What is nitrogen fixation? Discuss several steps involved in nitrogen fixation by microorganisms.
- Q. No. 6. Differentiate between macronutrients and micronutrients. Also discuss the role of nitrogen, phosphorus, potassium and their deficiency symptoms in plants.
- Q. No. 7. Define biochemical properties of phytochrome. Describe distribution of phytochrome in plant cells and tissues.
- Q. No. 8. Describe the structure and properties of water. Also discuss methods to measure water potential in plant cells and tissues.
- Q. No. 9. Write short notes on any **Two** of the followings:
- How phytochrome regulates gene expression.
  - Effect of soil pH on nutrient availability.
  - Photorespiration.
  - Factors affecting stomatal movement.

END

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SUBJECT:  
TIME ALLOWED: 3 HOURS

**BOTANY**  
**PLANT ECOLOGY**

**Paper- IV (Previous)**  
**MAX: MARKS: 75**

**Note: Attempt any five Questions. No. 1 is compulsory and the time for Question NO.1 is only 40 minutes. After 40 minutes paper should be handed over to the Examiner.**

**SECTION-I (15 MARKS)**

**Q.NO.1. Attempt any fifteen Questions. This is Compulsory Question.**

1. Distinguish between community and ecosystem.
2. Explain the vegetation of Tropical forest.
3. Differentiate between halophytes and sciophytes
4. Give complete scientific names of the two free floating plants plants.
5. Define quadrat sampling and transect sampling.
6. Explain homeostasis in ecosystem.
7. What is the difference between the ecotype and biotype?
8. What are the characteristics of alluvial deposits?
9. What do you mean by Raunkair,s Law of frequency?
10. Differentiate between food chain and food web.
11. Define stratification and sociability.
12. What is the natural vegetation of Ziarat?
13. Role of Decomposer.

**SECTION-2 SUBJECTIVE (60 MARKS)**

ATTEMPT ANY FOUR QUESTIONS (Time allowed 2:20)

- Q .2: Describe biogeochemical cycle. How nitrogen cycle operate in nature.
- Q .3: Describe in detail the quantitative attributes of plant community.
- Q .4: Describe the difference between the colluvial soil and alluvial soli. Which soil type between them is better for plants growth? Discuss.
- Q .5: What do you mean by soil erosion? Discuss the importance of soil texture for plants
- Q .6: Write a comprehensive Essay on temperate biome of the world.
- Q .7: Define sampling. Which method is more appropriate for forest communities?
- Q .8: Define plant succession. Describe plant succession in wet habitat
- Q.NO.9: **Write short notes on any two of the followings**
1. Desert ecosystem
  2. Water cycle in nature.
  3. Deforestation

THE END

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Subject:- **BOTANY** . Paper:- V (Prev:)  
Time Allowed :- 3 Hours **Plants Systematic Biodiversity & Conservation** Max : Marks : 75

**Note** :- Attempt Five Questions. in All But Question No. 1- in section –I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

**SECTION –I (OBJECTIVE PORTION 15 MARKS)**

- Q.No.1 a) Define any ten of the following terms briefly :-
- i. Ecological Diversity .
  - ii. Ex – Situ conservation .
  - iii. Gene Bank .
  - iv. Typification .
  - v. Author citation .
  - vi. Taxonomic Species .
  - vii. Polyandrous .
  - viii. Clinal variation .
  - ix. Palynology .
  - x. Phylotaxy .
  - xi. Invasive Species .
  - xii. Umbel inflorescence .
- b) Distinguish between any five of the following :-
- I. Micro and macro species .
  - II. Gradual and Abrupt Speciation .
  - III. Indented and Bracketed Keys .
  - IV. Habit and Habitat .
  - V. Ecological and Genetic diversity .
  - VI. Invasive and Endangered Species .
  - VII. Rosacea and Solanaceae

**SECTION –II( SUBJECTIVE PORTION 60- MARKS ) TIME ALLOWED 2:20**

**Attempt any Four (04) questions.**

- Q.2. What is biodiversity ? Write down causes and depletion of biodiversity .
- Q.3. i) What is red data book ? Write down its importance .  
ii) Write briefly about Habitat Fragmentation .
- Q.4. Why classification is necessary ? give importance of predictive value .
- Q.5. Give a brief history of any three of different systems of classification with at least one example of each
- Q.6. Define Taxonomy . Write down various phases of Plant taxonomy .
- Q.7. Differentiate between Geographical and Reproductive isolation explain with suitable examples .
- Q.8. Write down characteristic features of any two of the following families :-
- a) Asteraceae .
  - b) Chenopodiaceae .
  - c) Malvaceae .
- Q.9. Define conservation. Briefly describe criteria for determining different categories of protected areas .
- Q.10. Write short notes on any two of the followings:-
- a) Role of Botanical Garden in Conservation of Plants .
  - b) Principles of Priority .
  - c) Impact assessment .



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Subject:- **BOTANY.** Paper:- VI(Prev:)  
Time Allowed :- 3 Hours Plants Anatomy & Diversity of Vascular Plants. Max : Marks : 75

**Note** :- Attempt Five Questions. in All But Question No. 1- in section –I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

**SECTION –I (OBJECTIVE PORTION 15 MARKS )**

Q.No.1 Short Questions :- (Attempt Any 10)

- i. Fusiform Initials .
- ii. Hard wood .
- iii. Soft wood .
- iv. Apical meristem .
- v. Intercalary meristem .
- vi. Fibers .
- vii. Sclerids
- viii. Annular Collenchyma .
- ix. Trichomes .
- x. Scalariform perforation plate .
- xi. Storable .
- xii. Non stored .
- xiii. Intraxylary Phloem .
- xiv. Parenchyma .

**SECTION –II( SUBJECTIVE PORTION 60- MARKS ) TIME ALLOWED 2:20**  
**Attempt any Four (04) questions. selecting two questions from each part.**

**Part- A**

- Q.2. Describe in detail the Internal structure of Foliage leaf & also Draw anatomy of leaf in detail
- Q.3. Give brief description of vascular cambium . Sport your answer with the help of diagrams .
- Q.4. What are meristematic tissues emphasis on different cell types their classification & characteristics .
- Q.5. Write note on any two of the following :-  
a) Collenchyma b) Sclerenchyma c) Stomata .

**Part- B**

- Q.6. What is paleobotany ? Highlight the geological time scale & importance of Paleobotany
- Q.7. Describe in detail the morphology & life cycle of cycads .
- Q.8. Discuss in detail the origin & Early evolution of Angiosperms .
- Q.9. Write general character of Psilophyta in detail .
- Q.10. Describe the morphology of Equisetum sport your answer with the help of diagrams .

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Subject:-

**BOTANY .**

Paper:- VIII (Final)

Time Allowed :- 3 Hours

**Plant Biochemistry .**

Max : Marks : 75

**Note** :- Attempt Five Questions. in All But Question No. 1- in section -I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

**SECTION -I (OBJECTIVE PORTION 15 MARKS)**

Q.No.1 Tick the correct answers :- (Attempt All)

**A: Encircle the correct answer. (05 Marks)**

**1. Glycogen in animals is stored in:**

- a) Liver & Spleen
- b) Liver & Muscles
- c) Live & Bile
- d) Liver & Adipose Tissue

**2. Fats are abundantly found in:**

- a) Reproductive Tissue
- b) Vegetative Tissue
- c) Both (a) & (b)
- d) None of them

**3. Fat is hydrolysed by the enzyme known as:**

- a) Trypsin
- b) Lipase
- c) Pepsin
- d) Amylase

**4. The genetic code is read in group of \_\_\_\_\_ nucleotides.**

- a) 6
- b) 4
- c) 3
- d) 2

**5. The DNA is composed of \_\_\_\_\_ chains of nucleotides.**

- a) 1
- b) 2
- c) 3
- d) 4

**6. The two strands of DNA double helix are joined with each other through**

- a) Covalent bonds
- b) Hydrogen bonds
- c) Ionic bonds
- d) None of them

**7. Adenine always pairs with \_\_\_\_\_:**

- a) Cytocine
- b) Thymine
- c) Guanine
- d) None of them