

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

Subject:- **(BOTANY)** Paper:- **IX (Final)**
Genetics

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 –I (OBJECTIVE PORTION 20 MARKS)

Q.No.1 Write short answers of the 20 following Questions.

- 1- Nitrogenous bases.?
- 2- Nonsense codon?
- 3- Nucleotide?
- 4- Initiative codon?
- 5- Restrictive enzyme?
- 6- Test cross.
- 7- Linkage.
- 8- Lygase enzyme.
- 9- Transcription.
- 10- Translation
- 11- Epitasis.
- 12- Multiple alleles.
- 13- Germinal mutation.
- 14- Plasmid.
- 15- Silent Mutation
- 16- Allelic Gene.
- 17- F. Factor.
- 18- Back Cross
- 19- Purine group.
- 20- Pyridine group.

SECTION –II(SUBJECTIVE PORTION 80 MARKS) TIME ALLOWED 2:20

Attempt any Four (04) questions.

- Q.No.2 Describe the Gene recombination in Bacteria?
- Q.No.3 Write down the detail of Extra-chromosomal Inheritance?
- Q.No.4 Describe mutation on molecular basis?
- Q.No.5 Differentiated between virulent and temperate phage?
- Q.No.6 What do you know about DNA Replication, transcription and Translation?
- Q.No.7 Explain Hardy Weinberg Law? What are the factors affecting on Gene equilibrium?
- Q.No.8 Describe Genetic of ABO Blood group in human being?



UNIVERSITY OF BALUCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper.

Subject:- **BOTANY** Paper:-VIII (Final)
Plant Biochemistry

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 -I (OBJECTIVE PORTION 15 MARKS)

Attempt All Questions.

- I A. Define:
1. Replication
 2. Cofactor
 3. Aspartame
 4. Conformation
- B. Differentiate b/w:
1. Translation & Transcription
 2. Ribose & Deoxyribose
 3. Myoglobin & Myosin
- C. Briefly describe the chemical structure of:
1. Collagen
 2. DNA
 3. Cellulase
- D. What are the functions of following enzymes?
1. Ligase
 2. Hydrolases
 3. α - amylase

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

Attempt any Four (04) questions.

- Q. 1 (a): Explain, what are carbohydrates and narrate the structural basis of this macromolecule.
(b): Give an account of the classification of carbohydrates.
- Q. 3 Q.3: What are isozymes. Describe with the help of examples.
- Q. 4 (a): Enlist globular proteins and their functions.
(b): Narrate the secondary structure of proteins focusing on α -Helix.
- Q.5 Give an account of the "applications" of enzyme action in different fields of life.
- Q. 6 Enlist the major differences between DNA & RNA.
- Q. 7 Enlist the features of a genetic code.
- Q. 8 Enlist the three dimension structure of proteins.
- Q. 9 Give brief description of the following;
- (a) Central dogma
 - (b) Induced Fit Model
 - (c) Collagen
- Q. 10 (a): Enlist the diseases caused by deficiency of vitamins.
(B) Give examples of water & fat soluble vitamins

UNIVERSITY OF BALOCHISTAN QUETTA

MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:-
- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited. If any one possess / uses , his /her case will be sent to unfair means committee.
 - 2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

SUBJECT: BOTANY PAPER X (FINAL)
ENVIRONMENTAL BIOLOGY & BIostatistics

Time Allowed: 3 hours

Maximum Marks: 75

NOTE: Attempt any five Questions in all but Question No.: in section-I is Compulsory and time for section-I is only 40 minutes. After expiry of the time paper should be handed over to the supervisory staff.

SECTION I

Q.1. Attempt any 10 questions.

(15)

- a) Define secondary pollutants.
- b) Differentiate between Class boundaries and Class Interval
- c) What are the sign of water pollution?
- d) What does ANOVA stand for?
- e) What are CFCs?
- f) Differentiate between Regression and Correlation
- g) List the sources of Noise Pollution.
- h) Write the formula of Binomial Distribution.
- i) What does EIA stand for?
- j) Differentiate between Discrete and random variable.
- k) Why ozone hole is formed over Antarctica?
- l) What does H_0 & H_1 stand for?
- m) Write the formula of mode (grouped data).
- n) Define Composting.
- o) Differentiate between drought and desertification.

SUBJECTIVE PORTION=60 marks

Time allowed= 2.20 hours

Attempt any four questions. Two questions from each section. is must.

SECTION II

Q.2. Make a frequency distribution from the following raw data about Vitamin C concentration of 35 specimens of commercially canned tomato juice.

16, 22, 17, 21, 15, 20, 23, 19, 20, 18, 22, 16, 25, 23, 22, 21, 17, 20, 19, 29, 23, 21, 19, 15, 13, 24, 23, 21, 27, 28, 19, 15, 14, 13, 12.

Also calculate the relative & percentage frequency.

(15)

Q.3. Wheat seed was infested with both Root-Rot & Bunt fungi in order to determine the effect of Root-Rot organisms on Bunt Susceptibility. The data was as follows. (15)

Treatment with Root-Rot	Number of Wheat Heads		Total
	No Bunt	Bunt	
Non- Infested	99	94	193
Infested	138	43	181
Total	237	137	374

Calculate χ^2 **contingency test** for independence of the effects of Root-Rot & Bunt Organisms.

Q.4. Following are the measurement of heights of *Zea mays* plant in a field, a random selection each week. Calculate **co-efficient of correlation and co-efficient of regression** for X on Y. (15)

Age in week	Height in cm
1	7
2	12
3	15
4	23
5	27
6	34
7	17

Q.5. Write short notes on **any two** of the following. (7.5 Each)

- | | |
|---|--------------------------|
| a) Poisson Distribution | b) Statistical Inference |
| c) Characteristics & Importance of Statistics | d) Correlation. |

SECTION III

Q.6. How can you define air pollution? Describe various air pollutants with their sources and effects in detail. Mention the control measures of air pollution. (2+8+5)

Q.7. What is ozone depletion? List the compounds responsible for the depletion of stratospheric ozone. Describe the mechanism of ozone depletion and its harmful impacts. (3+8+5)

Q.8. Explain the human population explosion. Describe the National Conservation Strategy in detail. (15)

Q.9. Write notes on **any Two** of the following. (7.5 Each)

- | | |
|-------------------|--------------------------|
| a) Rangelands | b) Heavy metal pollution |
| c) Eutrophication | e) Insecticides |

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

Subject:-

BOTANY
(Advance Ecology)

Paper: XI (Final)

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.

Q. No. 1 Attempts any ten questions. Each question carries 1½ marks.

1. Distinguish between community and population.
2. Distinguish between Quantitative and Qualitative attributes of vegetation.
3. What are plot and plotless sampling, give two examples.
4. Savannah Biom?
5. Depletion of Ozone layer.
6. What is plant ecology?
7. Define stratification.
8. Explain Competition hypothesis.
9. Distinguish between diversity and dominance.
10. What are Island communities?
11. Write down the name of life forms spectrum.
12. Define Epiphytes.

Q. No. 2 Define community ecology. Briefly describe the stratification, periodicity, vitality and floristic composition of communities.

Q. No. 3 Define Climatic zone? Describe factors affecting on the climate of Pakistan.

Q. No. 4 What is biodiversity? Describe in detail the biodiversity of Balochistan.

Q. No. 5 Briefly explain any three quantitative analytical attributes of community.

Q. No. 6 What do you know about the climate change. Briefly discussed the factors causing climate change.

Q. No. 7 Briefly explain the forest ecosystem of Balochistan.

Q. No. 8 Discuss threats and consequences of Biomes. Explain some strategies to manage and conserve these Biomes.

Q. No. 9 What are physiognomic attributes of community, describe any three physiognomic attributes.

Q. No. 10 Write short notes on any two of the following.

- 1- Depletion of Ozone layer.
- 2- Point Centered Quarter Method for sampling of vegetation.
- 3- Life form spectrum.

UNIVERSITY OF BALOCHISTAN QUETTA

MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

Subject:- BOTANY Paper:- I (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?

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

B. Fill in the blanks.

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

C. What are the followings?

- Cryptocarp:- -----.
- Conjugation: -----.
- Paraphysis:- -----.
- Research:- -----.
- Factors:- -----.

D. True False

- In mosses the sporophytes is differentiated in to stem and leaves. T F
- In Funaria spores are released in installments. T F
- 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 What types of life cycles are found in Chlorophyceae, supplement you answer with suitable example? 15
- Q.No.3 Describe with the help of labeled diagrams, position and structure of sex organs of Chara and discuss its systematic position? 15
- Q.No.4 Write notes on the following: 15
- (a) Economic importance of Phaeophyceae
 - (b) General characters and Phylogenetic relationship in Rhodophyceae.

Section III

- Q.No.5 Describe the various views on the origin of Bryophytes in plants kingdom? 15
- Q.No.6 Describe the progressive sterilization of sporogenous tissues in Bryophytes, supplement your answer with diagram? 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 a research paper is writing, supplement different parts of research paper? 15
- Q.No.9 Define the followings: 15
- (a) Probability and non-probability
 - (b) Sampling
 - (c) Scaling measurement
 - (d) Data analysis
 - (e) Parameters

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be
disqualified for the said paper .

Subject:- **BOTANY** Paper:-II (Prev)
Bacteriology, Virology, Mycology, Plant Pathology

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 I Marks 15 Time: -40 minutes

Answer any (15) fifteen Questions out of (24) twenty four Questions given below.

1. Define Bacterium
2. Define Basidio Spores
3. Define Blight
4. Define Canker
5. Define Capsule
6. Define Cellulase
7. Define Conidium
8. Define Damping off
9. Define Diploid
10. Define Disease
11. Define Exclusion
12. Define Fertilization Tubes
13. Define Rhizomorph
14. Define Virus
15. Differentiate between Chlorosis and Necrosis
16. Differentiate between Flagella and Flagellate
17. Differentiate between Fruiting body & Fumigation
18. Differentiate between Fungi & Algae
19. Differentiate between rust & Smut
20. Differentiate between Parasite & Spore
21. Differentiate between Hypertrophy & hyperplasia
22. Differentiate between Germ pore & Germ tube
23. Differentiate between Alternate host & Anaerobic
24. Differentiate between Budding & Fission

Section- ii (Subjective Portion 60 Marks) Time allowed 2:20

Attempt any Four (4) questions

- Question No 2.** Describe different Sexual and asexual reproductive structures in fungi.
- Question No 3.** Define Lichens and discuss its different types along with economic importance
- Question No 4.** Discuss distinctive Characters and economic importance of class Myxomycetes and give classification of any one order of this class
- Question No 5.** Describe different Sexual and asexual reproductive structures in Bacteria
- Question No 6.** Write down complete note on Loos Smut of wheat and its control method
- Question No 7.** Write down note on Mycorrhiza and its Significance
- Question No 8.** Describe Transmission of Viruses in Plants
- Question No 9.** Write down short note on any two
1. Economic Importance of Fungi
 2. Economic Importance of Bacteria
 3. Bactariophaga

UNIVERSITY OF BALOCHISTAN QUETTA

MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:-
- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited. If any one possess / uses , his /her case will be sent to unfair means committee.
 - 2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

SUBJECT:- Botany PAPER:- III (Prev.)
Plant Physiology

Time Allowed:- 3 Hours

Max: Marks: 15 + 60 = 75

NOTE: Attempt any Five Questions in all, but Question No.1 in section-1 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.

SECTION –I (Marks 15)

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

1. What is the name of 1st acceptor molecule for CO₂ assimilation during C₄ Cycle?
2. What is the end product of Glycolysis?
3. What is the source of O₂ released during Photosynthesis?
4. Name and draw the structural formula of the 1st stable organic product of Photosynthesis.
5. Differentiate between symbiotic and non-symbiotic N₂ fixation.
6. What for FADH stands?
7. Name the place of a cell where glycolysis occurs.
8. How many molecules of CO₂ are produced during Glycolysis?
9. Name any three C₃ and CAM Plants.
10. How many net ATPs are produced from Glycolysis?
11. Nitrogen is a constituent of many macromolecules. Name at least four.
12. Name at least 3 plants, which can fix the free atmospheric N₂.
13. Name the enzyme, which converts free atmospheric N₂ into NH₃.
14. What are the components of water potential?
15. Differentiate between osmosis and diffusion.
16. What are the units used for the measurement of water potential?
17. Draw summarized and balanced equation of Respiration.
18. Define long day and short day plants.
19. Which plant hormone is involved in the removal of "Genetic Dwarfism"?
20. What is the position of stomata in CAM plants during daytime?
21. PPP stands for what?
22. What are the criteria used for the essentiality of a mineral nutrient?
23. What is the bidirectional flow in phloem?
24. What is C4? Name at least 2 plant species.
25. Write down the empirical formula of any plant growth hormone.

BOTANY PAPER - III -

SECTION II (Subjective Type)

Time allowed for this section: **2:20** Hours

Max. Marks: **60**

- Q.No. 2. Define C_4 photosynthesis. Also discuss the mechanism of C_4 pathway and its different forms.
- Q.No. 3. Define oxidative decarboxylation. Also explain the detailed mechanism of Krebs's Cycle.
- Q.No. 4. Define water potential. What are its different components? Also describe methods used for the determination of osmotic potential.
- Q.No. 5. What are Auxins? Name any two auxins, and also explain their mode of action.
- Q. No. 6. What is nocturnal stomatal opening? Explain the mechanism of photoactive stomatal opening. Also discuss the role of pH in stomatal conductance.
- Q.No. 7. What is Phloem Translocation? Describe various theories explaining this mechanism.
- Q.No. 8. Differentiate between Symbiotic and ASymbiotic N_2 fixation. How NH_4^+ is converted into various nitrogen containing organic compounds by plants?
- Q.No. 9. Write short notes on any **Two** of the followings:-
- Aerobic Respiration.
 - Photorespiration.
 - Role of photoperiodism in flowering.
 - Classification of plants in response to day length.

E N D

UNIVERSITY OF BALOCHISTAN QUETTA

MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

Subject:- **BOTANY**
Plant Ecology

Paper:- **IV (Prev)**

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 -I (OBJECTIVE PORTION 15 MARKS)

Q. No. 1 Attempts any ten questions. Each question carries 1½ marks.

1. Differentiate between frequency and density.
2. Differentiate between association and dispersion of plant species.
3. Write down the applications of Ecology.
4. Define Biosphere and ecosystem.
5. What is life form spectrum?
6. Define line intercept method.
7. Define coniferous forests.
8. Explain Biome.
9. Define Coastal climatic zone.
10. Explain floristic composition.
11. Define phytosociological attributes.
12. Role of decomposer.

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

Note:- Attempt any Four Questions from this section.

Q. No. 2 What is phytosociology, define a community. Briefly describe the qualitative analytical characteristics of a community?

Q. No. 3 Define Climatic zone? Describe factors affecting on climate.

Q. No. 4 What is the synthetic character of a community? Describe the synthetic characteristics of community viz: presence and constancy, fidelity, dominance, importance value index.

Q. No. 5 Define sustainable agriculture and discuss the role of forestry and range management for sustainable agriculture in Balochistan?

Q. No. 6 Briefly explain the quantitative analytical attributes of community viz frequency, density, cover, height of plant and weight of plant?

Q. No. 7 Discuss the human impact on global environment and biodiversity?

Q. No. 8 Describe in detail Major biomes of the world?

Q. No. 9 Explain atmospheric structure and composition.

Q. No. 10 Write short notes on any two of the followings

- a) Ordination
- b) Green house effects
- c) Ecotone or Edge Effects

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited.
If any one possess / uses , his /her case will be sent to unfair means committee.
2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

Subject:-

BOTANY
Plants Systematic Biodiversity & Conservation

Paper:- V (Prev)

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 (I) OBJECTIVE PART (15 Marks)

Q No.1:

A. Define briefly the following terms (10 only)

- i) Alpha Taxonomy
- ii) Typification
- iii) Extinct in the wild
- iv) Nomenclature
- v) Biosystematics
- vi) Ex situ conservation
- vii) Molecular systematics
- viii) Arboretum
- ix) IUCN
- x) Campanulate
- xi) Pollinium
- xii) Allopatric speciation

B. Distinguish between the following (05 only)

- i) Racemose and Cymose
- ii) Ecotype and Ecophene
- iii) Palynology and Palaeobotany
- iv) Vulnerable and Critically Endangered
- v) Species diversity and Genetic diversity
- vi) Herbaria and Botanical Garden
- vii) Peripatric and Parapatric speciation

SECTION (II) SUBJECTIVE PART (60 Marks)

Attempt four (04) questions only.

QNo.2: Palynology can play an important role in resolving taxonomic problems. Discuss and elaborate your answer with suitable examples.

QNo.3: Explain conservation. Briefly describe In situ conservation with appropriate examples

QNo.4: Describe Nomenclature. Explain some important Nomenclatural types.

QNo.5: Describe Numerical Taxonomy. Write a detailed account on the principles, merits and demerits of Numerical taxonomy.

QNo.6: Define biodiversity? Write the major causes of depletion of biodiversity.

QNo.7: Name a family having large number of aromatic Plants. Write its general characters and economic importance.

QNo.8: Write the diagnostic features of family Brassicaceae, Asteraceae and Solanaceae

QNo.9: Describe briefly:

- a) IUCN Red list categories of threatened species.
- b) Economic Importance of Poaceae.

QNo.10: Write short notes on any two of the following:

- a) Role of Herbaria and Botanical Garden in Conservation
- b) Cytotaxonomic evidence
- c) Species concept

UNIVERSITY OF BALOCHISTAN, QUETTA
M.A/MSC (ANNUAL) EXAMINATION, 2014.

Attention 1- possession & 1- use of mobiles and other electronic accessories are strictly prohibited. If any one possesses/uses, his/her case will be sent to unfair means committee.
2- If any candidate shows/marks his/her identity in the answer book, he/she will be disqualified for the said paper

SUBJECT :- Botany PAPER:-VI (Prev.)
Plant Anatomy & Diversity of Vascular plant

Time Allowed :- 3 Hour.

Max: Marks 75

Note:- Attempt any Five Questions in All But Questions No1 in Section -I is compulsory and the time for Section-1 is only 40 Minutes. After Expiry of the Time paper should be handed over to the Examiner. Draw diagram where necessary.

SECTION -1 (15 Marks)

QNo 1:- Attempt any 10 questions out of 15 questions. All questions carry equal marks.

Define the followings any 10.

(15)

1. Initials
2. Derivatives
3. Promeristem
4. Meristem d'attenuate
5. Leaf buttress
6. Axillary buds.
7. Root apex
8. Fossil plants
9. Secondary growth
10. Abnormal Secondary growth
11. Bundle sheath extension
12. Meristematic Tissue
13. Primary Plant Body
14. Secondary Plant Body
15. Phloem Parenchyma

SUBJECTIVE PORTION

Attempt four questions. At least two questions from each Section.

SECTION II.

Q: No. 02:- Describe the origin of leaf, emphasis on different types. Draw anatomy of leaf in detail. (15)

Q: No. 03:- Describe the origin of stomata with special emphasis on different types, with diagram and references to the subsidiary cells and epidermal cells. (15)

Q: No. 04:- What is Vascular cambium? Describe the structure of storied and non storied cell type. Draw diagram in detail. (15)

Q: No. 05:- write note on any two of the following. (15)
(a) Parenchyma (b) Xylem (c) Glandular tissue

SECTION III

Q: No.6:- Explain the sexual reproduction in pteridophytes with reference to formation of seed like structure? (15)

Q No.7:- Describe the plant body of *Psilotum*, emphasis on the origin of dichotomy of branches? (15)

Q No.8:- Describe morphology of *Equisetum* with special reference to its nodes and internodes. (15)

Q No.9:- Describe sexual reproduction in gymnosperms with reference to *Pinus* cone. (15)

Q No.10:- Write general accounts of gymnosperms, Highlight the early wood and late wood in Gymnosperm. (15)

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:-
- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
If any one possess / uses , his /her case will be sent to unfair means committee.
 - 2- If any candidate show / Marks his / her identity in the answer book , he / she will be disqualified for the said paper .

SUBJECT:
TIME ALLOWED: 3 HOURS

BOTANY
ADVANCE TAXONOMY

Paper- XI (Final Year)
MAX: MARKS: 75

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

SECTION-I (OBJECTIVES PORTION 15 MARKS)

Define the following terms

- 1 Consolidated phase
- 2 Clinal variation
- 3 Coenospecies
- 4 Polysomic
- 5 B-Chromosomes
- 6 Phenols
- 7 Phenotype
- 8 Open recombination
- 9 Consolidated phase
- 10 Dendrograme
- 11 Cluster analysis
- 12 Concise flora
- 13 Hybridization
- 14 Flora
- 15 Monographs and revision

SECTION-11- (SUBJECTIVE PORTION 60 MARKS)

ATTEMPT ANY FOUR QUESTIONS (Time allowed 2:20)

- Q.NO.2: Write an essay on different breeding systems of species with special reference of patterns.
- Q.NO.3: Describe in detail the application of chemical data to the problems of plant systematics.
- Q.NO.4: Describe the role of palynology in plant systematics
- Q.NO.5: Describe different phases of systematics in plant taxonomy.
- Q.NO.6: Write a comprehensive essay on the scope and need of numerical taxonomy.
- Q.NO.7: Give different methods for the study of variations.
- Q.NO.8: Describe the different anatomical characteristics with reference to their taxonomic importance
- Q.NO. 9: What is biosystematics? Differentiate between ecophene, ecotype and ecospecies
- Q.NO.10: Write short notes on any two of the followings
- a) Chromosomes morphology
 - b) Biological species concept
 - c) Recombination system.

THE END