



UNIVERSITY OF THE PUNJAB

M.A./M.Sc. Part – I Annual Exam – 2019

Subject: Mountain Conservation and Watershed Management
Paper: I (Database Management Information System & Applications
of Remote Sensing and Geographical Information System)

Roll No.

Time: 3 Hrs. Marks: 75

NOTE: *Attempt only FIVE questions in all by selecting at least TWO questions from each Section. All questions carry equal marks.*

SECTION-I

Database Management Information System

Q.1. Define data model. List out different data models with a supporting diagram example. (15)

Q. 2. Explain the merits and demerits of DBMS. (15)

Q. 3. (a) What is Data Base Administrator? Discuss the role and functions of DBA. (8)

(b) Discuss the differences between a form and a report. (7)

Q.4. Write short notes on the following (Any three): (15)

i. Three Schema Architecture

iv. Difference between primary and

ii. Relational Model

foreign key

iii. Data Independence and Data

v. Query

Abstraction

P.T.O.

SECTION-II
Applications of Remote Sensing and GIS

Q.5. Define remote sensing. Explain the importance and applications of remote sensing. **(15)**

Q.6. Explain in detail the electromagnetic spectrum and its characteristics used in remote sensing with a suitable diagram. **(15)**

Q.7. Explain the role of Remote Sensing and GIS in water resources applications and watershed management in today's scenario. **(15)**

Q.8. Write short notes on the following (**Any three**): **(15)**

i. Temporal Analysis

iv. Limitations of Remote Sensing

ii. Orbits and its types

v. Passive Sensors

iii. Image Interpretation Elements



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M.A./M.Sc. Part – I Annual Exam – 2019

Subject: Mountain Conservation and Watershed Management
Paper: II (Forestry and Ecology)

Roll No.
Time: 3 Hrs. Marks: 100

NOTE: Attempt any FIVE questions in all by selecting THREE questions from Section-I and TWO questions from Section-II. All question carry equal marks. Support your answers with suitable maps and diagrams.

Section –I Ecology

- Q.1 a) write a detailed note on ecosystem elements/components. How do they interact with each other (15)
b) How the energy flows in ecosystem explain your answer with diagram (5)
- Q.2 a) Define the wetland? Write the importance of wetlands (10)
b) Explain the different causes of wetland loss and Degradation in Pakistan (10)
- Q.3 a) Write about the different types of Biodiversity and its role in ecosystem (10)
b) What are the major threats to Biodiversity and how they impact Biodiversity (10)
- Q.4 a) Differentiate between Ecology, Ecosystem, and environment (10)
b) What are the ecological pyramids? Explain different types of Food Pyramids with diagram (10)
- Q.5 what is biogeochemical cycle? How many types of such cycles exist in nature? Explain anyone in detail? (20)

P.T.O.

Section –II Forestry

- Q.6 a) Write about the different forest types found in Pakistan (15)
b) Enlist the direct and indirect benefits from forests (05)
- Q.7 a) Define the forest, forestry and sustainable forest Management (05)
b) Institutional set up for forestry in Pakistan discuss it in detail (15)
- Q.8 a) write a detailed note on silvicultural practices (10)
b) Discuss the consequences of Deforestation also discuss its solutions (10)
- Q .9 a) Differentiate between Forest land, cropland, wetland, grassland and other land by IPCC? (10)
b) Define the carbon pools; also give the detail of its types? (10)



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M.A./M.Sc. Part – I Annual Exam – 2019

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Subject: Mountain Conservation and Watershed Management
Paper: III (Integrated Watershed Management)

Time: 3 Hrs. Marks: 100

NOTE: Attempt any FIVE questions in all by selecting THREE questions from Section-I and TWO questions from Section II. Support your answers with suitable maps and diagrams.

Section –I Integrated watershed Management

- Q.1 a) Define the watershed and Watershed Management also enlist the characteristics of watershed.
b) What you know about the principles of watershed Management? (10, 10)
- Q.2 a) Define PRA? Also discuss the tools, principles and benefits of PRA.
b) Discuss the Applications of RS and GIS in watershed Management. (10, 10)
- Q.3 a) Define the wasteland and also enlist causes of waste land write about any one in detail.
b) What are the remedial strategies to control the wasteland (10, 10)
- Q.4 a) Define Erosion? Which factors affect the erosion write a detail on water erosion?
b) Discuss soil water relationship and its measurement? (10, 10)
- Q.5 a) what is check dams classify the check dams with their characteristics.
b) Elaborate the causes of watershed deterioration and its effects on community. (10, 10)

P.T.O.

Section –II Hydrology of upland

- Q.6 a) Define the Hydrology. Write down the different aspects of Hydrology in detail.
b) What is drought? Define the Hydrological Drought with its measuring indices. (10, 10)
- Q.7 a) Discuss the hydrologic component of watershed writes the detail of any one.
b) Enlist the different methods of computing the different components. (10, 10)
- Q.8 a) Use Thiessen polygon Method to compute the average depth of precipitation

Rain Gauge	Area	Observed depth of precipitation
1	480	50
2	2860	65
3	2200	85
4	1600	90
5	710	60
6	270	70

- b) What is the role of snow and glacier in hydrology and water resources? (10, 10)
- Q.9 Differentiate between the precipitation and rainfall how many forms of precipitation and types of rainfall. (20)



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M.A./M.Sc. Part – I Annual Exam – 2019

Subject: Mountain Conservation and Watershed Management
Paper: IV (Mountain Environment)

Roll No.

Time: 3 Hrs. Marks: 100

NOTE: Attempt any FIVE questions in all by selecting at least THREE questions from Section-A and TWO questions from Section-B. All questions carry equal marks.
Support your answers with suitable maps and diagrams.

Section – A (Mountain Climate)

Q.1.	What is atmospheric pressure? Discuss permanent wind system in detail.	20
Q.2.	Enlist the variables of climate? Explain drivers/causes of climate change in perspective to mountain environment of Pakistan.	20
Q.3.	What is soil geography? Discuss its various types and how climate change effect soil?	20
Q.4.	Enlist various types of precipitation and explain rainfall in detail.	20
Q.5.	Define hazard and enlist natural hazards. Discuss any of it in mountain perspective.	20

Section – B (Mountain Environment)

Q.1.	Briefly discuss the mountain environment and climate change in Himalayas-Karakorum range.	20
Q.2.	Explain the geological theories of mountain building process and discuss various types of mountains.	20
Q.3.	Define temperature. How it is measured? Discuss factors affecting horizontal and vertical distribution of temperature over the globe.	20
Q.4.	Enumerates the factors that deteriorate the mountainous environment of Pakistan. Discuss with examples.	20



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M.A./M.Sc. Part – I Annual Exam – 2019

Subject: Mountain Conservation and Watershed Management
Paper: V (Soil and Water Conservation)

Roll No.

Time: 3 Hrs. Marks: 100

NOTE: Attempt only FIVE questions taking THREE questions from Section-I and TWO questions from Section-II. All questions carry equal marks. Support your answers with suitable maps and diagrams.

Section –I Soil and Water Conservation

- Q.1 a) what is land degradation and explain its various types (12)
b) Enlist the water erosion controlling strategies in detail. (8)
- Q.2 a) Define soil and describe the soil Taxonomy in detail (10)
b) Explain the soil profile and its horizons (10)
- Q.3 a) Determine the land suitability and capability classes (10)
b) How many types of the soil survey write a detail about any *one*? (10)
- Q.4 a) Examine the major factors which are responsible for soil formation (10)
b) What you know about the soil formation processes? (10)
- Q.5 a) Explain the concept of desertification and write the consequences of desertification (10)
b) Write a brief note on USLE &RUSLE (10)

P.T.O.

Section –II water Resources of Pakistan

- Q.6** a) Write in detail on Water Resources of Pakistan (10)
b) What you know about the water conservation strategies at domestic level (10)
- Q.7** a) Define the water pollution and differentiate between point and non point sources of pollution. (10)
b) Explain the Components of Hydrology (10)
- Q.8** a) what is rainwater harvesting? Define its types and benefits (10)
b) What is water logging write about the current water logging situation in Pakistan (10)
- Q.9** Write a detailed note on Pakistan Irrigation system? (20)



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M.A./M.Sc. Part – I Annual Exam – 2019

Subject: Mountain Conservation and Watershed Management
Paper: VI (Mountain Hazards & Disaster Management)

Roll No.

Time: 3 Hrs. Marks: 100

NOTE: Attempt any FOUR questions by selecting at least TWO questions from each section.
All questions carry equal marks. Support your answers with suitable maps and diagrams.

Section-I: Mountain Hazards & Disaster Management (MHDM)

- Q.1** a) Briefly explain the different strategies/measures/technologies to mitigate the risk of floods in Pakistan. (15)
b) What do you know about disaster? Enlist some natural disasters and write a note on any one of natural disasters. (10)
- Q.2** a) Briefly describes the role/responsibility of different departments/organizations for disaster risk management in mountain region of Pakistan? (15)
b) Describe and discuss structural and non-structural measures for risk reduction measures for floods? (10)
- Q.3** a) Identify major type of landslides and suggest risk reduction measures for landslide Mitigation. (15)
b) Describe the earthquake, its causes and risk management strategy in Pakistan. (10)
- Q.4** a) Describe Tsunami with its causes and aftereffects caused by this natural disaster. (15)
Also explain its measures of mitigation.
b) Write a comprehensive note on manmade disasters. (10)

P.T.O.

Section-II: Geomorphology of Pakistan

- Q.6** a) Write a comprehensive note on map and components of map. (15)
b) Define Upper and lower Indus Plain in Pakistan. (10)
- Q.8** a) Explain the Himalaya Region of mountains in detail. (15)
b) What kind of agents causes erosion on the earth surface? Give examples (10)
- Q.5** a) Write a note on the Hindu Kush and the western mountains of Pakistan. (15)
b) Describe in detail the work of river in three stages. (10)
- Q.7** a) Write a note on Baluchistan Plateau. (15)
b) Write a note on northern mountains of Pakistan. (10)