

PAPER: AGRICULTURE AND FORESTRY (100 MARKS)

Part-I Agriculture (50 Marks)

- I. **Concept of Integrated Agriculture:** Components of natural resources as bases for agriculture production (Land, Water, biological, Environmental, Solar, Energy)
- II. **Challenges in Pakistan's Agriculture:** Present scenario and future prospects. Analytical overview: issues and strategies for improvement of crop management, livestock management, fisheries, cottage industry, resource management and rural development. Institutions and policies: issues and options.
- III. **Elements of Climate and their Relationship with Crop Growth:** Farming Systems, biological nitrogen fixation, soil profile, structure and texture, soil fertility, soil erosion and conservation, water logging and salinity
- IV. **Genetic Improvement for Crop Production:** GMO crops, Seed production technology.
- V. **Horticulture:** Floriculture, landscaping, pests and diseases of agriculture crops and their control, integrated pest management.
- VI. **Rainfed and Irrigated Agriculture:** Agriculture mechanization, land tenure and land reforms, role of agriculture in national economy.

Part-II Forestry (50 Marks).

- I. Forest, range lands and wild life importance and significance
- II. Forest management and utilization, wood based industries in Pakistan, silviculture
- III. Range management and utilization
- IV. National and international forest wealth statistics
- V. Role of wildlife as value addition to forestry
- VI. Forest based wildlife reservations of Pakistan and their management, eco-tourism
- VII. Forestry, agroforestry, social forestry and forest biometrics
- VIII. Socio-economic and ecological impact of manmade forests
- IX. Watershed Management and role of forests in prevailing climate change dilemma
- X. National forest laws and policies at national level, biodiversity & environment.

SUGGESTED READINGS

S.No.	Title	Author
1.	Shaping the Future of Water for Agriculture	World Bank, USA
2.	Participatory Rural Development in Pakistan	Khan, M. H
3.	Agriculture in Pakistan	Khan M. H.

S.No.	Title	Author
4.	Economic Survey of Latest Years	
5.	Agric/Livestock/Machinery/Rural Developments Censuses of Latest Years	
6.	Fundamentals of Soil Science	Henry D. Foth
7.	Manual of Plant Production	Abdul Manan.
8.	Principles of Field Crop Production	Martin., J.H. & Leonard, W.H.
9.	Diseases of Field Crops	Dickson, J.G
10.	Irrigation Principles & Practices	Isrealson, O.W. Vaughn, E. Hansen.
11.	A Text Book of Plant Pathology	A.V.S.S. Sambamurti
12.	Breeding Field Crops	Poehlman
13.	The Principles of Agronomy.	Harris, Franklin Stewart
14.	Forest Types of Pakistan	Champion, H.G., S.K. Seth Seth and G.M.Khattak
15.	Manual of Silviculture for Pakistan	Champion, H.G., S.K. & Seth and G.M.Khattak
16.	Trees of Pakistan	M.I. Sheikh
17.	Range Management in Pakistan	M.A.A. Qureshi
18.	Comprehensive Forestry	B.A. Raza
19.	Farm Forestry in Pakistan,	M.A.A. Qureshi
20.	Forest Management	G.M. Khattak,
21.	Wildlife Ecology, Conservation and Management	A. R. E. Sinclair, J. M. Fryxell, G.Caughley
22.	Basics of Forestry & Allied Sciences	Dr. Masood A.A. Qureshi