

**RAJASTHAN STAFF SELECTION BOARD, JAIPUR**  
**JUNIOR ENGINEER (AGRICULTURE) DIRECT RECRUITMENT-2022**

**Exam Scheme**

Paper	Duration	Maximum marks
<b>Part A:-</b> Agricultural Engineering <b>Part B:-</b> General Knowledge (with special reference to history, art, culture, traditions, literature, heritage and geography of Rajasthan)	3:00 Hours	300 Marks

Note:- 1. The paper will be of Graduation level in Agriculture Engineering.

2. There shall be Negative marking for each wrong answer. 1/3 mark shall be deducted for each wrong answer.

**Syllabus**

**PART-A**

**Soil and Water Conservation:-** Precipitation, hydrologic cycle, runoff measurement prediction of peak rate of runoff, factors affecting runoff, hydrograph, Erosion-type factors associated with erosion, assessment of actual annual soil loss by erosion and impact on agricultural production and productivity. Water erosion control measures, vegetation in soil and water conservation, grass waterways and design. Design of control measures including permanent structures, stream bank erosion, mechanics of and water erosion, wind erosion control, water harvesting structures i.e. Farm Ponds, Tanka, Nadi and Anicut. Watershed: definition, concept and objectives, water management. Surveying instruments and their uses in watershed planning and executions.

**Irrigation:-** Soil-Water-Plant relationship, water requirements of different crops irrigation scheduling, measurement of irrigation water. Water conveyance and control, data of field channels. Design of irrigation methods, irrigation efficiencies. Drainage: Benefits drainage, surface drainage, drainage of flat and slopping lands. Design and layout of surface and sub surface drainage, depth and spacing of drains, installation of drains and drains walls, Types of aquifer, well log, groundwater prospects and water lifting devices. Water Resources Development and Management: water resources of India, surface water groundwater, development of irrigation potential, canal irrigation, command development, on farm development works.

**Farm Power and Machinery:-** Primary and secondary tillage machinery, their select operation, field capacity and efficiency. Machinery for sowing and intercultural operations. Power operated grains harvesting and threshing machinery, Farm tractors, introduction different systems of tractors and their maintenance.

**Agricultural Processing :-** Mass and energy balance in food engineering, size reduction material handling and separation equipments. Principles of drying and drying equipments. Use of Psychrometric chart. Processing of milk, dairy equipments. Storage of grains and principles of food preservation. Rice and Pulse milling.

**Renewable Energy Sources:-** Energy consumption pattern and energy resources, non conventional energy sources viz, solar thermal, solar photovoltaic, bio-energy resources and utilization, selection of biogas plant (site size and type), Improved biomass cookstoves, wind energy, present status and potential of renewable energy sources in Rajasthan state.

**PART-B**

General Knowledge (with special reference to history, art, culture, traditions, literature, heritage and geography of Rajasthan)

  
(Pushkar Raj Sharma)  
Secretary

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