



**UPSC IFoS (Indian Forest Service) 2021 Agricultural Engineering**  
**(Optional)-Online tentative Test Series Schedule**

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Test Number	Date	Syllabus	Result Date
1	01 September, 2021	<ul style="list-style-type: none"><li>➤ Scope of soil and water conservation. Mechanics and types of erosion, their causes. Rainfall, runoff and sedimentation relationships and their measurement. Soil erosion control measures - biological and engineering including stream bank protection- vegetative barriers, contour bunds, contour stone walls, contour ditches, terraces, outlets and grassed waterways</li><li>➤ Gully control structures - temporary and permanent - design of permanent soil conservation structures such as chute, drop and drop inlet spillways. Design of farm ponds and percolation ponds, Land development- Leveling, Estimation of earth volumes and costing. Wind Erosion process - design for shelter belts and wind brakes and their management. Forest (Conservation) Act, contour trenches, water harvesting and moisture conservation</li><li>➤ Sources of water for irrigation. Planning and design of minor irrigation projects, Soil-water plant relationships. Water requirement of crops, Methods of irrigation - surface, sprinkler and drip, fertigation. Irrigation efficiencies and their estimation, Techniques of measuring soil moisture - laboratory and in situ</li><li>➤ Design and construction of canals, field channels, underground pipelines, head-gates, diversion boxes and structures for road crossing, , Planning conjunctive use of surface and ground water</li></ul>	<b>The result will be declared within two weeks from the exam date</b>

➤ **Note: The Dates, Time & Schedule of the entire test series are tentative and subject to change.**

2	09 September, 2021	<ul style="list-style-type: none"> <li>➤ Watershed Management - investigation, planning and implementation - selection of priority areas and water shed work plan, Principles of flood control, flood routing and Hydrology</li> <li>➤ Occurrence of ground water, hydraulics of wells, types of wells (tube wells and open wells) and their construction. Well development and testing. Pumps-types, selection and installation. Rehabilitation of sick and failed wells.</li> <li>➤ Drainage causes of water logging and salt problem. Methods of drainage-drainage of irrigated and unirrigated lands, design of surface, sub-surface and vertical drainage systems. Improvement and utilization of poor quality water. Reclamation of saline and alkali soils. Economics of irrigation and drainage systems. Use of waste water for irrigation - standards of waste water for sustained irrigation, feasibility and economics</li> </ul>	The result will be declared within two weeks from the exam date
3	20 September, 2021	<ul style="list-style-type: none"> <li>➤ Thermodynamics, construction and working of internal combustion engines. Fuel, ignition, lubrication, cooling and governing system of IC engines, Different types of tractors and power tillers. Power transmission, ground drive, power take off (p.t.o.) and control systems, Traction theory, Ergonomics of man-machine system</li> <li>➤ Operation and maintenance of farm machinery for primary and secondary tillage, Sowing transplanting and interculture implements and tools. Plant protection equipment – spraying and dusting. Harvesting, threshing and combining equipment. Machinery for earth moving and land development - methods and cost estimation, Machinery for horticulture and agro-forestry, feeds and forages. Haulage of agricultural and forest produce</li> <li>➤ Solar (thermal and photovoltaic), wind and bio-gas energy and their utilization in agriculture. Gasification of biomass for running IC engines and for electric power generation. Energy efficient cooking stoves and alternate cooking fuels</li> </ul>	The result will be declared within two weeks from the exam date

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		<ul style="list-style-type: none"> <li>➤ Post harvest technology of crops and its scope. Engineering properties of agricultural produces and by-products Unit operations - clearing grading, size reduction, densification, concentration, drying/dehydration, evaporation, filtration, freezing and packaging of agricultural produces and by-products</li> <li>➤ Processing of milk and dairy products - homogenization, cream separation, pasteurization, sterilization, spray and roller drying, butter making, ice cream, cheese and shrikhand manufacture. Waste and by-product utilization - rice husk, rice bran, sugarcane bagasse, plant residues and coir pith</li> </ul>	
4	27 September, 2021	<ul style="list-style-type: none"> <li>➤ Basic characteristics of photographic images, interpretation keys, equipment for interpretation, imagery interpretation for land use, geology, soil and forestry. Remote sensing - merits and demerits of conventional and remote sensing approaches. Types of satellite images, fundamentals of satellite image interpretation and techniques of visual and digital interpretations for soil, water and land use management. Use of GIS in planning and development of watersheds, forests including forest cover, water resources etc</li> <li>➤ Energy requirements of agricultural operations and agro-processing. Selection, installation, safety and maintenance of electric motors for agricultural applications, Electronic devices and their characteristics-rectifiers, amplifiers, oscillators, multi-vibrators. Digital circuits - sequential and combinational system. Application of microprocessors in data acquisition and control of agricultural engineering processes measurement systems for level, flow, strain, force, torque, power, pressure, vacuum and temperature</li> <li>➤ Computers - introduction, input/output devices, central processing unit, memory devices, operating systems, processors, keyboards and printers. Algorithms, flowchart specification, programme translation and problem analysis in Agricultural Engineering. Multimedia and Audio-Visual aids</li> </ul>	<b>The result will be declared within two weeks from the exam date</b>

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5	05 October, 2021	AGRICULTURAL ENGINEERING PAPER – I	The result will be declared within two weeks from the exam date
6	14 October, 2021	AGRICULTURAL ENGINEERING PAPER – II	The result will be declared within two weeks from the exam date
7	19 October, 2021	AGRICULTURAL ENGINEERING PAPER - I	The result will be declared within two weeks from the exam date
8	30 October, 2021	AGRICULTURAL ENGINEERING PAPER - II	The result will be declared within two weeks from the exam date

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