



मध्य प्रदेश लोक सेवा आयोग

रेसीडेंसी क्षेत्र - इंदौर

शुद्धिपत्र क्रमांक 01/02/चयन/2013, दिनांक 31.08.2015

सहायक कृषि यंत्री परीक्षा-2013 के आयोजन की सूचना

परीक्षा शुल्क जमा करने की अंतिम तिथि

19.09.2015

ऑनलाइन प्रवेश-पत्र डाउनलोड करने की अवधि

23.09.2015 से 08.10.2015

- 01 आयोग द्वारा किसान कल्याण तथा कृषि विकास विभाग, मध्य प्रदेश शासन हेतु सहायक कृषि यंत्री के पदों की पूर्ति हेतु विज्ञापन क्रमांक 02/चयन/2013 "रोजगार और निर्माण" समाचार पत्र के दिनांक 06.05.2013 के अंक में प्रकाशित किया गया था। उक्त पद के विरुद्ध अधिक संख्या में आवेदन प्राप्त के कारण आयोग द्वारा उक्त पदों की पूर्ति हेतु दिनांक 10.10.2015 को ऑनलाइन परीक्षा के आयोजन का निर्णय लिया गया है। उक्त पद की चयन प्रक्रिया निम्नानुसार संशोधित की जाती है :-

चयन प्रक्रिया:-

- (01) ऑनलाइन परीक्षा में प्राप्त अंकों के गुणानुक्रम के आधार पर वर्गवार विज्ञापित पदों की संख्या के 3 गुना तथा समान अंक प्राप्त करने वाले अभ्यर्थियों को साक्षात्कार हेतु अर्ह घोषित किया जाएगा बशर्त उन्होंने परीक्षा योजना में अभिनिर्धारित न्यूनतम उत्तीर्णांक अर्जित किए हों।
- (02) परीक्षा में सफल अभ्यर्थियों से अंतिम तिथि निर्धारित कर उनकी पात्रता से संबन्धित सभी अभिलेख मंगाए जाएंगे। **अभिलेखों के सूक्ष्म परीक्षण के बाद केवल उन अभ्यर्थियों को साक्षात्कार हेतु आमंत्रित किया जाएगा जिन्हें पद हेतु अर्ह पाया जाएगा।**
- (03) पदों पर अंतिम चयन ऑनलाइन परीक्षा तथा साक्षात्कार में प्राप्त अंकों के गुणानुक्रम के आधार पर किया जाएगा।
- 02 उक्त पदों हेतु ऑनलाइन परीक्षा इंदौर स्थित आयोग द्वारा निर्धारित परीक्षा केन्द्रों पर निम्नानुसार आयोजित की जाएगी:-

परीक्षा तिथि एवं समय	प्रश्नपत्र
10.10.2015 (शनिवार) दोपहर पश्चात 02:00 बजे से 04:00 बजे तक	सहायक कृषि यंत्री परीक्षा पाठ्यक्रम

- 03 जिन अभ्यर्थियों द्वारा उक्त पद हेतु ऑनलाइन आवेदन किया है उन्हें उक्त परीक्षा में सम्मिलित होने हेतु निम्नानुसार परीक्षा शुल्क का भुगतान करना होगा :-

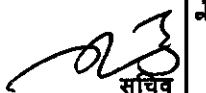
मध्य प्रदेश के मूल निवासी अनुसूचित जाति अनुसूचित जनजाति एवं अन्य पिछड़ा वर्ग के आवेदकों तथा निःशक्त आवेदकों हेतु	शेष सभी श्रेणी तथा मध्य प्रदेश के बाहर के निवासी आवेदकों हेतु
₹ 500/-	₹ 1000/-
उपरोक्त शुल्क के अतिरिक्त ₹ 40/- (सेवाकर सहित) देय होगा। परीक्षा शुल्क तथा पोर्टल शुल्क के अतिरिक्त अन्य किसी भी राशि का भुगतान नहीं करना है। यदि किसी कियोस्कधारक द्वारा अतिरिक्त राशि की मांग की जाती है तो एम.पी. ऑनलाइन को हेल्पलाइन - 0755-4019400 पर शिकायत करें।	

शुल्क दिनांक 04.09.2015 से 19.09.2015 तक www.mponline.gov.in, www.mppsc.nic.in, एवं www.mppsc.com पर विहित स्थान पर अपने आवेदन पत्र क्रमांक तथा जन्म तिथि की प्रविष्टि करके ऑनलाइन जमा किया जा सकता है। आयोग द्वारा शुल्क केवल उपरोक्तानुसार ऑनलाइन भुगतान द्वारा ही स्वीकार किए जाएंगे। अन्य किसी रूप से भुगतान स्वीकार नहीं किया जाएगा। जिन अभ्यर्थियों द्वारा अंतिम तिथि तक शुल्क भुगतान नहीं किया जाता है उनकी अभ्यर्थिता स्वयंमेव समाप्त हो जाएगी तथा इस संदर्भ में कोई अभ्यावेदन स्वीकार नहीं किया जाएगा। शुल्क जमा करने हेतु mponline के कियोस्क के अतिरिक्त क्रेडिट कार्ड तथा नेट बैंकिंग के माध्यम से परीक्षा शुल्क का भुगतान किया जा सकता है। mponline के अधिकृत कियोस्क की सूची उपरोक्त वेबसाइटों पर उपलब्ध है।

नोट : यदि आपको ऑनलाइन शुल्क जमा करने में कोई समस्या आती है तो नीचे दर्शाये गए दूरभाष नंबरों पर संपर्क करें :-
मध्य प्रदेश लोक सेवा आयोग, रेसीडेंसी क्षेत्र, इंदौर (0731) 2701624, 2701983
एम.पी.ऑनलाइन लिमिटेड, निरूपम शापिंग माल, द्वितीय तल अहमदपुर, होशंगाबाद रोड,
भोपाल-422026, हेल्पलाइन - 0755-4019400

- 04 ऑनलाइन परीक्षा हेतु प्रवेश-पत्र, दिनांक 23.09.2015 दोपहर (12:00 बजे से) 08.10.2015 (रात्रि 12:00 बजे) तक www.mppsc.nic.in, एवं www.mppsc.com पर उपलब्ध होंगे। आयोग द्वारा प्रवेश पत्र केवल ऑनलाइन जारी किए जाएंगे, डाक अथवा अन्य किसी भी माध्यम से प्रेषित नहीं किए जाएंगे।

- 05 उक्त परीक्षा की परीक्षा योजना तथा पाठ्यक्रम आयोग की वेबसाइट www.mppsc.nic.in, एवं www.mppsc.com पर उपलब्ध कराई गयी है। ऑनलाइन परीक्षा पद्धति की "प्रारम्भिक जानकारी" तथा "प्रेक्टिस माड्यूल" दिनांक 01.10.2015 से आयोग की वेबसाइट www.mppsc.nic.in, एवं www.mppsc.com पर उपलब्ध होंगे। अभ्यर्थी उक्त माड्यूल का प्रयोग कर ऑनलाइन परीक्षा पद्धति से अपने आप को प्रशिक्षित कर सकेंगे।


सचिव

परिशिष्ट "ब"
संशुद्धित पाठ्यक्रम
परीक्षा योजना

सहायक कृषि यंत्री लिखित परीक्षा-2013
परीक्षा योजना एवं पाठ्यक्रम

1. सहायक कृषि यंत्री के रिक्त पदों की परीक्षा में सिर्फ एक प्रश्न पत्र होगा जिसमें वस्तुनिष्ठ प्रकार के प्रश्न होंगे।
2. इस प्रश्न पत्र में कुल 100 प्रश्न होंगे। इस प्रश्न पत्र में सभी प्रश्न वस्तुनिष्ठ प्रकार के A,B,C,D विकल्पों में से एक संभावित उत्तरों वाला होगा। प्रत्येक प्रश्न 2 अंकों का होगा, तथा समयावधि 2 घंटे होगी। इस प्रकार कुल पूर्णांक 200 अंकों का होगा।
3. प्रश्न पत्र अंग्रेजी भाषा में होगा।
4. लिखित परीक्षा में आवश्यक उत्तीर्णांक :-
लिखित परीक्षा में उत्तीर्ण होने हेतु अनारक्षित आवेदकों को प्रश्नपत्र में 40 प्रतिशत अंक प्राप्त करना अनिवार्य होगा। मध्यप्रदेश के अधिसूचित अनुसूचित जाति, अनुसूचित जनजाति तथा अन्य पिछड़ा वर्ग श्रेणी एवं निशःक्त के आवेदकों को लिखित परीक्षा में उत्तीर्ण होने हेतु 10% की छूट अर्थात् 30% प्राप्तांक आवश्यक हैं। इस छूट का लाभ मध्यप्रदेश के मूल निवासी को ही मिलेगा। इसमें लिखित परीक्षा में प्राप्त अंकों के आधार पर श्रेणीवार गुणानुक्रम में विभिन्न वर्गों से भरी जाने वाली कुल रिक्तियों की पद संख्या के तीन गुना तथा समान अंक प्राप्त करने वाले आवेदक साक्षात्कार हेतु आमंत्रित किये जावेंगे।
5. साक्षात्कार के लिए कुल 25 अंक निर्धारित है।
6. साक्षात्कार उपरान्त चयनफल साक्षात्कार एवं लिखित परीक्षा में प्राप्त कुल अंकों के योग के मेरिट क्रमानुसार घोषित किया जायेगा।
7. लिखित परीक्षा, संभागीय मुख्यालय इंदौर में आयोजित होगी।

-----XXXX-----



सहायक कृषि यंत्री परीक्षा-2013 हेतु पाठ्यक्रम

Syllabus for Assistant Agriculture Engineer Exam-2013

1. Soil and Water engineering :-

Surveying and leveling.

Surveying: Introduction. classification and basic principles, Linear measurements. Chain surveying. Compass survey. Errors in measurements, their elimination and correction. Plane table surveying. Leveling, contouring, Computation of area and volume. Theodolite traversing. Introduction to setting of curves.

2. Soil and Water Conservation Engineering :-

Introduction soil erosion-causes types and agents of soil erosion water erosion forms of water erosion mechanics of erosion gullies and their classification stages of gully development soil loss estimation – universal soil loss equation and modified soil loss equation determination of their various parameters erosion control measures agronomical measures-contour cropping strip cropping. Mulching mechanical measures – terraces- Level and graded broad base terraces and their design. bench terraces & their design. layout procedure terrace planning bunds- contour bunds graded bunds and their design gully and ravine reclamation – principles of gully control vegetative and temporary structures wind erosion – factors affecting wind erosion mechanics of wind erosion. soil loss estimation. wind erosion control measures vegetative mechanical measures wind breaks & shelter belts sand dunes stabilization sedimentation – sedimentation in reservoirs and streams estimation and measurement sediment delivery ratio trap efficiency characteristics of contours and preparation of contour maps, land use capability classification grassed water ways and their design. Introduction to water harvesting technique introduction to stream water quality and pollution.

3. Watershed Hydrology :-

Introduction; hydrologic precipitation – forms, rainfall measurement, mass curve, hydrograph mean rainfall depth, frequency analysis of point rainfall. Plotting position estimation of missing data, test for consistency of rainfall records interception infiltration evaporation evaporation evapo transpiration – estimation and measurement geomorphology of watersheds – stream number, stream length stream area stream slop and Horton's laws; runoff factors affecting, measurement; stage and velocity rating curve, extension of rating curve estimation of peak runoff rate and volume rational method. Cooks method, SCS method. Curve number method, hydrograph of different durations dimensionless unit



hydrograph, distribution hydrograph, synthetic unit hydrograph, uses and limitations of unit hydrograph head water flood control- methods retards and their location; flood routing- graphical methods of reservoir flood routing hydrology off dry land areas- drought and its classification to watershed management and planning.

4. Irrigation Engineering :-

Irrigation Engineering: Irrigation impact of irrigation on Human Environment some major and medium irrigation schemes of India, purpose of irrigation, sources of irrigation water present status of development and utilization of different water resources of the country; Measurement of irrigation water weir notches flumes and orifices and other methods; water conveyance design of irrigation field channels underground pipe conveyance system irrigation structures channel lining land grading different design methods and estimation of earth work and cost classification of crops. crops rotation cropping and mixed cropping agronomical practices for different field crops. Soil water plant relationship. Soil water, movement. Infiltration evapotranspiration. soil moisture constants depth of irrigation frequency of irrigation, irrigation efficiencies; surface irrigation methods of water application, border check basin, furrow and contour irrigation sprinkler and drip irrigation method merits demerits selection and design participatory irrigation management Economics of water resources utilization

5. Groundwater, Wells and Pumps :-

Occurrence and movement of ground water aquifer and its types, classification of wells, steady and transient flow into partially, fully and non- penetrating and open well, familiarization of various types of bore wells common in the state design of open well groundwater exploration techniques methods of drilling of well, percussion rotary reverse rotary design of assembly and gravel pack installation of well screen completion and development of well. Their recovery method well interference multiple well systems, surface and subsurface exploitation and estimation of ground water potential quality of ground water artificial groundwater recharge planning , modeling ground water project formulation. Pumping Systems. Water lifting devices different types of pumping machinery classification of pumps component parts of centrifugal pumps performance curves, effect of speed on head capacity power capacity and efficiency curves, effect of change of impeller on performance characteristics.

6. Soil and water Conservation Structures :-

Introductions; classifications of structures, functional requirements of Soil erosion control structures; flow in open channels-types of flow state of regimes of flow energy and momentum principles, specific force; hydraulic jump and its application, type of hydraulic jump, energy dissipation due to jump, jump efficiency relative loss of energy ; runoff measuring structures par shall fulme, H-fulme and weirs straight drop spillway- general description use advantages and disadvantages, structural parts and functions; components of spillway, hydrologic and hydraulic design, free board and wave free board, aeration of weirs, concept of free and submerged flow, structural design of ad drop spillway-loads o on headwall . variables affecting equivalent fluid pressure determination of saturation line for different flow conditions, seepage under the structure equivalent fluid pressure of triangular load diagram for various flow conditions, creep ling theory, uplift pressure estimation, safety against sliding, over turning crushing and tension chute general description and its components, hydraulic design energy dissipaters, design criteria of a SAF stilling basin and its limitations, drop inlet spillway-general description, functional use design criteria design of diversions; small earth embankments-their types and Design principles, farm ponds and reservoirs , cost estimation of structures.

7. Drainage Engineering :-

Drainage objectives of drainage, familiarization with the drainage problems of the state Surface drainage, drainage coefficient, types of surface drainage, design of open channel, sub-surface drainage purpose and benefits, investigations of design parameters hydraulic conductivity drainable porosity water table etc. types and use of subsurface drainage system, Design of surface of surface drains, interceptor and relief drains derivation of ellipse (Hooghoudt's) and Ernst's drain spacing equations Design of subsurface drainage system. Drainage materials, drainage pipes, drain envelope Layout, construction and installation of drains Drainage structures, vertical drainage Bio-drainage, Tile Drains, Drainage of irrigated and humid areas. Salt balance, reclamation of saline and alkaline soils, Leaching requirements, conjunctive use of fresh and saline waters. Economic aspects of drainage.

8. Micro Irrigation Systems Design :-

Past, present and future need of micro-irrigation systems. Types and components of micro-irrigation system, Micro-irrigation system- design, design synthesis, installation, and maintenance. Sprinkler irrigation- types, planning factors, uniformity and efficiency, laying pipeline, hydraulic lateral, sub-mains and main line design, pump and power unit selection Drip irrigation- potential, automation, crops suitability.

9. Watershed Planning and Management :-

Watershed management - problems and prospects; watershed based land use planning watershed characteristics – physical and geomorphologic, factors affecting watershed management hydrologic data for watershed planning, watershed delineation, delineation of priority watershed, water yield assessment and measurement from a watershed; hydrologic and hydraulic design of earthen embankments and diversion structures; sediment yield estimation and measurement from a watershed and sediment yield models; rainwater conservation technologies- in situ and storage, design of water harvesting tanks and ponds; water budgeting in a watershed; effect of cropping system, land management and cultural practices on watershed hydrology, evaluation and monitoring of watershed programmes; people's participation in watershed management programmes; planning and formulation of project proposal; cost benefits analysis of watershed programmes; optimal land use models case studies.

10. Minor Irrigation and Command Area Development :-

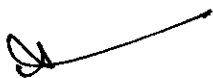
Major, medium and minor irrigation project- their comparative performance; development and utilization of water resources through different minor irrigation schemes. Basic concepts of command area – definition need scope, and development approaches; command area development authorities Interaction/collaboration of irrigation water use efficiency and agricultural production. Use of remote sensing techniques for command area development. Farmers participation in command area development.

11. Farm power & Technology :-

Workshop Technology – Introductions of different workshop tools, shaping, drilling, milling and welding machines their applications and constructional features, Properties of materials.

12. Farm Machinery & Equipment :-

Objectives of farm mechanization. Classification of farm machines, Materials of construction & heat treatment, Principles of operation and selection of machines used for production of crops. Field capacities & economics. Tillage; primary and secondary tillage equipment. Forces acting on tillage tools. hitching systems and controls. Draft measurement



of tillage equipment : Earth moving equipment - their construction & working principles viz Bulldozer, Trencher, Elevators etc. sowing planting & transplanting equipment – their calibration and adjustments. Fertilizer application equipment. Weed control and Plant protection equipment- sprayers and dusters, their calibration, selection, constructional features of different components and adjustments.

Principles & types of cutting mechanisms. Construction & adjustment of shear & impact-type cutting mechanisms. Crop harvesting machinery, movers windrowers, reapers, reaper binders and forage harvesters, Forage chopping & handling equipment. Threshing mechanics & various types of threshers, Threshers, straw combines & grain combines. maize harvesting & shelling equipment. Root crop harvesting equipment potato, groundnut etc. Principles of fruit harvesting tools and machines.

13. Farm Power :-

Sources of farm power-conventional & non conventional energy sources. Classification of tractors and IC engines. Review of thermodynamic principles of IC (CI & SI) engines and deviation from ideal cycle. Study of engine components their construction, operating principles and functions. Engine systems; valves & valve mechanism. Fuel & air supply, cooling, lubricating. Ignition starting and electrical systems. Study of constructional details, adjustments & operating principles of these systems. IC engine fuels- their properties & combustion of fuels, gasoline tests and their significance, diesel fuel tests and their significance. detonation and knocking in IC engines, study of properties of coolants, anti freeze and anti corrosion materials, lubricant types & study of their properties. Engine governing systems.

14. Field Operation & Maintenance of Tractor & Farm Machinery:-

Introduction to tractor maintenance procedure and trouble shooting. Scheduled maintenance after 10, 50, 100, 250, 500 and 1000hrs. of operation. Safety hints. Top and overhauling . Fuel saving tips Preparing the tractor for storage. Care and maintenance procedure of agricultural machinery during operation and off-season. Repair and maintenance and workshop requirements.

15. Tractor Systems and Controls :-

Study of transmission systems, clutch, gear box differential and final drive mechanism. Familiarization of brake mechanism. Ackerman and hydraulic steering and hydraulic systems. Tractor power outlets: P.T.O. belt pulley, drawbar, etc. Tractor chassis mechanics and design for tractor stability. Ergonomic consideration and operational safety.

16. Farm Power & Machinery Management :-

The role of mechanization and its relationship to productivity, employment, social and technological change, performance and power analysis; cost analysis of machinery fixed cost and variable costs, effect of inflation on cost; selection of optimum machinery and replacement criteria; Break-even analysis reliability and case flow problems, mechanization planning; case studies of agricultural mechanization in India.

17. Renewable Energy Sources :-

Classification of energy sources; Introduction to renewable energy sources characterization of biomass; types, construction working principle, uses and safety environmental aspects of different renewable energy devices like gasifiers biogas plants, solar passive heating devices photovoltaic cell and arrays; Brief introduction to wind energy hydroelectric energy, ocean energy, briquetting and baling of biomass, biomass combustion, biodiesel preparation and energy conservation in agriculture.

18. Human Engineering Safety :-

Human factors in system development – concept of systems; basic processes in system development, performance reliability, human performance. Information input process, visual displays, major types and use of displays, auditory and factual displays, Speech communications, Biomechanics of motion, type of movements, Range of movements, strength and endurance, speech and accuracy, human control of systems. Human motor activities; controls, tools and related devices. Anthropometry; arrangement and utilization of work space, atmospheric conditions, heat exchange process and performance, air pollution.

Dangerous machine (Regulation) act. Rehabilitation and compensation to accident victims. Safety gadgets for spraying, threshing, Chaff cutting and tractor & trailer operation etc.

19. Design and Maintenance of Greenhouse :-

History and types of greenhouse. importance. function and features of green house. scope and development of green house technology Location. Planning and various component of greenhouse; design criteria and calculation; constructional material and methods of construction; covering materials and its characteristics, solar heat transfer, solar

fraction for green house, steady state analysis of green house. Greenhouse heating cooling shedding and ventilation systems; Carbon dioxide generation an monitoring and lighting systems, instrumentation & computerized environmental Control systems. Watering, fertilization root substrate and its pasteurization, containers and benches, plant nutrition. alternative cropping systems; plant tissue culture, chemical growth regulation; disease control integrated pest management; postproduction quality and handing cost analysis of greenhouse production; Applications of green house & its repair & maintenance.

20. Post Harvest Engineering and others :-

Engineering Properties of Biological Materials & Food Quality

Importance of engineering properties of biological materials, Study of different physical and thermal characteristics of important materials like shape, size, volume, density roundness sphericity surface area, specific heat, thermal conductivity. thermal diffusivity, etc. measurement of colour, flavour consistency, viscosity, texture and their relationship with food quality and composition. Rheological characteristics like stress. strain time effects. rheological models and their equations. Aerodynamic characteristics and frictional properties. Application of engineering properties in handling processing machines and storage structures. Concept objectives and need of quality, quality control, methods of quality, sampling purpose sampling techniques requirements and sampling procedures for liquid, powdered and granular materials sensory quality control, panel selection methods, interpretation of sensory results in statistical quality control. TQM and TQM, consumer preferences and acceptance. Food Laws and Regulations in India. Food grades and standards BIS, AGMARK, PFA, FPO, CAC (Codex Alimentarius Commission) sanitation in food industry, GMP, HACCP (Hazard analysis and critical control point) and ISO 9000 Series.

21. Crop Process Engineering :-

Scope and importance of food processing, principles and methods of food processing. Processing of farm crops cereals, pulses oil seeds fruits and vegetables and their products for food and feed Processing of animal products. Principal of size reduction, grain shape, size reduction machines. crushers, grinders, cutting machines etc. operation, efficiency and power requirement–Rittinger's, Kick's, and Bonds equation fineness modulus. Theory of mixing types of mixtures for dry and paste materials, rate of mixing and power requirement, mixing index. Theory of separation, size and un sized separation, types

of separators, size of screens, sieve analysis capacity and effectiveness of screens pneumatic separation. Theory of filtration study of different types of filters, rate of filtration pressure drop during filtration. Scope & importance of material handing devices. study of different types of material handling. systems; belt chain and screw conveyor bucket elevator, pneumatic conveying, gravity conveyor-design consideration, capacity and power requirement.

22. drying and Storage Engineering :-

Moisture content and methods for determination, importance of EMC and methods of its determination, EMC curve and EMC model, principle of drying, theory of diffusion, mechanism of drying- falling rate. constant rate. thin layer deep bed and their analysis, critical moisture content, drying models, calculation of drying air temperature and air flow rate. air pressure within the grain bed. Shred's and Hukill's curve different methods of drying including puff drying foam mat drying. Freeze drying etc. Study of different types of dryers- performance. energy utilization pattern and efficiency study of drying and dehydration of agricultural products. Types and causes of spoilage in storage. conditions for storage of perishable product functional requirement of storage. control of temperature and relative humidities inside storage. calculation of refrigeration load; modified atmospheric storage and control of its environment, air movement inside the storage, storage of grains destructive agents, respiration of grains, moisture and temperature changes in stored grains, conditioning of environment inside storage through natural ventilation, mechanical ventilation, artificial drying, grain storage structures such as Bukhari, Morai, Kothar silo, CAP warehouse – design and control of environment. Storage of cereal grains and their products, storage of seed, hermetically sealed and air-cooled storages-refrigerated, controlled atmosphere modified atmospheric and frozen storages. Storage condition for various fruits and vegetables under cold and CA storage system. Economic. aspects of storage.

