



प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद्

पदपूर्ति समिति

सानोठिमी, भक्तपुर ।

प्राविधिक तथा प्रशिक्षण सेवा, कृषि तथा भेटेरेनरी प्राविधिक प्रशिक्षण समूह, एग्रो इन्जिनियरिङ्ग

उपसमूह, अधिकृतस्तर तृतीय श्रेणी **एग्रो इन्जिनियरिङ्ग प्रशिक्षक पदको**

खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र : सेवा सम्बन्धी विषय

पूर्णाङ्क - १००

(Paper II) : Technical Subject

Section A- 20 Marks

1. Soil and Water Engineering 20%

- 1.1 Water Conveyance and Control
 - 1.1.1 Design of open channels ,channel linings, drop structures and spillways, water control and division structures
 - 1.1.2 Design of under ground pipe conveyance system
- 1.2 Land Development
 - 1.2.1 Land leveling- grading design methods ,estimation of earthwork quantities, leveling and grading procedures, equipment for land grading and field layout
- 1.3 Ground Water , Irrigation Wells and Pumps
 - 1.3.1 Design of wells
 - 1.3.2 Wells construction procedures
 - 1.3.3 Indigenous water lifting devices, positive displacement pumps, centrifugal pumps, vertical turbine pumps, submersible pumps, propeller and mixed flow pumps, selection of pumps and their performances, repaired and maintenance
- 1.4 Water erosion and control measures
 - 1.4.1 Soil losses and its measurement
 - 1.4.2 Erosion control measures (engineering and bioengineering methods)
 - 1.4.3 Conservation structures, watershed management and water harvesting techniques

Section B- 30 Marks

2. Farm power and Machinery 30%

- 2.1 Farm Tractor and its operation, repair and maintenance
 - 2.1.1 Farm tractor types
 - 2.1.2 Different parts and components of farm tractor
- 2.2 Tillage and tillage implements
 - 2.2.1 Minimum and zero tillage implements
 - 2.2.2 Testing and selection of tillage implements
 - 2.2.3 Operation and maintenance of tillage implements
- 2.3 Seeding, harvesting and threshing machineries
 - 2.3.1 Rice trans-planters ,vertical conveyor, reaper and its components, combine harvester, different type of threshers(rice thresher ,multi-crop thresher) and winnowing machine) with their repair and maintenance
- 2.4 Mechanical weeding and chemical application equipment
 - 2.4.1 Manual and power weeders, sprayers (its types, components, nozzle types, application), dusters, with their operation , maintenance and selections of mechanical weeding and chemical application equipment

Section C– 20 Marks

3. Post Harvest Engineering 20%

- 3.1 Grain Drying
 - 3.1.1 Grain drying needs, methods and theory
 - 3.1.2 Mechanical dryers (batch and continuous type), grain pressure theory
- 3.2 Processing of Rice, wheat, Maize, Sugarcane, Legume and Oilseeds
 - 3.2.1 Milling, hulling, expelling
 - 3.2.1 Equipments for hulling, milling, and expelling
- 3.3 Preservation of Horticultural and Livestock Commodities
 - 3.3.1 Principles of cold storage design
 - 3.3.2 Refrigeration and air conditioning
 - 3.3.3 Seed processing equipments
 - 3.3.4 Dairy machinery (heaters and coolers , pasteurization, can washer, Cream separators, butter churns, steam boilers)

Section D– 30 Marks

4. Farm Structure Development 20%

- 4.1 Planning of farmstead, farm residence, water supply and sanitation
- 4.2 Farm road, farm fencing, farm ponds, farm irrigation and drainage
- 4.3 Animal Shelters
 - 4.3.1 Dairy barn (housing requirements, stanchion and loose housing barns with equipments and accessories, milking barn, pen barn)
 - 4.3.2 Poultry housing (housing requirements, types of poultry house, brooder house, poultry equipments and accessories)
 - 4.3.3 Sheep and goat housing (types, housing requirements, construction material, layout, equipment and accessories in goat and sheep housing etc.)
 - 4.3.4 Swine housing (types, housing requirements, construction materials, layout, equipment and accessories in swine housing)
 - 4.3.5 Aqua cultural engineering.
- 4.4 Storage Structures
 - 4.4.1 Fodder storage structure, feed storage structure, food grain storage structure (digenous storage structure, bag storage structure, grain bins, modern go downs), farm machinery storage structure and farm workshop
- 4.5 Farm and Rural electrification
 - 4.5.1 Power transmission and distribution, house wiring and its components
 - 4.5.2 AC motor (single phase and poly phase) , starters, selection of electric motors, care and maintenance of electric equipments
 - 4.5.3 Micro- hydro power plants

5. Rural Engineering 10%

- 5.1 Green roads
- 5.2 Water supply
- 5.3 Sanitation
- 5.4 Bio engineering measures
- 5.5 Renewable energy

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