

**द्वितीयपत्र (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 underground 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 Ship 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

**लोक सेवा आयोग**  
**नेपाल कृषि सेवा, एगू. इन्जिनियरिङ्ग समूह, राजपत्राङ्कित तृतीय श्रेणीका पदहरूको खुला प्रतियोगितात्मक परीक्षाको**  
**पाठ्यक्रम**

प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र लिइने  
**सामूहिक परीक्षण (Group Test)** को लागि

**सामूहिक छलफल (Group Discussion)**

यस प्रयोजनको लागि गरिने परीक्षण १० पूर्णाङ्क र ३० मिनेट अवधिको हुनेछ जुन नेताविहिन सामूहिक छलफल (Leaderless Group Discussion) को रूपमा अवलम्बन गरिने छ। दिइएको प्रश्न वा Topic का विषयमा पालैपालोसँग निर्दिष्ट समयभित्र समूहबीच छलफल गर्दै प्रत्येक उम्मेदवारले व्यक्तिगत प्रस्तुति (Individual Presentation) गर्नु पर्नेछ। यस परीक्षणमा मूल्याङ्कनको लागि देहाय अनुसारको ३ जनाको समिति रहनेछ।

आयोगका अध्यक्ष वा सदस्य	-	अध्यक्ष
मनोविज्ञ	-	सदस्य
दक्ष/विज्ञ (१ जना)	-	सदस्य

**सामूहिक छलफलमा दिइने नमूना प्रश्न वा Topic**

उदाहरणको लागि - उर्जा संकट, गरीबी निवारण, स्वास्थ्य बीमा, खाद्य सुरक्षा, प्रतिभा पलायन जस्ता Topics मध्ये कुनै एक Topic मात्र दिइनेछ।