

Section A– 20 Marks

1. **CLIMATE AND WEATHER** **10%**
- 1.1 Climate: temperature, humidity, wind pressure, rainfall, effective rainfall and sunshine and solar radiation
- 1.2 instruments used for weather observation in Nepal
- 1.3 climate and ecological distribution of Nepal
5. **CROPPING/FARMING SYSTEMS** **10%**
- 5.1 Introduction to farming system, system approach in agriculture, component/determinants of farming system
- 5.2 on-farm farming system research methodology
- 5.3 Characteristics of FSR
- 5.4 Framework of FSR methodology, diagnostic phase (PRA, RRA, conventional survey)

Section B– 20 Marks

2. **SOIL AND FERTILIZERS** **20%**
- 2.1 Soil definition, soil and sub-soil, soil texture, soil structure and consistency, classification of soil, soil profile, soil of Nepal
- 2.2 essential plant nutrients and their sources, functions and deficiency symptoms of essential elements, forms of nutrients utilized by plants, chemical formulation of commonly used chemical fertilizers and element content, loss of plant nutrients from the soil, determination of fertilizer requirement, methods, time and rate of fertilizer application
- 2.3 Soil pH, its measurement, liming material available for correcting soil pH
- 2.4 Soil organic matter, nutrient content of different animal dung, importance of organic matter, C:N ratio, green manuring, importance of green manuring
- 2.5 Soil organism, function of soil organism – notes on ammonification, nitrification, denitrification
- 2.6 biological nitrogen fixation, azotobacter, clostridium, and nitrogen cycle
- 2.7 Vermiculture: Importance, methods of its multiplication and use in agriculture
- 2.8 Organic fertilizer: their types and strategies for horticulture development

Section C– 30 Marks

3. **PRINCIPLE OF PLANT BREEDING** **10%**
- 3.1 Definition, importance, history and achievement of plant breeding
- 3.2 methods of crop improvement, mode of reproduction in crop plant, methods of breeding in field crops, classification of crops according to methods of pollination
- 3.3 Germplasm collection, characterization, evaluation and utilization
- 3.4 Varietal improvement work procedure in Nepal
- 3.5 Purity maintenance of released crop varieties

- 8. STATISTICS 10%**
- 8.1 Probability, frequency, mean, median, mode, standard deviation, standard error, normal distribution, sampling theory
- 8.2 Test of hypothesis, confidence interval, estimate of error – replication and randomisation, control error – blocking, proper plot technique
- 8.3 Least significant difference (LSD), and Duncan's Multiple Range Test (DMRT), their use and importance in statistics, completely randomized design (CRD) – randomisation, layout, factorial experiment , analysis of variance , coefficient of variance
- 8.4 Interaction between two factors, split-plot design – randomisation and layout, analysis of variance
- 8.5 Regression and correlation analysis
- 9. SEED TECHNOLOGY 10%**
- 9.1 Seed formation, development and composition, physiology of seed
- 9.2 Seed quality and seed classes
- 9.3 Principles and practices of seed production
- 9.4 Seed processing, handling and storage
- 9.5 Seed testing principles
- 9.6 Seed certification procedures and seed certification standards in major crops in Nepal

Section D– 30 Marks

- 4. WEEDS AND WEED MANAGEMENT 10%**
- 4.1 Weed, weed classification, its importance in crop production, its distribution in Nepal
- 4.2 Common weeds found in major field crops
- 4.3 Herbicides, types of common herbicides, herbicides formulation and plant selectivity, commonly used herbicides in Nepal
- 4.4 Weed management in important crops rice, maize, wheat, soybean, lentil etc
- 4.5 Economic use of chemical herbicides
- 6. CROP PRODUCTION TECHNOLOGY 10%**
- 6.1 Study in Rice, maize, wheat, finger millet, barley, buckwheat, amaranthus, lentil, soybean, chickpea, pigeonpea, mungbean, rapeseed, mustard, sarson , groundnut, sugarcane, jute, tobacco, cotton, potato, tea & coffee, with respect to:
- 6.2 Importance and distribution, origin and classification
- 6.3 Morphology and growth stages of plant
- 6.4 Recommended varieties
- 6.5 Climate and soil

लोक सेवा आयोग

नेपाल कृषि सेवा, एग्रोनोमी समूह, राजपत्राङ्कित तृतीय श्रेणीका पदहरूको खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

- 6.6 Cultural practices – land preparation, seed treatment, planting methods, planting time, plant population, planting spacing, seed rate, interculture, weed and weed management – important weeds, recommended herbicides, method and time of application, manures and fertilizer recommended dose, time of application, increase efficiency water management – time and frequency of water application, water requirement and irrigation methods, drainage, typical cropping calendar and cropping system – in hills, mid-hills, tarai and inner tarai, plant protection measures – causal agent, symptom and control measures, recent trend of plant protection, harvesting, drying, cleaning, storage i.e. post-harvest technology
- 6.7 Economics of crop production of major crops (rice, maize, wheat, jute, sugarcane, tobacco and cotton)

7. TILLAGE

10%

- 7.1 Tillage, objective of tillage, significance of tillage, importance of tillage in crop production
- 7.2 Condition of the soil suitable for cultivation, zero-tillage, minimum tillage and optimum tillage

द्वितीय पत्रको एकाईहरूको प्रश्नसंख्या निम्नानुसार हुनेछ

द्वितीय पत्रका खण्ड	A		B		C			D		
द्वितीय पत्रका एकाई	1	5	2	3	8	9	4	6	7	
प्रश्न संख्या	1	1	2	1	1	1	1	1	1	

विषयगत नमूना प्रश्नहरू (Sample questions)

1. Write down the effect of sunshine hour (Solar Radiation) on rice production?
2. What are the micro-nutrients, generally deficient these days in rice crop of Nepal and how will you correct those deficiencies?
3. What are the major green manure crops and briefly explain their importance in crops production?
4. Give examples of self-pollinated and cross-pollinated crops with their brief breeding processes?
5. What are the names of major narrow and broad leaf weeds in wheat crop and how will you manage them?
6. What do you understand about farming system, explain briefly?
7. Write down five (5) each released varieties of rice, maize, lentil, and chickpea in Nepal, also give two (2) each examples of rice, maize and wheat varieties which are the most popular ones among Nepalese farmers?
8. Write down the value of zero/minimum tillage in wheat after harvesting rice?
9. You have 3 pipeline wheat varieties and we want to test the response of 4 doses of nitrogenous fertilizer: which design do you suggest and why? Also give the ANOVA of that design?
10. Explain briefly about breeder, foundation and certified seeds?