C.S.J.M University, Kanpur

Syllabus

M.Sc. Ag. Agronomy (Two Year Degree Course)

Agronomy-First Year			
Sl. No.	Paper	Paper Name	Maximum Marks
1	I	Crop Production Technology and Special Crops	100
2	II	Crop Physiology and Soil Fertility Management	100
3	III	Agriculture Statistics (Compulsory for all the MSc Ag subject)	50
4	--	Practical (Based on I & II Paper)	100
		Total Marks	350

Agronomy- Final Year			
Sl. No.	Paper	Paper Name	Maximum Marks
1	I	Farm Management, Soil and water conservation	100
2	II	General Crop & seed Technology.	100
3	III	Special Paper (Agrostology and ~~for Age~~ production)	100
		Or Thesis	
4	--	Practical (Based on I & II Paper)	100
5	--	Practical (Based on Paper III) or Viva Voce Based on Thesis)	50
		Total Marks	450

Resolution

The Board of studies in Agronomy has gone through the existing syllabus of M.Sc(Ag) Agronomy being used in CCS College, Meerut since 2014 & resolved that this syllabus be approved and allowed to be used for the students admitted in 2014-15 batch only i.e. till they pass out.

It was further resolved that Semester System in M.Sc(Ag) be followed with ICAR syllabus w.e.f. 2015-16 Academic Year.

29.5.15

(Dr. Jyoti Shankar)
Dean PGA & Convener

1. Dr. S.P. Vishwakarma Sr Lecturer –
2. Dr. Akhilesh Chandra Singh –
3. Dr. Rajvir Singh –
4. Dr. Mahi Pal Singh –
5. Dr. A.K. Tripathi, CSAU.
6. Dr. M.P. Yadav –
7. Prof. Nand Lal –

C.S.J.M University, Kanpur

Syllabus

M.Sc. Ag (Agronomy)

Previous Year Paper I

Crop Production Technology and Special Crops

M. Marks: 100

Theory

A. Crop Production Technology:

1. Scientific principles involved in selection and distribution of crops in relation to climatic, edaphic and biotic factors.
2. Recent technology of tillage practices such as ploughing, seed sowing and interculture, modern concept of tillage.
3. Study of improved crop rotations, cropping schemes and cropping systems adopted in the country.
4. Principles of fertilizer application (Manuring) with special reference to dose, source, time and method of application; fertilizer use efficiently (F.U.E.) and factors affecting it.
5. Irrigation requirement (I.R.) and water requirement (W.R.) of crops, Consumptive use of water, scheduling of irrigation to the crops, necessity and methods of drainage.
6. Weeds-definition, characteristics, classification and utility, losses caused by weeds, principles and methods of weed control, crop weed competition; herbicides and their mode of action, toxicity, susceptibility and selectivity; integrated weed management.
7. Crop production technology in drought, waterlogged, saline-alkali, acidic and soil eroded conditions.

B. Special Crops:

Intensive study of following crops including distribution climatic requirements, improved varieties, recent agronomic practices, plant protection measures, harvesting, processing and storage with recent agronomic research work done in the country. Sugarcane, Potato, Tobacco.

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Paper-II
Crop Physiology and Soil Fertility Management

M. Marks: 100

Theory

A. Crop Physiology:

1. Role of crop physiology in crop production
2. Dormancy and its courses in seeds, buds and clones methods of breaking dormancy.
3. Germination, stages of germination and factors affecting it.
4. Physio-chemical principles involved in physiological Processes (solutions, buffers, pH, osmosis, diffusion plasmolysis, turgidity and permeability)
5. Soil water relations forms of soil water, retention and movement of water in soil, soil water constants.
6. Absorption and translocation of water and nutrients by plants, transpiration and its importance in plant growth.
7. Growth and development of plants and factors affecting it; role of growth regulating substance, photoperiodism and verbalization in crop production.
8. Crop architecture in relation to yield growth and yield analysis; models of crop canopy Photosynthesis.
9. Physiology of crop growth under drought, frost, waterlogged and saline-alkali conditions.

B. Soil Fertility Management

1. Concept of soil fertility and soil productivity.
2. Essential plant nutrients, criteria of essentiality; forms, functions and deficiency symptoms of plant nutrients.
3. Classification and properties of N, P & K fertilizers, transformation of N, P & K in soil.
4. Nutritional requirement of crops and factors affecting it.
5. Features of good soil management, fertility management of acidic, saline-alkali, sandy loamy and clay soils.

Paper-III
Agricultural Statistics

M. Marks: 100

Theory

Compulsory for all students of the subject of M.Sc. (Ag) Previous. Syllabus is mention in Subject syllabus of MSc. (Ag) Genetics & Plant Breeding. Previous

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Practical Examination for Previous Year M. Marks: 50

Practical Based on Paper Ist.

1. Practical Study of improved agronomic practices (seed bed preparation, seed sowing, irrigation and fertilizer application etc.) for efficient crop production.
2. Preparation of crop rotations and cropping scheme.
3. Identification of common seeds, weeds, manures and fertilizers, weedicides, insecticides and fungicides,
4. Preparation of herbarium.
5. Working out the fertilizer requirements of crops mentioned in theory course.
6. Study of crop weed association, weed index and weed control efficiency.
7. Preparation of herbicidal spray and estimation of quality of the spraying material.
8. Tour & visits.
9. Viva-voce.

Practical based on paper-II

1. Techniques of presowing seed treatment with water and chemicals ect.
2. Experiments related to osmosis, imbibitions, permeability, germination and dormancy etc.
3. Growth and yield analysis of crops.
4. Techniques of rapid soil and plant tissue tests.
5. Analysis of available N, P & K in soils, plants and fertilizers.
6. Determination of soil moisture, pH and organic matter in soils.
7. Tours & Visits.
8. Record.
9. Viva-voce.

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M.Sc. Ag (Agronomy)
Final Year Paper I
Farm Management, Soil and Water Conservation

M. Marks: 100

Theory

A- Farm Management:

1. Definition, objectives and scope of farm management; selection, purchase and acquisition of land, measuring and fixing the size of farms. advantages of proper size farm.
2. Requisition of an ideal farm lay-out, buildings, roads, irrigation and drainage channels; effect of lay out on efficiency of management and operation; requirements of inputs for different farms; farm fencing its types and utility, cost of fencing.
3. Management and organization of farm labour, methods of increasing labour efficiency and its measurement.
4. Efficiency and management of farm capital, equipments for different size of forms and their maintenance.
5. Crop planning under varying situations (farm size and climatic conditions etc.) working out the cost of farm machinery, economic study of farm practices and cost of production studies, factors affecting farm profit.
6. Crop rotations and cropping schemes: high intensity cropping systems, their scope and possibilities for maximizing crop production; production principles and practices; determination profits on forms.
7. Importance of farm records maintained on different types of farm; classification of farm records and their specific uses; knowledge of various accounts including balance sheet, its preparation with the help of farm records.

B- Soil and water Conservation:

1. Concept of soil and water conservation and its importance.
2. Soil erosion and its problems; types of soil erosion and its mechanism; control measures of soil erosion, cropping pattern in relation to soil erosion.
3. Problems of soil moisture conservation, cropping pattern in relation to soil moisture, measures of soil moisture conservation in dry land farming, water management under waterlogged conditions for efficient crop production.
4. Water use efficiency (W.U.E) and factors affecting it.

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Paper-II
General Crops and Seed Technology

M. Marks: 100

Theory

A- General Crops:

Intensive study of the following crops including distribution climatic requirements, improved varieties, recent agronomic practices, plant protection measures, Harvesting, processing and storage with recent agronomic research work done in the country.

i. Cereals: Paddy, Wheat, Barley.
ii. Millets: Maize, Jowar, Bajra.
iii. Oil Seeds: Groundnut, Mustard, Sunflower, Linseed.
iv. Pulses: Arhar, Soyabean, Gram, Lentil, Peas.
v. Fodders: Berseem Lucern, Oat.
vi. Fibers: Cotton, Jute., sahemp

B- Seed Technology:

1. Seed technology: Definition, importance and scope in crop production.
2. Principles of quality seed production, Characteristics of good quality seed, types of seed, seed sampling.
3. Seed testing: Purity, germination, viability and moisture tests.
4. Seed treatment, Seed certification and its importance in quality seed production.

Paper-III
Agrostology and forage production

M. Marks: 100

Theory

A- Agrostology:

1. Agrostology- definition and scope.
2. Significance of pastures in Indian agriculture.
3. Establishment, problems and management of pastures; classification of pastures.
4. Systems of grazing, improvement of grazing in future lands.
5. Ley farming and silvi-pastoral system.

B- Forage Production:

1. Importance of forages in agriculture.
2. Evaluation and preservation of forages. Silage and hay making.
3. Nutritive value of forages and factors affecting it.
4. Nutritive value of forages and factors affecting it
5. Intensive study of the following fodder crops and grasses with special reference to distribution, climatic requirements, improved varieties, recent agronomic practices, harvesting, seed production, preservation and nutritive value with recent agronomic research work done in the county:

   Fodder crops: Jowar, Bajra, Teosinte, Cowpea, Guar, Senji.

   Grasses: Napier grass, Sudan grass, Para grass, Dinnath grass, Anjan grass, Rhodes grass, Guinea grass, setaria grass, Doob grass.

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Practical Examination for Final Year

M. Marks: 100

Practical based on Paper Ist.

1. Practical study of farm lay-out and working out the cost of fencing.
2. Preparation of cropping schemes for different types of farms
3. Working out the cost of production of specifies crops. Specified
4. Working out the cost of farm machinery for different operations.
5. Practical knowledge of different farm records and their maintenance.
6. Calculation of moisture deficit in soil.
7. Measurement of run off leaching and infiltration.
8. Tours and visits.
9. Record.
10. Viva-Voce.

Practical based on paper –II

1. Maintenance of crop Museum Plots College Farm.
2. Practical study of improved agronomic practices (seed bed preparation, seed sowing, fertilizer and irrigation application etc.)for crops mentioned in theory course.
3. Identification of important varieties of crops fertilizers, weedicides, insecticides and fungicides.
4. Work-out the seed and fertilizer requirements of specified crops.
5. Purity, germination and viability tests of seed.
6. Tours and Visits.
7. Record.
8. Viva-Voca.

Practical Examination for Final Year for paper-III

M. Marks: 50

Practical based on Paper III

1. Identification of fodder crops, grasses and their seeds.
2. Testing the quality and germination of garage seeds.
3. Practical study of agronomic practices for production of fodder crops and grasses.
4. Silage and hay making.
5. Estimating the nutritional value of fodder crops and grasses through chemical analysis.
6. Maintenance of herbarium of different grasses and fodders studied in theory course.
7. Working out the cost of production of different grasses and fodder crops.
8. Working out the fertilizer requirements of different. Grasses and fodder crops.
9. Tours and visits
10. Record.
11. Viva-voce.

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