MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION
B. Sc. (Hons.) Agriculture

Semester : VI (New) **Term:** II **Academic Year** : 2021-22
Course No. : ECON-365 (New) **Title :** Farm Management, Production and Resource Economics
Credits : 2(1+1)
Day & Date : **Time: 2 hrs.** **Total Marks : 40**

Note : 1. Solve **ANY FIVE** questions from section 'A'
2. All questions from section 'B' are compulsory
3. All questions carry equal marks
4. Draw neat diagrams wherever necessary

Model Answers

SECTION 'A'

Q.1 Define farm management, Enlist the principles of farm management and explain in short cost principle.

Ans : Farm management means decision making on use of scarce resources to obtain maximum profit and family satisfaction on a continuous basis from farm as a whole. **(1)**

Principles used in farm management

1. Law of diminishing marginal returns (law of variable proportion)
2. Law of equi-marginal returns (Opportunity cost principle)
3. Law of substitution (least cost principle)
4. Principle of combining enterprises or products
5. Cost concepts and Principles
6. Law of comparative advantage **(2)**

Seven Cost concept

1. Total cost
2. Fixed cost
3. Variable cost
4. Average total cost
5. Average fixed cost
6. Average variable cost
7. Marginal cost **(1)**

Q.2 Define of farm planning, enlist the steps in of farm planning and explain characteristics of good farm plan

Ans : Farm Planning : It is a process to allocate scarce resources of the farm to organize the farms production in such way that to increase resources use efficiency and income of the farmer. Programme of total farm activity in advance flexible or adoptable to changing environmental condition. **(1)**

Steps in farm planning

1) Preparation of farm map
2) Recording the History of Farm
3) Planning Bullock and Human labour requirement :
4) Planning the land use & soil conservation practices.
5) Planning livestock programme
6) Planning of marketing of produce. (2)

Characteristics of good farm plan

1. It should for efficient use of farm resources
2. The crop plan should have balanced combination of enterprises
3. Avoid excessive risk
4. Provide flexibility
5. Utilize the farmer's knowledge ,training and experience and consider farmer's like and dislike
6. Give considerations to efficient marketing facilities
7. Provide programme of obtaining, using and repaying the credit.
8. Provide for the use of up to date modern Agricultural methods and practices. (1)

Q.3 Classify farming systems and explain the specialized farming system with its advantages and disadvantages.

Ans : Classification of Farming Systems (1)

1. Specialized Farming
2. Diversified Farming
3. Mixed farming
4. Dry Farming:
5. Ranching

1. Specialized Farming:

When a farm business unit derives more than 50 percent of the income from a single enterprise. Reasons for specialized farming are (1) assured income from the enterprise (2) its suitability to the area (3) its relative profitability. (1)

Advantages

1. Better utilization of land- for most productive use – alternative crops.
2. Better management- more attention on a particular enterprise- reduces wastage of resources 3 Less requirement of equipment.
3. Income in skill of farmer- Farmer will concentrate on one enterprise.
4. Allows better marketing functions. (1)

Disadvantages

1. Failure of crop- Risk is more.
2. Non utilization of productive resources- Farm resources are not fully utilized.
3. Affects of soil health- continuous raising of one crop or few crop- affects soil health (1)

Q.4 Define risk and uncertainty and differentiate between risk and uncertainty

Ans : Definition of risk and uncertainty

Risk: is a situation where all possible outcomes are known for a given management decision and the probability associated with each possible outcome is known. Risk and it refers

to variability or outcomes which are measurable in an empirical or quantitative manner. Risk is insurable. (1)

Uncertainty: exists when one or both of two situations exist for a management decision. Either all possible outcomes are unknown, the probability of the outcomes is unknown or neither the outcomes nor the probabilities are known. Uncertainty refers to future events where the parameters of probability distribution (mean yield or price, the variance, range or dispersion and the skew and kurtosis) cannot be determined empirically. Uncertainty is not insurable (1)

Difference in between Risk and uncertainty (2)

Risk	Uncertainty
1. It is measurable	1.Not measurable
2.Situation when all possible outcomes are known for a given management decision and probability associated with each possible out come is known.	2.It prevails when all at possible outcomes of events are unknown then neither the probability nor the outcomes are known.
3.Risk is measured through probability concepts. Probability are assigned to each events (rain, weather forecast)	3.It also difficult to estimate the associated probabilities to the possible outcomes of the events.

Q.5 What is farm budgeting? Differentiate between partial and complete budgeting

Ans : Budgeting can be used to select the most profitable plan from among a number of alternatives and to test the profitability of any proposed change in plan. It involves testing a new plan before implementing it, to be sure that it will improve profit. Farm budgeting is a method of estimating expected income, expenses and profit for a farm business. (1)

Difference between partial and complete budgeting (3)

Partial Budgeting	Complete Budgeting
1. Estimating costs and returns for part of the business OR for activities e.g. growing one ha. Hy. Jowar in placed of local Jowar, Foliar application of fertilizer instead of soil application	1.Estimating costs and return for farm as a whole. All crops and also all enterprises
2.Only variable costs are considered	2.It covers all crops, livestock, and machinery FC + VC = TC and TR considered
3.It requires relatively less efforts and time for preparation	3.More efforts & time for preparation

Q.6 What is linear programming? Enlist assumptions of linear programming problem.

Ans : Linear programming is the general technique of optimum allocation of scarce or limited resources such as labour, material, machine, capital, energy etc. into several competing activities such as products, services, jobs, new equipment, projects etc. on the basis of a given criterion of optimality. (1)

Assumptions of L.P. problem

1. Linearity of objective function and resource constraints. .
2. Proportionality of activities to resources.
3. Additivity of Resources and Activities.

4. Divisibility (Continuity) of the activities as well as Resources.
5. Finiteness or Activities and Resource Restrictions
6. Single Value Expectation:
7. Non negativity of Decision variable (3)

Q.7 Write short notes on (Any two)

1.Types of Production Functions (2)

1. Continuous Production Function: This is obtained for those inputs which can be split up in to smaller units. All those inputs which are measurable give raise to continuous

production function. Example: Fertilizers, Seeds, Plant protection chemicals, Manures, Feeds etc

2. Discontinuous or discrete Production Function: Such a function is obtained for resources or work units which are used or done in whole numbers. In other words, production function is discrete, where inputs cannot be broken in to smaller units. Alternately stated, discrete production is obtained for those inputs which are counted. Example: Ploughing, Weeding, Irrigation etc.,

3. Short Run Production Function (SRPF): Production Function in which some inputs or resources are fixed. $Y = f(X1 / X2, X2, \ldots\ldots\ldots\ldots, Xn)$

4. Long Run Production Function (LRPF): Production function which permits variation in all factors of production. $Y = f((X1, X2, X3, \ldots\ldots, Xn)$

2. Cooperative farming (2)

Co-operative farming means a system under which all agricultural operations or part of them are carried on jointly by the farmers on a voluntary basis, each farmer retaining right in his own land. The farmer would pool their land,labour and capital. The land would be treated as one unit and cultivated jointly under the direction of an elected management. A part of a profit would be distributed in proportion to the land contributed by each farmer and the rest of the profit would be contributed in proportion to the wages earned by each farmer. If the farmers are not willing to have a full scale co-operative farming, they can secure some of the economics by joining a particular form of co-operative organization namely, co-operative purchasing, co-operative better farming, co-operative selling, etc. Cooperative societies are of four types

a. Co-operative Better farming: Ownership individual-operation individual, it promotes the interest of farmer through adoption of better farming practices. Purchase of seed, irrigation, marketing of produce Free to fallow any way of farming, except in respect of purpose for which he joins society.

b. **Co-operative Joint farming**: Ownership individual- operation collective, Land is pooled for joint cultivation, ownership of land is recognized by payment of dividend in proportion of value of his land. Members works on the land under the direction of a managing committee and each member receive wages for his daily work

c. **Co-operative Tenant farming:** Ownership collective - operation individual, The land is held by society. Land is then divided into plots which are leased out for

cultivation to individual member. The society arranges for agriculture requirements viz; credit, seeds etc. Each members pays rent for his plots and is at liberty to dispose off his produce is a manner as he likes

d. **Co-operative Collective farming:** Ownership collective- operation collective, the method of work is as similar to cooperative joint farming , but the share of individual member is not recognized. The profits are paid to members in proportion to the work and capital contributed by each member

3.Classification of Natural resources **(2)**

Classification Natural resources :Natural resources are often classified into renewable and non-renewable resources.

Renewable resources: Renewable resources are generally living resources (fish, coffee, and forests, for example), which can restock (renew).

Non- renewable natural resources: Non-living renewable natural resources include soil, as well as water, wind, tides and solar radiation, etc Resources can also be classified on the basis of their origin i.e. biotic and abiotic.

Biotic resources: Biotic resources are derived from animals and plants (i.e-the living world). Biotic is a living component of a community; for example organisms, such as plants and animals.

Abiotic resources: Abiotic resources are derived from the non-living world e.g. land, water, and air. Mineral and power resources are also abiotic resources some are derived from nature. In biology and ecology, abiotic components are non-living chemical and physical factors in the environment which affect ecosystems.

Natural resources: Natural resources are also categorized based on the stage of development:

Potential Resources: Those are known to exist and may be used in the future. For example, petroleum may exist in many parts of India and Kuwait that have sedimentary rocks, but until the time it is actually drilled out and put into use, it remains a potential resource.

Actual resources: Those that have been surveyed, their quantity and quality determined, and are being used in present times. For example, petroleum and natural gas is actively being obtained from the Mumbai High Fields.

4. Causes of resource depletion

Resource depletion: Resource depletion is an economic term referring to the exhaustion of raw materials within a region. Resource depletion is most commonly used in reference to farming, fishing, mining, and fossil fuels.

Causes of resource depletion

1. Over-consumption/excessive or unnecessary use of resources,
2. Non-equitable distribution of resources , 3. Overpopulation
4. Slash and burn agricultural practices 5.Technological and industrial development ,
6. Erosion, 7. Irrigation , 8. Mining for oil and minerals, 9. Aquifer depletion
10. Forestry , 11. Pollution or contamination of resources

Q. 8 Give the meaning of product –product relationship? Enlist different types of enterprise relationships and explain complementary enterprise

Ans:

Product-Product Relationship

Product-Product relationship deals with resource allocation among competing enterprises. The goal of Product-Product relationship is profit maximization. Under Product-Product relationship, inputs are kept constant while products (outputs) are varied. This relationship guides the producer in deciding 'What to produce' **(1)**

Types of enterprises

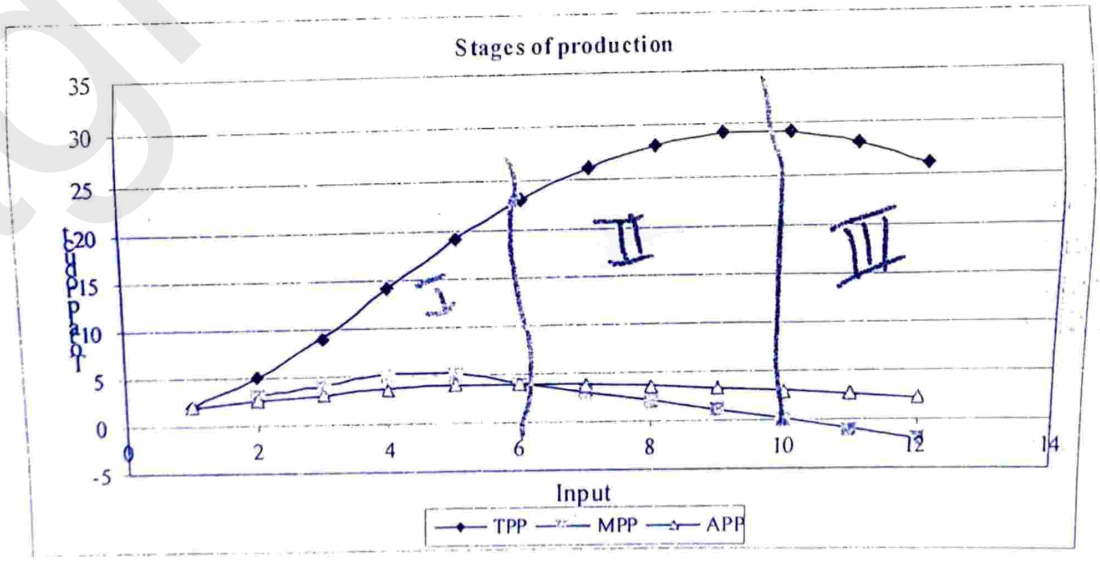
1 Joint Products
2 Complementary enterprises:
3 Supplementary enterprises
4 Competitive enterprises **(1)**

Complementary enterprises: Complementarity between two enterprises exists when with a change in the level of production of one, the other also changes in the same direction. That is when increase in output of one product, with resources held constant, also results in an increase in the output of the other product. The two enterprises do not compete for resources but contribute to the mutual production by providing an element of production required by each other. The marginal rate of product substitution is positive (> 0). Ex: Cereals and pulses, crops and livestock enterprises **(2)**

Q. 9 Draw a neat labeled diagram showing three stages of production function and explain in

Ans. brief the significance of each stage.

Graphical representation of three stages of production function (1)



Significance of the stages of production : (3)

Stage -I : In this stage, one can produce up to the level of input where, AP is the highest, because it gives the profit. But it is not reasonable to stop using an input when its efficiency is increasing in all units used, therefore, this stage is of irrational decision on resources use.

Stage -II- Stage I and III sets the limit to the stage -II, in which it is profitable to operate. The optimum point of input use must be some where in this stage, therefore, it is the stage of rational decision on resource use.

Stage -III : No cultivator would be willing to operate in this stage because, TP is decreasing with addition of input, cultivator can not maximize returns even if the inputs are very cheap or provided free of cost. Therefore, this stage is of irrational decision

Q.10 Give the definition of production economics and explain its subject matter and scope in brief.

Ans.: **Definition:** Agricultural. production economics is an applied field of science, wherein, the principles of choice are applied to the use of capital, labour and management in farming industry. Goals of A.P.E. (1) to provide guidance to individual farmers in using their resources most efficiently. (2) To facilitate the most efficient use of resources from the standpoint of the consuming economy. (1)

Scope: From the study and analysis of farm-firm as an individual production unit, we can indicate profitable course of action to be taken by producers, we are able to provide the producer with information, which would be useful in his decision regarding the resource use. Thereby, the study farm-firm as an economic unit, we may be able to analysis the conditions that confront the producers and suggest the means by which individual firms can get greater returns of their resource use. The study of firms in agriculture helps us to predict the consequences of changes in economic system, on the individual firms and in turn on the aggregate production in the economy. (2)

Subject Matter: A.P.E. deals with resource use efficiency, resource combination, resource allocation, resource management and resource administration i.e. productivity of resources or inputs or income allocation or distribution between different alternatives. Subject matter of A.P.E. involves topics like factor-product, factor-factor and product-product relationship, size of farm, returns to scale, credit, risk and uncertainty etc (1)

SECTION 'B'

Q. 11. Define the following terms

1. Technical Unit 2. Isoquant 3. Variable resources 4. Isorevenue line

Ans.:

1. **Technical Unit** : Single, convenient unit in production for which coefficients (input- output coefficients) are calculated. Examples are an acre, a hectare, a cow etc (1)
2. **Isoquant** : An isoquant represents all possible combinations of two resources (X1 and X2) physically capable of producing the same quantity of output (1)

3. **Variable resources :** Resources which change with the level of production are called variable resources **(1)**
4. **Isorcvcnuc linc :** It reprcscnts all possible combination of two products which would yield an equal(same) revenue or income **(1)**

Q.12 Fill in the blanks

Ans:

1. **Opportunity** cost is the value of the next best alternative foregone. **(1)**
2. **Supplementary** products means the quantity of one product can be increased with increasing or decreasing quantity of other products **(1)**
3. **Fixed** resources which remain unchanged irrespective of the level of production.**(1)**
4. **Marginal Cost** indicates the change in total cost in response to a unit increase in Output **(1)**

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