

## MODEL ANSWER

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION  
B. Sc. (Hort.)

Semester : V (New)  
Course : H/HORT- 352  
Credits : 2(1+1)  
Time:

Academic Year : 2019-20  
Title : Introductory Agro forestry  
Day and Date:  
Total Marks: 40

- Note :**
1. Solve any **EIGHT** questions from **SECTION " A "**
  2. All questions from **SECTION " B "** are compulsory
  3. All questions carry equal marks
  4. Draw neat diagrams (s) wherever necessary.

### **SECTION "A"**

**Q. 1. Define the term 'Agro forestry' and describe its benefits.**

**Ans.** **Agro forestry-** It is a sustainable land use system that maintains or increases total yield by combining food crops (annuals) with tree crops (perennials) and or livestock on the same unit of land .

#### **Benefits of Agro forestry**

- 1.Reduction of pressure on forest.
- 2.More efficient recycling of nutrients.
- 3.Improvement in microclimate
- 4.Increasing soil fertility.
- 5.Reduction in incidence of total crop failure

**Q. 2. Write in brief about alley cropping with suitable example.**

**Ans:** Alley cropping involves managing rows of closely planted woody plants (hedges) with annual crop planted in between the hedges.

- a. The woody plants are cut regularly and leaves and twigs are used as mulch.
- b. Nitrogen fixing plants are selected as hedges.
- c. The plants should have a small crown, useful as wood, fuel, fodder
- d. Hedge rows should be placed in East West direction at a distance of 4-8 m
- e. Eg Glyricidia, Sesbania, Subabhul

**Q. 3. Describe in brief the constraints of Agro forestry system.**

**Ans:**

1. Possible competition of trees with food crops.
2. Damage to food crops during tree harvesting operation
3. Trees to serve as hosts to insect pest harmful to food crops

4. Rapid regeneration of certain trees may displace food crops and take over the entire field.

**Q. 4. What factors are to be considered while selecting a site for forest nursery.**

**Ans.** The following factors should be considered while selecting site for the nursery-

1. It should be situated centrally, preferably near the rangers quarters for close supervision.
2. Irrigation facility should be available.
3. Easy availability of labor.
4. Soil should be well drained.
5. Sandy loam clay soils should not be selected as they are liable to crack in summer due to heat.
6. The site should have partial shade, shade from the southern side is beneficial.
7. Site should be in the hills having gentle slope not exceeding 5%
8. The site should be free from serious problems of insects, fungi, bacteria.
9. There should be thick shade in hot and dry localities.

**Q. 5. Describe in brief selection of crop species for agro forestry.**

**Ans.** Rapid growing, no competition with field crops, fixation nitrogen, easy decomposition of litter, ability to regenerate, high yield of food and fodder, multiple use of wood, plants with deep root system, easy in establishment and ability to coppice, capacity to grow under wide range of environment, soil types and rainfall etc.

**Q. 6. Write in brief about Taungya system.**

**Ans.** Taungys is a Burmese word meaning hill cultivation. Introduced in India by Dr Brandis in 1890. It consists of land preparation, planting forest species, growing agricultural crops for a period of 1-3 years until the canopy of the forest becomes dense

**Three types of Taungya**

1. Departmental
2. Leased
3. Village

**Q. 7. Write short notes (Any Two).**

**1. Multipurpose tree species**

Multipurpose tree species have multiple uses. These species are regenerated and managed for their ability to produce not only wood but leaves, fruits, flowers, bark, root, gum honey, medicines etc. Eg Mahua-flowers are edible, seeds yield oil, leaves are used for plate making. Other eg neem, coconut, bamboo.

## 2. Shifting cultivation

Shifting cultivation is a pattern of land use and system of production under the land is cultivated for a short period and then allowed to rest for a period longer than its cultivation. Restores soil fertility, less inputs, Improved fallow.

## 3. Horti-silviculture

In this system horticultural plants like fruit trees are planted in combination with forest species. Fruits can be obtained from the fruit trees while the forest species serve as a source of timber. This system is considered to be a profitable forestry system. It is commonly seen in home gardens.

### Q. 8. Define social forestry and describe the benefits of social forestry.

**Ans. Social Forestry-** Forestry practices which aim at providing goods and benefits to a nearby society are referred as Social forestry.

#### Benefits of Social Forestry

1. Betterment of environment
2. Reduction in pollution
3. Fulfills the basic needs of rural and urban people
4. Provides raw material to industries.
5. Provides shelter for insectivorous birds.
6. Protection from wind
7. Conservation of moisture
8. Prevention of soil erosion
9. Utilization of land unsuitable for cultivation.
10. Employment opportunities in rural and urban areas.

### Q. 9. Explain the regeneration methods of teak.

**Ans.** There are two methods of regeneration of forest crops

1. Natural regeneration
2. Artificial regeneration

#### Natural regeneration

1. Regeneration by self sown seeds

#### Artificial Regeneration

Nursery techniques - regeneration by stumps.

### Q.10. What are wind breaks and shelter belts? State their benefits.

**Ans. Wind breaks –** A windbreak means any barrier reacted to break down the speed of wind. Wind breaks planted over a entire area are known as shelter belts.

#### Benefits of wind breaks-

1. Production of species of economic value
2. Improvement of climate
3. Production of desired timber.
4. For controlling the stand structure

5. Reduction in rotation length
6. Restocking the blank and unproductive area
7. Protection from strong winds
8. Introduction of exotic species
9. Employment opportunities
10. Soil conservation

### SECTION "B"

Q.11. Match the pairs.

"A"

1. Acacia catechu
2. Dalbergia sisoo
3. Morus alba
4. Grevillea robusta

"B"

- a. Shisam
- b. Silver oak
- c. Khair
- d. Mulberry

Ans: 1—c    2—a    3—d    4--b

Q.12. Answer in one sentence, commercial use of the following species.

1. Neem
2. Arjun
3. Mahua
4. Karanj

Ans: **Neem:-** Flanks, tooth brush and medicines.

**Arjun:-** Industrial timber, small poles, fodder.

**Mahua:-** Oil seed, timber, edible flowers, liquor.

**Karanj:-** Leaves used as fertilizer, seed for oil and planted for soil conservation.

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