

Dr. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA

SEMESTERENDTHEORYEXAMINATION

B.Sc.(Hons.)Agriculture

Semester	:	III (NEW)	Term	:	I	AcademicYear	:	2021-22
CourseNo.	:	AGRO-235	Title	:	Rainfed Agriculture andWatershedManagem ent			
Credit	:	2(1+1)						
Day&Date	:	27.11.2021	Time	:		TotalMarks	:	40

- Note**
1. Solve ANY FOUR questions from SECTION-A
 2. Solve ANY SIX questions from SECTION-B
 3. All questions from SECTION-C are compulsory
 4. Send the PDF file of answer sheet to the email id of respective course teacher

SECTION-A
(Write the answer in 4-5 sentences only. Each question carries 4 marks)

Q. 1. What is rainfed agriculture? What are the problems of rainfed agriculture in India?

Ans:- Rainfed agriculture is a type of farming that relies on rainfall for water.

Problems of rainfed agriculture in India

1. Inadequate and Uneven Distribution of Rainfall
2. Long Gap in Rainfall
3. Early Onset of Monsoon
4. Late Onset of Monsoon
5. Early Cessation of Rains
6. Prolonged Dry Spells
7. Low moisture retention capacity
8. Low fertility of soils

Q. 2. Differentiate between Dry Farming, Dryland Farming and Rainfed Farming on the following points?

- Rainfall
- Crop growing season
- Cropping System
- Growing region

Ans: -

Particular	Dry Farming	Dryland Farming	Rainfed Farming
Rainfall (mm)	< 750	750 - 1150	> 1150
Crop growing season	< 75 days	75 – 120 days	> 120 days
Cropping systems	Single crop / Inter cropping	Single crop/ Inter cropping / Multiple cropping	Single crop/ Double cropping
Growing region	Arid	Semi arid	Humid

Q. 3. What are different soil and water conservation techniques? Explain Conservation Tillage

Ans:- The practical methods of soil and water conservation fall into two important classes, viz. Agronomic measures and Engineering measures.

A) AGRONOMIC MEASURES

1. Conservation Tillage
2. Deep tillage
3. Conservation Farming
4. Contour Farming
5. Mulching
6. Growing of cover crops
7. Strip cropping
8. Mixed cropping

B) ENGINEERING/ MECHANICAL MEASURES

1. Bunding
2. Terracing
3. Trenching
4. Basin-listing
5. Subsoiling

1) CONSERVATION TILLAGE

This umbrella term can include reduced tillage, minimum tillage, no-till, direct drill, mulch tillage, stubble-mulch farming, trash farming, strip tillage, plough-plant. With advanced soil conservation programs, the concept of conservation tillage is the main theme of the recommendations for cropland. The application is mainly in mechanized high production farming with good rainfall, or for the control of wind erosion where there is large-scale mechanized cereal production. It is less applicable to low input level crop production, or subsistence agriculture. The principles are equally effective in any conditions - to maximize cover by returning crop residues and not inverting the top soil, and by using a high crop density of vigorous crops. Conservation tillage also has the advantage of reducing the need for terraces or other permanent structures.

Q. 4. State the classification of drought on the basis of time of occurrence (Seasonal) and describe early season drought?

Ans: - Classification of draught on the basis of time of occurrence

- a) **Early season drought:** It occurs due to delay in onset of monsoon or due to long dry spells after early sowing
- b) **Mid season drought:** Occurs due to long gaps between two successive rains and moisture becoming insufficient during the long dry spell.
- c) **Late season drought:** Occurs due to early cessation of rainfall and crop water stress at maturity stage.

Q. 5. Enlist any five principles of watershed management.

Ans:- Principles of watershed management

1. Utilizing the land based on its capability
2. Protecting the fertile top soil
3. Minimizing the silting up of the reservoirs and lower fertile lands
4. Protecting vegetative cover throughout the year
5. In situ conservation of rain water
6. Safe diversion of surface runoff to storage structures through grassed water ways
7. Stabilization of gullies and construction of check dams for increasing ground water recharge.
8. Increasing cropping intensity through inter and sequence cropping.
9. Alternate land use systems for efficient use of marginal lands
10. Water harvesting for supplemental irrigation
11. Ensuring sustainability of the ecosystem
12. Maximizing farm income through agricultural related activities such as dairy poultry, sheep, and goat farming
13. Improving infrastructural facilities for storage transport and agricultural marketing
14. Setting up of small scale agro industries and
15. Improving socio-economic status of farmers.

SECTION-B
(Write the answer in one sentence only. Each question carries 2 marks Solve any Six)

Q.6 Define following terms

- a) **Water harvesting:** The collection of runoff water during peak periods of rainfall and storing in different structures is known as water harvesting.
- b) **Watershed:** watershed is defined as any spatial area from which runoff from precipitation is collected and drained through a common point or outlet
- c) **Intercropping:** Growing of two or more crops simultaneously with definite row pattern in same piece of land is intercropping.
- d) **Ephemerals:** The crops having a short growing season to be called as ephemerals
- e) **Tillage:** The mechanical manipulation of soil with tools and implements for obtaining conditions ideal for seed germination, seedling establishment and growth of crops is known as tillage
- f) **Drought:** A prolonged period without rainfall is called as drought.
OR
Drought: A situation when the actual seasonal rainfall is deficient by more than twice the mean deviation.
OR
Drought: A period of abnormally dry weather sufficiently prolonged for lack of water to cause a severe hydrological imbalance in the area affected.
- g) **Alternate land use system:** A pattern of land use that is different from the existing or the conventional can be described as an alternative land use system

SECTION-C		
(Choosethecorrectoption.Eachquestioncarry1marks)		

- Q.7**
- 1) c Botha&b
 - 2) b Medium black
 - 3) d 75
 - 4) d All of these
 - 5) c Alluvial
 - 6) a Hyderabad
 - 7) c Soil and Water
 - 8) a Contour farming
 - 9) a Khus grass
 - 10) d All of these
 - 11) b 250 to 300
 - 12) b Solapur
