

**DWM**

## **ASSIGNMENT BOOKLET**

for

**Academic Year 2022**

### **DIPLOMA IN WATERSHED MANAGEMENT (DWM)**

(A collaborative programme with Department of Land Resources, Ministry of Rural Development, Govt. of India)

**Note:** First of all read the assignment/questions and instructions carefully and identify the components of an assignment. You should read the relevant sections and sub-sections of a unit while preparing your responses and write answers in your own words. Your responses should not be a verbatim reproduction of the textual materials/blocks provided for self-learning purposes. We also suggest that, you may read additional materials available in your study centre or in any other library before preparing your responses. But extra reading is not a must to answer these assignments.



**School of Agriculture  
Indira Gandhi National Open University  
New Delhi -110068  
2022**

Dear student,

Welcome to the “Diploma in Watershed Management” (DWM) programme.

We hope that you have gone through the Programme Guide of DWM programme carefully. It is extremely important to complete the assignments within the stipulated time to be eligible to appear for the term-end examination. All the assignments of DWM programme are Tutor Marked Assignments (TMAs) and are part of the continuous evaluation process. The weightage to the Term-End Examination (TEE) will be 80% and Continuous Assessment (Assignment) will be 20%. There is one assignment for each course ¼Except BNRP-108½] with theory component, thus, a total of seven assignments for this programme. Each assignment will be of 50 marks which will be converted to have weightage of 20% of theory component.

### Instructions to format your assignments

1. Before you write the assignments, read the instructions provided in the Programme Guide carefully and go through the course materials.
2. You are requested to go through the course material first and then complete the assignments. Your answers should not be a verbatim reproduction of the textual materials/blocks provided for self-learning purposes.
3. Use foolscap size paper for writing your answer. Leave 4 cm margin on the top, bottom and left of your answer sheet. Clearly indicate question no. and part of the question being solved while writing answers.
4. The Assignments should be sent or submitted to the Programme In-charge (PIC) of the Study Centre allotted to you.
5. We strongly suggest that you should retain a copy of your assignment responses.
6. On top of the first page of your answer sheet, please write the details exactly in the following format.

Enrollment no:.....

Name:.....

Address:.....

.....

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Course Code:.....

Course Title:.....

Study Centre:.....

Date:.....

(Name and Code)

7. If you have any doubts or problems pertaining to the courses and assignments, do feel free to contact us at the School of Agriculture.

**Please submit your assignments at the Study Centre allotted to you before the due date as mentioned below:**

Course Code	Last Date for January 2022 Session	Last Date for July 2022 Session
BNRI-101 and BNRI-102	31 <sup>st</sup> May 2022	31 <sup>st</sup> October 2022
BNRI-103 and BNRI-104	31 <sup>st</sup> July 2022	31 <sup>st</sup> December 2022
BNRI-105, BNRI-106 and BNRI-107	25 <sup>th</sup> September 2022	28 <sup>th</sup> February 2023

Happy Learning! Wish you all good luck for successful completion of the programme.

**School of Agriculture**  
Indira Gandhi National Open University,  
Maidan Garhi, New Delhi-110068, India.

## BNRI-101: FUNDAMENTAL OF WATERSHED MANAGEMENT

Maximum Marks: 50

**Note:** Answer the following questions in about 150 words. All questions carry equal marks.

1. Discuss the need of watershed management programmes in India?
2. Describe the importance of watershed management action plan for all the arable and non-arable land.
3. What are the major components of watershed management? Discuss in detail.
4. Describe the main watershed characteristics.
5. Explain the importance of sharing of common property resources for equitable distribution of benefits.
6. Narrate the need of institutional arrangements at village level and people participation in watershed management.
7. Explain the use of Information Technology (IT) in watershed management projects.
8. Describe the importance of social mobilization in Watershed Management.
9. Discuss about the resource constraints for selection of indicators.
10. What are the low cost and easily adoptable activities in various government programmes? Explain.

## BNRI-102: ELEMENTS OF HYDROLOGY

Maximum Marks: 50

**Note:** Answer the following questions in about 150 words. All questions carry equal marks.

1. Draw a neat sketch of hydrologic cycle and explain it by describing its different components.
2. What is precipitation in relation to hydrology? Describes its different forms..
3. What is rainfall intensity. How it can be classified. Calculate the rainfall intensity for 20 and 120 minutes duration using the following data:

Time, minutes	0	10	20	40	60	120
Cumulative rainfall, mm	0	25	45	60	70	80

4. Explain the velocity area method of runoff measurement.
5. Define head loss due to friction in pipe. Compute the head loss from a 200 m long concrete pipe having 15 cm diameter. Assume the velocity of flow is 90 cm/sec and  $f = 0.0090$ .
6. Define infiltration. Discuss the factors affecting infiltration.
7. Differentiate between the following:
  - a. Effluent and influent streams.
  - b. Field water use efficiency and crop water use efficiency.

8. Compute the discharge from a concrete rectangular channel section with base 25 cm and depth of flow 10 cm using Manning's equation.
9. Discuss in detail the Weighing Bucket Type Rain Gauge.
10. Explain the Isohyetal method of calculation of mean rainfall. Write its limitations also.

### **BNRI-103: SOIL AND WATER CONSERVATION**

**Maximum Marks: 50**

**Note: Answer the following questions in about 150 words. All questions carry equal marks.**

1. Why soil erosion is a major concern for agriculture sector in India, discuss?
2. Explain difference between geological and accelerated erosion.
3. Describe gully erosion. Classify gully based on gully depth and drainage area.
4. Describe Universal Soil Loss Equation.
5. What is a sand dune? Classify sand dunes based on shape, size and drifting forces of wind.
6. Discuss the importance of contour farming and intercropping in control soil erosion?
7. Calculate the design height of contour bund used to store 24 hours excess rainfall of 12 cm. Annual rainfall is about 1100 mm, the soil has high intake rate and the land slope is 3%.
8. What is conservation bench terracing (CBT). Write its main features.
9. What is artificial groundwater recharge? Explain basic concepts and ideal conditions for artificial recharge.
10. What is earth fill dam? Describe its different types.

### **BNRI-104: RAINFED FARMING**

**Maximum Marks: 50**

**Note: Answer the following questions in about 150 words. All questions carry equal marks.**

1. Describe rainfed farming zones in India in relation to water holding capacity?
2. What is weather forecasting? Describe different weather forecasting models.
3. What is irrigation scheduling? List characteristics of irrigation scheduling.
4. Explain different agro-climatic zones of rainfed farming.
5. Define water use efficiency. Describe factors affecting water use efficiency.
6. Discuss about identification of soil health and soil health card..
7. Explain how integrated farming system (IFS) is essential and a viable solution to meet the ever growing demand of food grains and nutrition?
8. What is on-field water conservation, discuss?
9. Discuss about seed production and certification. Write the precautions need to be observed during storage of seeds.

10. Describe border strip irrigation. Write its advantages.

### **BNRI-105: LIVESTOCK AND PASTURE MANAGEMENT**

**Maximum Marks: 50**

**Note: Answer the following questions in about 150 words. All questions carry equal marks.**

1. “Livestock plays a major role in Watershed Management”. Justify the statement in your own words.
2. Describe the care and management of lactating and pregnant cows.
3. Differentiate between conventional barns and loose housing system.
4. Define Artificial Insemination. What are its advantages and disadvantages? List the factors affecting conception rate in cows.
5. Discuss about the different nutritional and metabolic diseases affecting cows.
6. Classify different types of feeds and fodder available for livestock in India based on their nutrient content. Give two examples for each category and sub-category.
7. Give the complete package of practices for any five cultivated fodder crops for increased fodder production.
8. What are the advantages of processing animal feed? Explain the common feed processing techniques practiced in India.
9. Explain the process of preparation of Silage.
10. List the type of grazing. Explain any one activity in detail.

### **BNRI-106: HORTICULTURE AND AGRO-FORESTRY SYSTEM**

**Maximum Marks: 50**

**Note: Answer the following questions in about 150 words. All questions carry equal marks.**

1. What is agro-forestry? Write its importance and scope.
2. Discuss the economical and environmental benefits of agro-forestry.
3. What is pruning and training? Explain the importance of its need in horticultural crops.
4. Explain the low cost and low energy greenhouse.
5. Discuss about different insect pests and diseases affecting cabbage and cauliflower crops.
6. Explain the process of preparation of Jam.
7. Discuss in detail the problems in Jelly preparation.
8. Write short notes on the following:
  - a. Hedgerow System
  - b. Staking
  - c. Drying

- d. Pasteurization
  - e. Packaging of fruits and vegetables
9. Discuss the importance of co-operative marketing in the horticulture sector.
  10. Describe the importance and objective of agricultural marketing.

## **BNRI-107: FUNDING, MONITORING, EVALUATION AND CAPACITY BUILDING**

**Maximum Marks: 50**

**Note: Answer the following questions in about 150 words. All questions carry equal marks.**

1. Explain the role and functions of agencies involved at project level for implementation of watershed projects.
2. Describe the important national and international funding agencies of watershed projects in India.
3. Discuss the importance of social auditing and transparency in watershed programmes.
4. Explain the relevance of micro-finance in watershed programmes.
5. Define monitoring and write its importance in watershed programmes.
6. Describe the need of impact assessment in watershed programme. Write its advantages and limitations.
7. Explain the various aspects covered in capacity building programmes for watershed development team.
8. Discuss the role of extension education in watershed programmes.
9. Explain communication process. Write different key factors in communication process.
10. Discuss about various audio-visuals aids which can be used in watershed extension work.