

DWM

ASSIGNMENT BOOKLET
for
Academic Year 2016

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. However, extra reading is not a must to answer these assignments.



School of Agriculture
Indira Gandhi National Open University
New Delhi -110068
2016

Dear learner,

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

As you are aware, 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 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. Each candidate will have to complete assignments as per the schedule in order to appear in TEE. Therefore, you are advised to take assignments seriously and submit them in time. Instructions to format your assignments are as follows:

Instructions to format your assignments

Before attempting the assignments, please read the following instructions carefully:

1. On top of the first page of your answer sheet, please write the details exactly in the following format.

Enrollment no:.....
Name:.....
Address:.....
.....
.....

Course Code:..... Course
Title:.....
Study Centre:..... Date:.....
(Name and Code)

Please follow the above format strictly to facilitate evaluation and to avoid delay.

2. Use foolscap size paper for writing your answers.
3. Leave 4 cm margin on the top, bottom and left of your answer sheet.
4. Students are advised to give the relevant points from the course material and elaborate their answers and explain in their own language instead of reproducing the language of the course materials.
4. Clearly indicate question no. and part of the question being solved while writing answers.
5. **The Assignments should be sent or submitted to the Programme In-charge (PIC) of the Study Centre allotted to you.**
6. **We strongly suggest that you should retain a copy of your assignment responses.**

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

Note: Minimum 50% marks in Continuous Assessment i.e., each assignment in each course is required for completion of a course for DWM programme.

Programme Coordinator (DWM)
School of Agriculture
Indira Gandhi National Open University,
Maidan Garhi, New Delhi-110068, India.

Course Code: BNRI-101
Course Title: Fundamentals of Watershed Management

Last date for submission: 15th October, 2016
Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

1. What is watershed management, describe its concept and principles?
2. Discuss in detail how watersheds are defined on the basis of area?
3. What is project implementation agency and explain its important functions.
4. What is Participatory Rural Appraisal? Describe the important points of PRA exercise.
5. Explain institutional arrangement of watershed projects in the India with the help of a flow diagram.
6. Define Integrated Watershed Management and why is it crucial for overall socio-economic development of the rainfed areas?
7. Describe the important activities undertaken during works phase of the watershed projects.
8. What is GIS and explain its role in planning of watershed development programmes?
9. How sharing of common property resources are important for equitable distribution of resources?
10. Describe the roles of NGO's in watershed projects.

Course Code: BNRI-102
Course Title: Elements of Hydrology

Last date for submission: 31st October, 2016
Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

1. Define precipitation and describe its different forms.
2. Discuss the importance of rainfall intensity-duration-frequency relationship in water resource projects?
3. What is runoff? Describe the different factors affecting it.
4. What is water budget? Explain water balance equation along different terms.
5. Determine peak runoff rate for a 10 years of recurrence interval from a micro-watershed comprises of 70 ha area. Watershed is divided into three parts, based on its land use and soil texture. First part of 30 ha with 1% slope is under cultivation (C=0.50), second part 25 ha with 12% slope under farm forestry (C=0.50) and third part 15 ha with 7% slope under pasture (C=0.36). The maximum length of

flow is 3000 m to the outlet. The average slope of channel is 5%. Assume rainfall intensity for a period equal to the time of concentration $T_c = 30.15$ minutes.

6. Differentiate between infiltration and percolation. How would you measure the infiltration and evaporation?
7. Discuss about head loss due to friction in a 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.
8. What is lining material and how it is important in controlling the seepage losses in open channel?
9. Discuss the advantages of recording type rain gauge over non recording rain gauge.
10. Explain the Thiessen polygons method of mean rainfall measurement. Describe their limitations also.

Course Code: BNRI-103
Course Title: Soil and Water Conservation

Last date for submission: 15th November, 2016
Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

1. What is soil erosion? Explain why accelerated erosion is more harmful as compared to geological erosion?
2. Describe universal soil loss equation (USLE) and define its various terms.
3. Discuss in detail how surface roughness and vegetative cover affect wind erosion.
4. What is earth fill dam? Describe different types of earth fill dam.
5. Differentiate between continuous contour trenches (CCT) and staggered contour trenches (SCT).
6. Differentiate between permanent structures and temporary structures. Enumerate the advantages of permanent structures over temporary structures.
7. What is drop spillway? Discuss its advantages and disadvantages.
8. Calculate the annual soil loss in tones per ha using universal soil loss equation from a watershed with the following details:
Rainfall erosivity factor =800;
Soil erodibility factor = 0.20;
Crop management factor = 0.50;
Conservation practice factor = 1.0; and
Topographical factor = 0.2.
9. Describe how will you determine the storage capacity of a water storage? Roof top area of a society building is 1500 m² located in Hissar receiving average annual rainfall 420 mm. Calculate the volume of rainwater harvested from the rooftop if roof is made of concrete (runoff coefficient 0.8).

10. What is groundwater recharge? List the important points need to be observed for ensuring efficient artificial recharge structures.

Course Code: BNRI-104
Course Title: Rainfed Farming

Last date for submission: 30th November, 2016
Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

1. What are the detrimental effects of unfavourable weather conditions on rainfed farming?
2. Describe in brief the major soil types of dry areas in India.
3. Define the farming system. What are the different components of integrated farming systems?
4. Describe the importance of crop planning for improving land use efficiency.
5. What is bio-fertilizers and describe its advantages.
6. Write important agronomic techniques play a significant role in improving and sustaining crop productivity in rainfed areas.
7. What is green manuring and discuss its different types?
8. Describe the concept of sequential cropping. How it is helpful in rainfed farming.
9. What is crop diversification? Discuss important advantages of crop diversification.
10. Explain drip irrigation method. Discuss the advantages and disadvantages of drip irrigation.

Course Code: BNRI-105
Course Title: Livestock and Pasture Management

Last date for submission: 15th December 2016
Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

- 1) Explain in your own words how livestock plays a major role in watershed management.
- 2) Define the following terms:
 - a. Dry period
 - b. Breed
 - c. Crossbreeding

- d. Parturition
 - e. Concentrate
- 3) Describe the care and management of lactating cow.
 - 4) What are the physical and behavioural signs exhibited by a cow in oestrus/heat? Describe the different methods of detection of oestrus/heat.
 - 5) What are the different changes noticed when an animal is sick?
 - 6) Give the species affected and signs/symptoms for the following diseases:
 - a. Anthrax
 - b. Coccidiosis
 - c. idiosis
 - d. Actinomycosis
 - e. Blue tongue
 - f. Ketosis
 - 7) a. Differentiate between Concentrates and Roughages.
b. Describe the feeding of piglets.
 - 8) Discuss about the extensive rainfed system of cultivation of fodder.
 - 9) Identify the different methods of conserving green fodder? Describe any one method in detail.
 - 10) What are the different types of grazing system which can be practiced? Explain any one in detail.

Course Code: BNRI-106

Course Title: Horticulture and Agroforestry System

Last date for submission: 31st December, 2016

Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words. 5 x 10=50

1. Differentiate between agroforestry systems and horticultural practices.
2. What is the purpose of survey and documentation of agroforestry practices, explain.
3. Describe the participatory rural appraisal (PRA) for choice of species and need in agroforestry.
4. Explain the importance of nursery. Classify nursery on the basis of size and business.
5. What is a naturally ventilated greenhouse? Give examples with a sketch.
6. Identify three important irrigation management practices for fruit trees.
7. What are the different methods of drying used for fruits and vegetables?

8. Differentiate between medicinal and aromatic plants. Give examples of both with five plant species each.
9. What are the different factors influencing marketing of fruits and vegetables?
10. What are the different factors affecting storage life of the food?

Course Code: BNRI-107

Course Title: Funding, Monitoring Evaluation and Capacity Building

Last Date for submission: 30th January, 2017

Maximum Marks: 50

All questions are compulsory and carry equal marks. Write your answer in about 200 words.

5 x 10=50

1. What is Panchayati Raj Institutions? Explain its role at District and Intermediate Levels in watershed development projects in India.
2. Discuss in detail the maintenance of records and accounts.
3. Explain the procedure for release of instalments for watershed development projects in detail.
4. Discuss in detail about monitoring of watershed projects at various levels.
5. What is the need for evaluation in watershed projects?
6. What is microfinance? Describe its concept and importance.
7. Describe the importance and need of human resource development with respect to the watershed programmes.
8. Explain the nature and scope of extension education.
9. Describe the key factors and elements of communication process.
10. Describe the various steps in extension education process with the help of neat diagram.