

SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur– 603 203

DEPARTMENT OF AGRICULTURE ENGINEERING

QUESTION BANK



VII SEMESTER

1902801 WATERSHED MANAGEMENT

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Prepared by

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SUBJECT: WATERSHED MANAGEMENT

SEM / YEAR: 08 /IV

UNIT-I: INTRODUCTION

Watershed – Definition - concept - Objectives – Land capability classification - priority watersheds- land resource regions in India.

PART - A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Identify the land resources in India.	BT-1	Remember
2	What are the objectives of watershed?	BT-1	Remember
3	Can you list out the steps involved in watershed planning?	BT-2	Understanding
4	Classify land capability classes.	BT-2	Understanding
	What do you mean by watershed?	BT-1	Remember
5	Give some examples of watershed management activities.	BT-1	Remember
6	Draw a neat sketch of typical watershed.	BT-1	Remember
7	Write short notes on stream order.	BT-2	Understanding
8	Differentiate closed and open drainage basins.	BT-2	Understanding
9	Why do we need to manage watersheds?	BT-2	Understanding
10	Write the various principles of watershed management.	BT-2	Understanding
11	What is watershed based land use planning?	BT-1	Remember
12	What are the watershed characteristics physical and geomorphologic?	BT-1	Remember
13	Categorize the factors affecting watershed management.	BT-2	Understanding
14	State the term land capability.	BT-1	Remember
15	Write the significance of land capability classification.	BT-1	Remember
16	Give the applications of LCC.	BT-2	Understanding
17	List out the main classes of LCC.	BT-1	Remember
18	What are the sub classes of LCC and its importance?	BT-1	Remember
19	Brief climatic limitations.	BT-2	Understanding
20	Enumerate wetness limitations.	BT-2	Understanding
21	Express the limits of past erosion.	BT-1	Remember
22	Interpret the concepts of priority watershed.	BT-2	Understanding

23	Summarize the benefits of watershed prioritization.	BT-2	Understanding
24	Denote the erodibility index formula for sub-watersheds.	BT-1	Remember
25	What are the watershed characteristics physical and geomorphologic?	BT-2	Understanding

PART - B

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Describe different watershed management practices.	BT-3	Applying
2	Explain various watershed parameters.	BT-4	Analyzing
3	What do you mean by watershed delineation? Explain in detail.	BT-3	Applying
4	Brief LCC classes, significance and applications.	BT-3	Applying
5	Illustrate the factors influencing LCC.	BT-4	Analysing
6	How will you identify LCC class?	BT-3	Applying
7	Categorize Arid and Semiarid, Stony, Wet, Saline-Sodic and Overflow Soils based on LCC.	BT-3	Applying
8	Demonstrate Sediment Yield Index Model.	BT-3	Applying
9	Analyse Runoff Potential Index Model.	BT-4	Analyzing
10	Classify and explain land resources in India.	BT-3	Applying
11	Categorize land use pattern in India.	BT-4	Analyzing
12	Brief about Indian cultivable land areas.	BT-4	Analyzing
13	Criticize the factors that influences land-use.	BT-4	Analyzing
14	Explain Agricultural land use category.	BT-3	Applying
15	Detail cropping seasons in India.	BT-4	Analyzing
16	Describe distribution of land according to problems.	BT-4	Analyzing
17	Brief about 'Operation Barga'.	BT-3	Applying

PART - C

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Discuss the various land capability classification.	BT-4	Analyzing
2	Examine the principles of watershed management.	BT-4	Analyzing
3	Explain LCC sub-classes in detail.	BT-3	Application
4	Categorize the methods of watershed prioritization.	BT-4	Analyzing
5	Criticize land resources utilization in India.	BT-4	Analyzing

UNIT-II: WATERSHED PLANNING

Planning principles – collection of data – present land use - Preparation of watershed development plan – Estimation of costs and benefits – Financial plan – selection of implementation agency – Monitoring and evaluation system.

PART - A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Can you state the importance of watershed planning?	BT-1	Remember
2	What are the influencing factors of watershed planning?	BT-2	Understanding
3	State the basic principles of WP.	BT-1	Remember
4	Identify alternate ways to implement WP strategy.	BT-2	Understanding
5	Appraise WP strategy alternatives.	BT-1	Remember
6	How will you assess wetlands?	BT-1	Remember
7	List out socio - political data.	BT-1	Remember
8	Write short notes on habitat.	BT-1	Remember
9	What are the biological data?	BT-2	Understanding
10	Give the importance of floodplains.	BT-2	Understanding
11	Draw a neat sketch of data group for WP.	BT-1	Remember
12	Categorize the different phases of WP.	BT-1	Remember
13	How will recognize watershed problems?	BT-2	Understanding
14	Illustrate future requirements of WP.	BT-2	Understanding
15	Where will you consider sediment damage?	BT-2	Understanding
16	Brief about environmental benefits of WP.	BT-2	Understanding
17	Write any four objectives of WP.	BT-1	Remember
18	State the principles of cost-benefit analysis.	BT 1	Remember
19	How much will be the worth of irrigation benefit of Rs.5000 in 15 years at the interest rate of 12%?	BT-2	Understanding
20	Comprise cost - benefit analysis of WP.	BT-2	Understanding
21	What is the role of implementing agency?	BT-2	Understanding
22	Who are the beneficiaries of watershed management?	BT-1	Remember
23	Express the purpose of watershed monitoring program.	BT-2	Understanding
24	Demonstrate the scope of watershed program evaluation.	BT-2	Understanding
25	Write the expression for single payment compound amount factor.	BT-2	Understanding

PART - B

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Detail the steps for Watershed Planning (WP) process.	BT-3	Applying
2	Evaluate opportunities of WP.	BT-3	Applying
3	Describe about sources of information for WP.	BT-3	Applying
4	Subdivide sources of information for WP.	BT-4	Analysing
5	Summarize environmental and ecosystem data.	BT-3	Applying
6	What are the silviculture sources? Explain it.	BT-4	Analysing
7	Criticize various pollution sources.	BT-4	Analysing

8	Brief about land use and land cover data.	BT-3	Applying
9	Write short note on objectives of WP.	BT-4	Analysing
10	Detail the benefits of WP.	BT-3	Applying
11	Inculcate developing steps for WP.	BT-3	Applying
12	Discuss various discounting techniques.	BT-3	Applying
13	Explain about cashflow.	BT-4	Analysing
14	Summarize cost - benefit analysis of WP.	BT-4	Analysing
15	Categorize scheduled and unscheduled WP.	BT-4	Analysing
16	Analyse monitoring tools.	BT-4	Analysing
17	Elaborate the stages of WP evaluation.	BT-4	Analysing

PART - C

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Identify the data required for watershed planning.	BT-3	Applying
2	Detail about hydrologic data.	BT-4	Analysing
3	Examine the objectives and benefits of watershed planning.	BT-4	Analysing
4	How will you formulate watershed program?	BT-3	Applying
5	Investigate the time and money concept in WP.	BT-4	Analysing

UNIT-III: WATERSHED MANAGEMENT

Participatory watershed Management - run off management - Factors affecting runoff - Temporary & Permanent gully control measures - Water conservation practices in irrigated lands - Soil and moisture conservation practices in dry lands.

PART - A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Explain precipitation characteristics.	BT-2	Understanding
2	Categorize modes of participation.	BT-2	Understanding
3	State basic principles of PRA.	BT-1	Remember
4	Write the fundamentals of PRA.	BT-2	Understanding
5	Draw typical Venn diagram of PRA.	BT-1	Remember
6	Brief about women's participation in PRA.	BT-2	Understanding
7	Give the importance of Ranking Matrix.	BT-2	Understanding
8	List out the different tools of PRA.	BT-2	Understanding
9	Define Direct Runoff.	BT-1	Remember
10	What are the various components of runoff?	BT-1	Remember
11	State the term base flow.	BT-1	Remember
12	What do you understand about Participatory rural appraisal (PRA)?	BT-1	Remember
13	Differentiate Fan and Leaf shaped catchment.	BT-2	Understanding
14	Write any 5 measures for runoff management.	BT-2	Understanding
15	How gullies are developed?	BT-2	Understanding
16	Classify gullies.	BT-1	Remember
17	States the principle of Gully control.	BT-1	Remember
18	List out the types of gully control measures.	BT-1	Remember
19	What are the engineering gully control measures?	BT-2	Understanding
20	Describe the four stages of gully development.	BT-1	Remember
21	Name various irrigation technologies used for conservation.	BT-1	Remember
22	How evaporation loss in dry land can be controlled?	BT-2	Understanding
23	What do you understand by anti transpirants?	BT-1	Remember
24	Describe the term Film forming.	BT-1	Remember
25	Write the role of growth retardant.	BT-2	Understanding

PART - B

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Detail Fundamentals of Participatory Rural Appraisal.	BT-3	Applying
2	Summarize various approaches of PRA.	BT-4	Analysing
3	Brief any five tools in Participatory Rural Appraisal.	BT-3	Applying
4	Explain the myths of PRA techniques.	BT-4	Analysing
5	Express the factors to be considered to make Effective Linkage between People and Policy Makers in Watershed Management.	BT-4	Analysing
6	Describe any 5 modes of participation.	BT-3	Applying
7	Detail runoff components with neat sketch.		

		BT-3	Applying
8	Detail different types of gullies.	BT-3	Applying
9	How the runoff can be controlled in gully?	BT-3	Applying
10	Detail different types of TGCS.	BT-3	Applying
11	Design the notch dimensions of a wooden slab dam to carry a peak flow of 0.6 m ³ /sec. The notch has rectangular opening. Width of gully channel is 2.5 m.	BT-3	Applying
12	Detail salient features and planning of PGCS.	BT-3	Applying
13	Investigate the design procedure of PGCS.	BT-4	Analysing
14	Explain drop spillway components and functions.	BT-3	Applying
15	Elaborate irrigation technologies to conserve water.	BT-4	Analysing
16	Describe different types of mulches.	BT-3	Applying
17	How will you reduce transpiration loss? Explain it.	BT-3	Applying

PART - C

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Identify the various modes of participation.	BT-3	Applying
2	Elaborate Assumptions and approaches made in PRA.	BT-4	Analysing
3	Detail the factors that are affecting runoff.	BT-3	Applying
4	Explain various measures to be taken to manage runoff.	BT-4	Analysing
5	Categorize various vegetative measures of gully control.	BT-5	Evaluating

UNIT-IV: WATER CONSERVATION PRACTICES

In-situ & Ex-situ moisture conservation principle and practices - Afforestation principle - Micro catchment water harvesting - Ground water recharge – percolation ponds -Water harvesting - Farm pond - Supplemental irrigation - Evaporation suppression - Seepage reduction.

PART - A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	What is mean by in situ moisture conservation?	BT-1	Remember
2	What is Ex situ moisture conservation?	BT-1	Remember
3	List out the in-situ moisture conservation techniques.	BT-1	Remember
4	Draw micro catchment.	BT-1	Remember
5	Write the functions of micro catchment.	BT-2	Understanding
6	Infer the advantages of Ex situ moisture conservation.	BT-2	Understanding
7	State the principles of Ex situ moisture conservation.	BT-1	Remember
8	What are the conventional methods of ex-situ conservation?	BT-2	Understanding
9	What is afforestation and its purpose?	BT-1	Remember
10	What are the types of afforestation?	BT-2	Understanding
11	What are the five main causes of afforestation?	BT-2	Understanding
12	Why ground water recharge is needed?	BT-2	Understanding
13	What is water harvesting?	BT-1	Remember
14	Brief about macro catchment water harvesting.	BT-2	Understanding
15	How runoff can be differentiated from flood water harvesting?	BT-2	Understanding
16	State the term farm pond.	BT-1	Remember
17	Write the types of farm ponds.	BT-2	Understanding
18	What are the various components of farm pond?	BT-1	Remember
19	How can the volume of a farm pond be assessed?	BT-2	Understanding
20	Explain the term Spate Irrigation.	BT-1	Remember
21	List out the benefits of groundwater recharge.	BT-1	Remember
22	Define Supplemental irrigation.	BT-1	Remember
23	List out the merits of percolation pond.	BT-1	Remember
24	What do you understand about evaporation suppression?	BT-1	Remember
25	How will you control seepage?	BT-2	Understanding

PART - B

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Examine soil condition and bunding options for in situ moisture conservation.	BT-4	Analysing
2	Investigate the importance of water harvesting technique.	BT-4	Analysing
3	Describe different types of water harvesting with neat sketch	BT-3	Applying
4	Detail long term runoff harvesting structures.	BT-3	Applying
5	Brief about flood water harvesting methods.	BT-2	Understanding
6	Elaborate groundwater harvesting and its types.	BT-2	Understanding
7	Detail different types of farm pond.	BT-4	Analysing
8	With a neat sketch, explain about the dugout pond.	BT-3	Applying
9	Write optimization procedure for different farm pond dimensions.	BT-3	Applying
10	Categorize conventional methods of ex-situ conservation.	BT-4	Analysing
11	Describe the impacts of afforestation.	BT-3	Applying
12	Discuss micro catchment water harvesting methods.	BT-4	Analysing
13	Detail artificial recharge techniques.	BT-3	Applying
14	Explain about percolation pond and its suitability.	BT-4	Analysing
15	Brief about seepage control methods by dam.	BT-4	Analysing
16	How will you control seepage by foundation methods?	BT-3	Applying
17	Develop short notes on supplemental irrigation.	BT-3	Applying

PART - C

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Examine Ex situ moisture conservation techniques.	BT-4	Analysing
2	Demonstrate various water harvesting techniques.	BT-3	Applying
3	Explain design procedure of farm pond in detail.	BT-5	Evaluating
4	Discuss various groundwater recharge methods.	BT-3	Applying
5	Develop various methods to control seepage.	BT-3	Applying

UNIT-V: WATERSHED DEVELOPMENT PROGRAMME

River Valley Project (RVP) - Hill Area Development Programme (HADP) - National Watershed Development Programme for Rainfed Agriculture (NWDPA) - Other similar projects operated in India – Govt. of India guidelines on watershed development programme - Watershed based rural development – infrastructure development - Use of Aerial photography and Remote sensing in watershed management - Role of NGOs in watershed development

PART - A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	List out various details required by River Valley Project (RVP).	BT-1	Remember
2	Why do we need RVP?	BT-2	Understanding
3	State the objectives of HADP.	BT-1	Remember
4	What are the components of HADP?	BT-1	Remember
5	List out the objectives of NWDPA.	BT-2	Understanding
6	Brief the components of NWDPA.	BT-2	Understanding
7	Describe the principles of NWDPA.	BT-1	Remember
8	Write the benefits of NWDPA.	BT-2	Understanding
9	State the criteria to select watershed project.	BT-1	Remember
10	Brief about size of watershed.	BT-2	Understanding
11	Write short notes on WARASA.	BT-2	Understanding
12	Explain WARASA guidelines.	BT-2	Understanding
13	Give examples of various watershed development programme.	BT-2	Understanding
14	Brief the term geomatics.	BT-1	Remember
15	How are WSP guidelines classified?	BT-2	Understanding
16	State any 5 principles of watershed programme guidelines.	BT-1	Remember
17	Write any 2 functions of DWDU.	BT-2	Understanding
18	In which manner VO can become PIA?	BT-1	Remember
19	List out various watershed attributes.	BT-2	Understanding
20	Brief about soil attribute and its relevance.	BT-2	Understanding
21	Give outline about watershed code with example.	BT-2	Understanding
22	Define Geomorphology.	BT-1	Remember
23	Write the modules of Geomorphology.	BT-2	Understanding
24	Name any five NGO's working for water conservation in India.	BT-2	Understanding
25	What is the importance of NGO in WDP?	BT-2	Understanding

PART - B

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Tabulate various RVP with state and features.	BT-3	Applying
2	Examine the problems that will occur in HADP.	BT-4	Analysing
3	Describe technology management aspects for development of resources.	BT-3	Applying
4	Give inference on NWDPA implementing agency.	BT-4	Analysing
5	Identify HADP and NWDPA.	BT-3	Applying

6	Describe various remote sensing attributes and its role in watershed management.	BT-3	Applying
7	Describe the role of National Rainfed Area Authority.	BT-3	Applying
8	How institutional arrangements takes place at ministry level.	BT-3	Applying
9	What are the functions of District Watershed Development Unit?	BT-4	Analysing
10	Detail the criteria of Voluntary Organization to be selected as Project Implementing Agency.	BT-4	Analysing
11	Brief about watershed committee,	BT-3	Applying
12	Write the roles and responsibilities of Watershed Development Team.	BT-4	Analysing
13	Explain watershed demarcation and watershed codification.	BT-4	Analysing
14	Summarize impact analysis of RS and GIS with Umagani Watershed.	BT-4	Analysing
15	Elaborate the role of NGO in watershed management.	BT-4	Analysing
16	Explain role of NGO in WDP with case study.	BT-4	Analysing
17	Demonstrate development programmes impact on watershed with example.	BT-3	Applying

PART - C

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1	Discuss the purposes of River Valley Project in detail.	BT-4	Analysing
2	Elaborate Hill Area Development Programme.	BT-3	Applying
3	Detail WARSA guidelines.	BT-3	Applying
4	Brief about various watershed development programme in India.	BT-3	Applying
5	Explain the applications of geospatial technologies in water resources management?	BT-4	Analysing