Code No: **R42015** **R10** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

WATER SHED MANAGEMENT

(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Briefly explain the concept and principles of watershed management system. [8]

b) What is integrated watershed management approach? Explain its different objectives. [7]

2 a) Write short notes on the following:
i) Physiographic characteristics of watershed ii) Climatic characteristics of watershed [8]

b) What are the important characteristics need to be identified for management and planning of watershed? [7]

3 a) Briefly explain the classification of soil erosion. [7]

b) Discuss the factors affecting and its causes of soil erosion. [8]

4 a) Discuss in detail about Erosion control methods: contour techniques, furrowing, ploughing, rock fill dams. [7]

b) Write a note on history and evolution of watershed modeling. Mention different models that are being developed. [8]

5 a) What is rain water harvesting? Briefly Explain with case study in detail. [8]

b) Explain with sketches how water in a watershed harvested by adopting engineering techniques. [7]

6 a) Define Land use and Land capability? How land capability is classified and what are the different objectives of Land capability classification? [8]

b) What do you understand by biological or vegetative measures in a watershed? Describe two such important measures. [7]

7 a) How sedimentation in river of watershed takes place. How the sediment affects the reservoir life? [7]

b) What is the need of management of natural drainages of watershed? Explain with sketches the function of check dam in the watershed management [8]

8 a) Discuss the role of social aspects of watershed management. [7]

b) Explain the role of administrative requirements in watershed management. [8]

Code No: **R42015** **R10** **Set No. 2**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

WATER SHED MANAGEMENT

(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
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1	a)	Explain briefly evaluation of watershed development in India.	[8]
	b)	What is watershed management? Do you think it can play an important role in sustainable development? Discuss.	[7]
2	a)	Write short notes on the following: i)Effect of watershed on the community ii) Water resources regions of India	[8]
	b)	What are the methods adopted for geometric representation of watersheds and Explain?	[7]
3	a)	Differentiate between geologic erosion and accelerated erosion.	[8]
	b)	Explain Universal Soil Loss Equations (USLE) with each parameter.	[7]
4	a)	Write short note on methods to control soil erosion: i) Brushwood dam ii) Gabion iii) gully control iv) terracing	[8]
	b)	Discuss about the significance of watershed models? Explain about its field applications.	[7]
5	a)	Explain minimum three techniques of indigenous water harvesting in India?	[8]
	b)	Describe with proper illustrations the different methods for the storage of water in the soil?	[7]
6	a)	What is the need of management of natural drainages of watershed? Explain with sketches the function of check dam in the watershed management.	[8]
	b)	Explain the agri-horticulture cropping patterns and afforestation.	[7]
7	a)	Discuss the framework for watershed impact analysis.	[7]
	b)	Explain the functions and design principles of grassed waterway.	[8]
8	a)	Explain about the scope of research on watershed management.	[8]
	b)	Discuss about the selection and strategy of watershed village.	[7]

Code No: **R42015** **R10** **Set No. 3**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

WATER SHED MANAGEMENT

(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Discuss in detail Implementing watershed management practices in India. [8]

b) Briefly explain about the criteria's involved in watershed development activities? [7]

2 a) Write short notes on the following:
i) Geomorphologic Characteristics of watershed
ii) Socio-economic characteristics of watershed. [8]

b) Explain in detail watershed development stages. [7]

3 a) In a watershed of 100 ha having a slope range of 2 to 7%, the soil loss rate is required to be kept at 60.0 t/ha per year. Suggest the method of conservation practices for the area based on the following data that are available for the area. R=6000 t-m/ha x mm/hr per year; K=1.2 t/ha/R; C=0.5 and LS=0.3. [7]

b) Discuss in details about Universal soil loss equations and its factors. [8]

4 a) Write in detail Social aspects of watershed management, community participation, and integrated development. [8]

b) Write a note on farm ponds or dugout pond. Explain with sketches. [7]

5 a) Discuss the soil water relationship and optimum moisture content in soil for crop growth. [7]

b) What do you understand by mechanical measures taken in the crop field of a watershed? [8]

6 a) Discuss in details about the Revised Universal Soil Loss Equations and its factors. [7]

b) What are the different types of run-off? Explain the factors that affect the run-off in a watershed. [8]

7 a) Write short notes on the following:
i) Effect of watershed on the community ii) Water resources regions of India. [8]

b) Discuss about the role of ecosystem and bio-mass management. [7]

8 a) What is a watershed action plan and Why should we develop a watershed plan? [8]

b) Why does the plan need to be locally based? Who should participate in watershed planning? [7]

Code No: **R42015** **R10** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

WATER SHED MANAGEMENT

(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1 a) Discuss about the selection and strategy of watershed village. [7]
b) Discuss about the integrated multi-disciplinary watershed management approach. [8]

2 a) Discuss in detail problems associated with watersheds. [7]
b) What are the solutions associated with watershed management? [8]

3 a) In a watershed, the expected one-hour rainfall intensity is 12 cm, the watershed area is 75 ha, of which 50ha is pasture on 7% slope and 25ha is Cultivated on 3% slope and the length of run is 1000m on a 5%slope. Determine the peak runoff rate for 20 year recurrence interval, when the type of soil for cultivated crops is silt clay and for pasture it is clay and silt loam. The value of C for the respective soils for cultivated crops on 3% slope is 0.5 and for pasture land on 7% slope is 0.36. The velocity of flow is 1.5 m/s? [8]
b) Briefly explain about geologic and accelerated erosion of soil and bring out their basic occurrence. [7]

4 a) Write short notes on the following:
i) crop reside ii) mulching iii) Mixed cropping iv) Alley cropping [8]
b) How sedimentation in river of watershed takes place. How the sediment affects the reservoir life? [7]

5 a) What is the need for water harvesting in the watershed? How do you harvest rainwater from rooftop? Explain with sketch. [8]
b) What do you understand by cropping pattern? Explain double cropping and mono cropping. [7]

6 a) What are the factors affecting evaporation and evapotranspiration? Write different types methods to measure. [8]
b) Write a note on history and evolution of watershed modeling. Mention different models that are being developed. [7]

7 a) What do you understand by cropping pattern? Explain double cropping and mono cropping. [8]
b) Briefly explain about monitoring and evaluation of a project. [7]

8 a) What are the major sources of impairment and threats? [7]
b) Discuss how the Implementation of Action Plan on watershed and Mention the components of plan. [8]