

Code No: 07A80104

**R07**

**Set No. 2**

**IV B.Tech II Semester Examinations, APRIL 2011**  
**WATER SHED MANAGEMENT**  
**Civil Engineering**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. What is the need for watershed development in India. Explain the activities that are under taken for watershed development after independence in India. [16]
2. What is terracing? Explain bench terraces in detail. [16]
3. Explain various direct protection works for controlling stream bank erosions. [16]
4. What is social forestry? What are its objectives? What are the constraints faced in achieving them. Explain in detail. [16]
5. Explain management strategies to reduce soil erosion. [16]
6. Write a short notes on the following:
  - (a) Fencing
  - (b) Bush clearance
  - (c) Levelling, Shaping and consolidation
  - (d) Uprooting. [16]
7. Explain how the following parameters will influence watershed development and management:
  - (a) Water quality, use and problems
  - (b) Erosion conditions along streams
  - (c) Income generation activities associated with watershed management. [16]
8. Explain the relevance of the development and effective utilization of agro Industrial infrastructure in watershed management. [16]

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**R07****Set No. 4**

**IV B.Tech II Semester Examinations, APRIL 2011**  
**WATER SHED MANAGEMENT**  
**Civil Engineering**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Explain the following types of erosion with suitable example:
  - (a) Slip erosion
  - (b) Wind erosion
  - (c) Gully erosion
  - (d) Stream bank erosion. [16]
2. (a) Explain the terms
  - i. Land survey
  - ii. Preparation of layout.
 (b) What are the various steps involved in land preparation? Explain in Brief. [8+8]
3. Write a detailed note on the following:
  - (a) Future of watershed management.
  - (b) Economic viability of watershed management. [16]
4. What are pastures and silvipastures? Explain in detail, bringing out the differences. [16]
5. What are harvesting structures? Where are they constructed? Explain the design of a farm pond in detail. [16]
6. Explain the following watershed parameters:
  - (a) Shape factor
  - (b) Circularity ratio
  - (c) Elongation ratio. [16]
7. Check for compression, check for tension and check against piping for a drop structure. Design a drop structure for gully control for the following conditions:
 

$Q = 3 \text{ m}^3/\text{sec}$   
 $H = 2 \text{ m}$   
 width available at site = 2.5m  
 unit wt of brick masonry =  $1900 \text{ kg/m}^3$   
 Angle of internal friction of soil =  $25^\circ$   
 Cohesion resistance of the soil =  $500 \text{ Kg/m}^2$   
 Foundation material is firm clay with  $C_u = 2.3$ . [16]

Code No: 07A80104

R07

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8. Explain how GIS will help us for better integrated management and development of a watershed. [16]

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FIRSTRANKER

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R07

Set No. 1

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WATER SHED MANAGEMENT  
Civil Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. Explain the classification of watershed management. [16]
2. Explain various factors affecting erosion in detail. [16]
3. What are the different factors involved in greening of the watershed? Explain in detail. [16]
4. What are the various means of recharge of groundwater? How can artificial recharge be practised? Explain. [16]
5. Explain the following measures to control erosion along with its advantages and disadvantages:
  - (a) Brushwood dam
  - (b) Ploughing and furrowing. [16]
6. What is "transfer of technology"? What is its importance? Explain with an example. [16]
7. Explain the management of forest and agricultural land. [16]
8. Explain how the following parameters will influence watershed development and management:
  - (a) Soil characteristics
  - (b) Channel Geomorphology
  - (c) Elevation, slope and aspect. [16]

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**R07****Set No. 3**

**IV B.Tech II Semester Examinations, APRIL 2011**  
**WATER SHED MANAGEMENT**  
**Civil Engineering**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Explain the following characteristics of a watershed:  
 (a) Geology  
 (b) soils  
 (c) hydrology. [16]
2. Explain characteristics of raindrops and its impact as soil erosion. [16]
3. Explain the term Rainwater harvesting. What are rainwater harvesting practices? Explain them in detail. [16]
4. Explain in detail, the following as a part of planning of watershed management related to preparation of master plan.  
 (a) Technical reports  
 (b) Maps by using remote sensing. [16]
5. Where are the saline soils widespread? What are the reclamation measures for these soils? explain in detail. [16]
6. (a) Explain ethics of watershed development and management.  
 (b) Explain consequences of watershed deterioration. [8+8]
7. What is horticulture? What are the aspects requiring attention in horticulture practices? Explain. [16]
8. Design a chute structure for gully head control for the following conditions:  
 Drop = 2 m,  
 slope of waterway = 1.5 : 1  
 width of waterway = 1.2 m  
 main water level in inlet = 0.5 m  
 Use concrete for construction  
 Density of concrete = 2300 Kg/m<sup>3</sup>  
 Peak flow = 0.70 cum/sec. SAF outlet is to be used. [16]

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