A **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: UA301

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

Professional Elective

Agricultural Engineering

21AGV301– WATERSHED PLANNING AND MANAGEMENT

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Dimension of relief is CO1-U

   (a) L^{-1} (b) L (c) L^{-2} (d) L^{-3}

2. A watershed is defined as CO1-U

   a) An area draining into a common point b) An area that stores groundwater only

   c) A region between two rivers d) A plain area with no slope

3. Check dam can be _____structure CO2-U

   (a) Temporary (b) Permanent (c) Spillway (d) Both (a) & (b)

4. The main objective of watershed planning is: CO1-U

   a) Increase crop yield b) Prevent soil erosion

   c) Integrated resource development d) Flood control only

5. Which is ‘delayedflow’ CO1-U

   (a) direct runoff (b) base flow (c) interflow (d) none of the above

6. Contour bunding is a technique used for CO1-U

   a) Flood management b) Soil erosion control

   c) Groundwater exploitation d) Deforestation prevention

7. The drainage divide may be the CO1-U

   (a) valley (b) ridge (c) forest land (d) both a and b

8. Design of farm pond is done for the return period of CO1-U

(a) 15 –years (b)10 –years (c)25 –years (d) 5 –years

9. The watershed is synonymous to CO1-U

(a) drainage basin (b) drainage area

(c) catchment (d) all the above

10. The "DPAP" refers to CO1-U

(a) Drought Prone Area Programme (b) Flood Prone Area Programme

(c) Rural development Programme (d) none of the above

PART – B (5 x 2= 10 Marks)

11. Classify watersheds based on their size. CO1 U

12. Apply cost estimation techniques to plan small-scale water harvesting structures. CO3- App

13. Define watershed planning and explain its importance CO1 U

14. What is role of watershed development team? CO1U

15. Write short notes on HADP? CO1 U

PART – C (5 x 16= 80Marks)

16. (a) Explain in detail about Land Capability classification (LCC)? CO1-U (16)

Or

(b) Explain in detail about watershed with suitable examples and illustrations? CO1-U (16)

17. (a) In detail explain about the process of watershed planning of implementation agency, monitoring and evaluation system? CO1-U (16)

Or

(b) Explain the process of preparing a watershed development plan step by step, including data analysis, land use assessment, and proposed interventions. CO1-U (16)

18. (a) Design a bench terracing plan for a hilly farm with a 25% slope. What type of terracing would you apply, and how would it benefit the land in terms of erosion control and water retention? CO3-App (16)

Or

	(b)	A watershed development project needs to control both surface runoff and gully formation. Design an integrated management plan using suitable engineering and biological measures.	CO3-App	(16)
19.	(a)	In detail explain about design and components of Farm pond?	CO1-U	(16)
		Or		
	(b)	Describe the integration of rainwater harvesting with modern irrigation methods like drip and sprinkler systems and explain how this approach enhances water use efficiency.	CO1-U	(16)
20.	(a)	In detail explain about Role of NGOs in watershed development?	CO2- App	(16)
		Or		
	(b)	Apply watershed delineation techniques using GIS and integrate them with hydrological modeling to propose suitable soil and water conservation structures. Illustrate your approach using a schematic representation	CO2- App	(16)