

- (7) While considering flow between two water bodies, the piezometric head is taken as
- (a) A straight line (b) A parabola
- (c) An arc of a circle (d) A part of an ellipse
- (8) A geological formation which has good porosity but very less permeability is known as
- (a) Aquifer (b) Aquifuge
- (c) Acquitar (d) Acquiclude
- (9) Use of UH for estimating floods is limited to catchments of size less than
- (a) 500 km² (b) 50 km²
- (c) 5 km² (d) 5000 km²
- (10) In a linear reservoir the storage varies linearly with
- (a) Elevation (b) The outflow rate
- (c) Time (d) The inflow rate.

(10×2=20)

M. Tech 3rd Semester Examination

Watershed Management

WRE-116

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each section A, B, C, D. Section E is compulsory.

SECTION - A

- (a) How does Watershed Deterioration occurs? List various causes. (10)
- (b) What do you understand by Benchmark Survey of a Watershed? Discuss different studies you are going to consider in this survey. (10)
2. Explain the significance of Participatory Rural Appraisal Programme (PRAP) in 'Watershed Management'. Enlist Basic principles and fundamentals of PRA. (20)

SECTION - B

3. Explain the significance of Hydrologic Cycle to a Watershed system. Draw a neat sketch showing watershed system with complete details. Also discuss different components inbuilt in it. (20)
4. (a) Discuss water resources present in our country "India" with the help of relevant statistics. (10)

[P.T.O.]

- (b) Discuss in general the different environmental problems related with the management of water resources. (10)

SECTION - C

5. (a) Environmental Impact Assessment (EIA) helps in monitoring construction projects. Discuss in brief how it is carried out. (10)
- (b) Discuss effects of dams and reservoirs in favour of environment. (10)
6. What do you understand by a 'Multipurpose Hydro Project'? Discuss different combinations and conditions favourable to each of them. Give examples of such projects in India with project name, location and purpose. (20)

SECTION - D

7. (a) Discuss economic evaluation with respect to watershed management. (10)
- (b) Discuss problems of execution and management in big hydraulic structures. (10)
8. Discuss the project "Interlinking of rivers in India". Is it necessary to execute such a project to solve our water crisis? Can it be replaced by some other concept, if yes then discuss in detail. (20)

SECTION - E

9. Tick the correct option:
- (1) Isotherm is a line which joins the points of equal
- (a) Rainfall depth (b) Temperature
- (c) Humidity (d) Atmospheric pressure

- (2) Double mass curve technique is applied
- (a) To check the distribution of rainfall data in the catchment
- (b) To check the variability of rainfall data
- (c) To check the consistency of rainfall data
- (d) To prepare isohyetal maps
- (3) During anticyclones in Northern Hemisphere, wind blows
- (a) Clockwise inward (b) Anticlockwise inward
- (c) Clockwise outward (d) Anticlockwise outward
- (4) The rating curve of a stream gauging station gives the
- (a) Variation of discharge in the stream with area of flow
- (b) Variation of discharge in the stream with stage
- (c) Variation of discharge in the stream with depth of flow
- (d) Variation of discharge in the stream with velocity of flow
- (5) Water year in India starts from the first day of
- (a) January (b) April
- (c) June (d) March
- (6) Discharge per unit drawdown is called
- (a) Specific yield (b) Specific storage
- (c) Storage coefficient (d) Specific capacity