

00191

**CERTIFICATE IN WATER HARVESTING
AND MANAGEMENT (CWHM)**

Term-End Examination

December, 2010

**ONR-003 : WATER HARVESTING,
CONSERVATION AND UTILIZATION**

Time : 3 hours

Maximum Marks : 75

Note : Attempt any five questions. All questions carry equal marks. Use of calculator is permitted.

1. (a) Why is per capita water availability 2+2
variable in different parts of country? What
is per capita water availability in Tamil
Nadu and in the north east of the
country ?
- (b) Distinguish between in-situ and surface 4
water harvesting.
- (c) What is meant by Indigenous Traditional 2
Knowledge in water Harvesting ?

- (d) In which part of the country are the following traditional water harvesting systems used. 5
- (i) Khadin
 - (ii) Ahars
 - (iii) Tanka
 - (iv) Kuis
 - (v) Kund
2. (a) What is bench terracing ? Under what condition is it used ? 5
- (b) What is rainwater harvesting and enumerate its advantages ? 5
- (c) Explain components of rainwater harvesting system using a neat diagram. 5
3. (a) Compute volume of harvested water from a roof area of 200 m^2 if the depth of annual rainfall is 1000 mm and efficiency is 60%. 5
- (b) How is water made potable for drinking ? 5
- (c) Why is filtration of harvested water important ? What type of filtration material is generally used ? 3+2

4. (a) Explain the functions of gutters in rainwater harvesting system. 3
- (b) Classify water storage tanks on the basis of material used. 4
- (c) How is the size of storage tank determined for domestic use ? 5
- (d) Explain the concept of water harvesting. 3
5. (a) Compute the size of water storage tank for 12 members of a household for meeting water requirement of 150 days assuming per capita water requirement of 90 litres/day. 5
- (b) What are the main characteristics of percolation tank ? 5
- (c) List the main water harvesting structures in Himalayan foot hills ? 5
6. (a) What do you mean by irrigation scheduling ? Explain its importance in crop production. 2+3
- (b) Explain the term duty and delta. Give the average delta for wheat and gram crop. 3+2
- (c) What do you understand by surface irrigation method and under what conditions is furrow method of surface irrigation used ? 2+3

7. (a) Distinguish between drip and sprinkler irrigation methods. 5
- (b) List advantages and limitations of drip irrigation. 5
- (c) What do you understand by artificial groundwater recharge ? 5
8. (a) Explain gabion structure for groundwater recharge using a schematic diagram. 5
- (b) How much water is required to produce 1 kg of rice and wheat ? 2
- (c) Enumerate the measure to reduce water losses and conservation of soil moisture. 4
- (d) Define uniformity coefficient. In which method of irrigation it is used ? How will you estimate uniformity coefficient ? 1+1+2
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