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CHAPTER

Irrigation Principles, Practices and Project

Q.1 Water application efficiency is highest in
(a) Basin flooding
(b) Sprinkler irrigation
(c) Furrow method
(d) Drip irrigation

Q.2 Select the incorrect statement pertaining to the check-basin method of irrigation.
In the check-basin method of irrigation
(a) the ridges interfere with the movement of tractor drawn implements
(b) considerable land is wasted by ridges and lateral channels
(c) the surface drainage is unhindered and as such, is excellent
(d) is unsuitable for growing crops which are sensitive to wet soil condition around their stem

Q.3 If the available land is steep in nature, the method of irrigation used is
(a) Check method (b) Basin flooding
(c) Border method (d) Free flooding

Q.4 The moisture content of the root soil is more or less constant with time in
(a) sprinkler irrigation
(b) free flooding
(c) drip irrigation
(d) furrow method

Q.5 With the increase in supplied irrigation water, the yield of crops
(a) increases continuously.
(b) decreases continuously.
(c) increases up to a certain limit, and then becomes constant.
(d) increases up to a certain limit, and then decreases.

Q.6 Which of the following statements are correct?
1. Trickle irrigation is adopted where there is acute scarcity of irrigation water.
2. Evaporation losses are eliminated in drip irrigation as water is provided at root level.
(a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

Q.7 The most suitable method of irrigation for areas having low rainfall and strong winds is
(a) furrow irrigation
(b) sprinkler irrigation
(c) drip irrigation
(d) contour farming

Q.8 Furrow method of irrigation is most suitable for
(a) potato (b) rice
(c) wheat (d) cotton

Q.9 What is the moisture depth available for evapotranspiration in root zone of 1 m depth of soil, if dry weight of soil is 1.5 gm/cc, field capacity is 30% and permanent wilting point is 10%?
(a) 450 mm (b) 300 mm
(c) 200 mm (d) 150 mm

Q.10 Match List-I with List-II and select correct answer from codes below:
List-I
A. Furrow method
B. Subsurface irrigation
C. Sprinkler irrigation
D. Trickle irrigation
List-II
1. Wide range of topography can be irrigated
2. Narrow channels at regular intervals
3. Flow, direct application to root zone
4. Impervious subsoil at 2-3 m depth

Codes:
	A	B	C	D
(a)	1	2	3	4
(b)	2	4	1	3
(c)	2	3	1	4
(d)	3	2	4	1

Q.11 Match List-I with List-II and select correct answer from codes below:
List-I		List-II
A. Furrow method	1.	Tomato
B. Check flooding	2.	Sugarcane
C. Basin flooding	3.	Coconut
D. Drip irrigation	4.	Paddy

Codes:
	A	B	C	D
(a)	1	3	2	4
(b)	4	2	3	1
(c)	2	4	3	1
(d)	1	4	3	2

Q.12 In an irrigation system, the land was divided into a large number of smaller size unit areas, having fairly level surface, by bunds and cross ridges. The basins thus created were filled with water to the desired depth and the water was retained for some time. This method of irrigation is known as
(a) border method.
(b) check basin method.
(c) sub-irrigation.
(d) contour irrigation.

Q.13 In an irrigation system, water was delivered to the field in ditches spaced about 30 m apart, and was allowed to seep into the ground to maintain the water table at such a height that the water is available to the crops through the capillary fringe. This method of irrigation is called:
(a) trickle irrigation
(b) furrow irrigation
(c) border irrigation
(d) sub irrigation

Q.14 In contour border irrigation method
(a) the supply ditch runs along the contour.
(b) the drainage channel runs along the contour.
(c) the border strips are on the approximate contour and have uniform longitudinal gradient.
(d) the border strips are normal to the contour and level across the strip.

Q.15 Sprinkler irrigation is an irrigation method for which the following statements are made :
1. It requires elaborate preparation of land before irrigation.
2. It leads to excessive irrigation and water logging.
3. Initial investment and power requirement is high.
4. Strong wind will disrupt irrigation application.
Of the above statements:
(a) all are correct
(b) 1, 2 and 3 are correct
(c) 3 and 4 are correct
(d) only 4 is correct

Q.16 The area of land to be irrigated is 1000 m^2 in a soil having infiltration capacity of 7 cm/hr. The maximum discharge (in m^3/s) through supply ditch so that runoff losses are prevented is
(a) 7×10^{-2} m^3/s (b) 1.42×10^{-2} m^3/s
(c) 1.94×10^{-2} m^3/s (d) 0.7×10^{-2} m^3/s

Q.17 Assertion (A): Maximum application rate by sprinklers is limited by infiltration capacity of the soil.
Reason (R): Application rate greater than infiltration capacity will result in runoff losses.
(a) both A and R are true and R is the correct explanation of A
(b) both A and R are true but R is not a correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

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1. (d) 2. (c) 3. (d) 4. (c) 5. (d) 6. (a) 7. (c) 8. (a) 9. (b) 10. (b)

11. (c) 12. (b) 13. (c) 14. (c) 15. (c) 16. (c) 17. (a)

Explanations Irrigation Principles, Practices and Project

6. **(b)**

Evapotranspiration losses are only minimized, not eliminated in drip irrigation.

12. **(b)**

Check flooding is similar to ordinary flooding except that the water is controlled by surrounding the check area with low and flat levels. Levels are generally constructed along the continuous having vertical interval of about 5 to 10 cm.

This method is suitable for more permeable soils as well as for less permeable soils. The water can also be held on the surface for a longer time in case of less permeable soils.

9. **(b)**

Depth of irrigation water

$$= \frac{\gamma_d \times d}{\gamma_w}(F.C. - OMC)$$

$$\Rightarrow \quad \frac{1.5}{1} \times 1(0.30 - 0.10)$$

$$\Rightarrow 0.30\,m = 300\,mm$$

15. **(c)**

Favorable conditions for sprinkler method:

(i) When land topograph is irregular and hence in those surfaces irrigation is unsuitable, so sprinkler method is adopted.

(ii) When soil is erodible and land gradient is steeper.

(iii) When water table is high. So to prevent water logging sprinkler method is adopted.

(iv) When soil is either excessively permeable or highly impermeable.

(v) When water is available with difficulty and is scarce.

in given statements, statement (1) is wrong, as this method does not required preparation of land before irrigation.

Statement (2) is also wrong it prevent water logging and provide optimum irrigation.

Only statement (3) and (4) is correct.

16. **(c)**

$$A = 1000\,m^2$$
$$f = 7\,cm/hr$$

$$Q = A \times f = \frac{1000 \times 7 \times 10^{-2}}{3600}$$

$$= 1.94 \times 10^{-2}\,m^3/s$$

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