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**END SEMESTER EXAMINATION (NEP)
NOVEMBER/DECEMBER – 2025**

Semester : 3rd (NEP)

Branch : Civil Engineering

Course Code : CEPC-306

**Course Name : WATER RESOURCES
ENGINEERING**

Full Marks – 60

Pass Marks – 24

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Instructions :

- (i) Question Nos. 1, 2, and 3 are compulsory.
- (ii) Answer any *five* questions from the rest.

1. Fill in the blanks : 1×5=5

- (a) The unit of Delta is _____.
- (b) _____ is the time, in days, that a crop takes from the instant of its sowing to that of its harvest.
- (c) A _____ is a hydraulic structure constructed across a river to store water on its up-stream side.

[Turn over

- (d) In India, crop grown in summer is known as _____ crop.
- (e) _____ of irrigation channels decreases water logging.

2 Write True or False :

1×5=5

- (a) Hydrograph are lines of equal precipitation.
- (b) A Isohyets is a plot of stream flow against time.
- (c) A gravity dam requires the least maintenance.
- (d) The form of precipitation which size of water droplets is above 0.5mm it is known as Drizzle.
- (e) A dam is a building structure constructed across a river to store water on its up-stream side.

3. Choose the correct answers :

1×5=5

- (a) Gross command area (GCA) and Culturable command area (CCA) is related as
- (i) $GCA = CCA$
- (ii) $GCA = CCA + \text{Unculturable area}$
- (iii) $CCA = GCA + \text{Unculturable area}$
- (iv) $CCA = GCA \times \text{Unculturable area}$

- (b) Which of the following does not fit in with the rest ?
- (i) Snow
 - (ii) Rain
 - (iii) Frost
 - (iv) Sleet
- (c) The main function of a spillway is to
- (i) discharge flood water
 - (ii) supply water for irrigation
 - (iii) supply water for power generation
 - (iv) None of the above
- (d) In a lining Canal
- (i) Resistance to flow decreases
 - (ii) Resistance to flow increases
 - (iii) Increases seepage
 - (iv) None of the above
- (e) Syphon takes place where
- (i) Irrigation canal passes over a natural drain
 - (ii) irrigation canal passes under a natural drain
 - (iii) irrigation canal passes mixing with a natural drain
 - (iv) All of the above

4. (a) What are the factors affecting runoff ? 4
(b) Describe in brief the different methods of calculating average rainfall over a basin ? 5
5. (a) Explain with neat diagram the hydrologic cycle. 4
(b) Explain the different types of automatic rain gauge with the help of neat sketch. 5
6. (a) What is bandhara irrigation ? 2
(b) What is drip irrigation ? 2
(c) Explain with the help of a diagram, the various component parts, along with the functions of a diversion headwork. 5
7. (a) Write down the various types of dams. 2
(b) List the various causes of failure of earth dam. Discuss briefly. 3
(c) Enumerate the various forces acting on a gravity dam with the help of figure. 4
8. (a) What is cross-drainage work ? 1
(b) What are the advantages of canal lining ? 3

- (c) Describe any two types of cross-drainage work with sketch. 5
9. (a) Differentiate between weir and barrages. 4
- (b) Describe briefly the different components of weirs. 5
10. (a) Write the functions of marginal embankment. 3
- (b) Describe the ill effects of water logging. 3
- (c) Why river bank protection is necessary ? 3

COURSE OUTCOME (CO)

Questions no.	COs
Question 1	
1a	2
1b	2
1c	4
1d	2
1e	3
Question no.2	
2a	1
2b	1
2c	5
2d	1
2e	5
Question no. 3	
3a	2
3b	1
3c	5
3d	4
3e	4
4a	1
4b	1
5a	1
5b	1

6a	2
6b	2
6c	3
7a	4
7b	4
7c	4
8a	3
8b	2
8c	4
9a	4
9b	4
10a	5
10b	4
10c	5