

Code No: R05320104

R05**Set No. 2**

III B.Tech II Semester Examinations, December 2010
WATER RESOURCES ENGINEERING-II
Civil Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. The following are the details of the section of a gravity dam. Calculate

- i) Maximum vertical stress at the heel and toe of the dam.
- ii) Major principal stress at the toe of the dam.
- iii) Intensity of shear stress on a horizontal plane near the toe.

RL of top of dam = 584.00 m

Top width = 6 m;

u/s face is vertical;

RL of water level on u/s = 580.00 m.

The batter on the d/s face starts from RL of 575.00 m;

Slope of d/s batter = 2H:3V;

RL of Tail water level = 506.00 m

The horizontal distance between u/s face and center line of drain holes is 8 m.

Consider reservoir full condition and neglect earthquake, silt pressure and wave pressure effects.

Assume any other data not given.

[16]

2. Write short notes on

- (a) Rock toe
- (b) Horizontal drainage blanket
- (c) Cut-off trench
- (d) Rip-rap.

[4+4+4+4]

3. Design a cross-regulator and the head regulator for a distributory from the following data.

Discharge of parent channel = 110 cumecs

Discharge of distributory = 15 cumecs

F.S.L. of parent channel U/S / D/S = 200.00/199.80

Bed width of parent channel U/S / D/S = 45 m/40 m.

[16]

4. Write short notes on the following:

- (a) Dropping shutters
 - (b) Stop logs
- Also draw the relevant sketches

[8+8]

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5. (a) State the fundamental difference between Khosla's theory and Bligh's creep theory for seepage flow below a weir.
(b) Explain the design of a weir on permeable foundations for surface flow conditions. [8+8]
6. Design an open flume outlet with a discharge of 0.07 cumecs on a distributary channel with a full supply depth of 1.0 m. The available working head is 0.20 m. [16]
7. A canal syphon has the following data
- | | | |
|--------------------------|-----------------------|-----------------|
| (a) Canal Particulars | Full supply discharge | = 110.00 cumecs |
| | Full supply level | = 203.00 |
| | Bed level | = 200 m |
| | Bed width | = 25.0 m |
| (b) Drainage Particulars | High flood discharge | = 100 cumecs |
| | Bed level | = 202.00 |
| | High flood level | = 204.00 |
- Assume other suitable data. Design drainage and canal waterway, levels and roof barrel for the structure. [16]
8. Explain the mass curve method that can be used for determining:
- (a) Reservoir capacity for fulfilling given demand?
(b) Demand rate from a reservoir of a given capacity [8+8]

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R05**Set No. 4**

III B.Tech II Semester Examinations, December 2010
WATER RESOURCES ENGINEERING-II
Civil Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. A canal syphon has the following data

(a) Canal Particulars	Full supply discharge	= 110.00 cumecs
	Full supply level	= 203.00
	Bed level	= 200 m
	Bed width	= 25.0 m

(b) Drainage Particulars	High flood discharge	= 100 cumecs
	Bed level	= 202.00
	High flood level	= 204.00

Assume other suitable data. Design drainage and canal waterway, levels and roof barrel for the structure. [16]

2. Write short notes on the following:

- (a) Dropping shutters
 - (b) Stop logs
- Also draw the relevant sketches [8+8]

3. Write short notes on

- (a) Rock toe
- (b) Horizontal drainage blanket
- (c) Cut-off trench
- (d) Rip-rap.

[4+4+4+4]

4. (a) State the fundamental difference between Khosla's theory and Bligh's creep theory for seepage flow below a weir.

(b) Explain the design of a weir on permeable foundations for surface flow conditions. [8+8]

5. Design an open flume outlet with a discharge of 0.07 cumecs on a distributary channel with a full supply depth of 1.0 m. The available working head is 0.20 m. [16]

6. Explain the mass curve method that can be used for determining:

- (a) Reservoir capacity for fulfilling given demand?
- (b) Demand rate from a reservoir of a given capacity

[8+8]

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R05**Set No. 4**

7. The following are the details of the section of a gravity dam. Calculate

- i) Maximum vertical stress at the heel and toe of the dam.
- ii) Major principal stress at the toe of the dam.
- iii) Intensity of shear stress on a horizontal plane near the toe.

RL of top of dam = 584.00 m

Top width = 6 m;

u/s face is vertical;

RL of water level on u/s = 580.00 m.

The batter on the d/s face starts from RL of 575.00 m;

Slope of d/s batter = 2H:3V;

RL of Tail water level = 506.00 m

The horizontal distance between u/s face and center line of drain holes is 8 m.

Consider reservoir full condition and neglect earthquake, silt pressure and wave pressure effects.

Assume any other data not given. [16]

8. Design a cross-regulator and the head regulator for a distributory from the following data.

Discharge of parent channel = 110 cumecs

Discharge of distributory = 15 cumecs

F.S.L. of parent channel U/S / D/S = 200.00/199.80

Bed width of parent channel U/S / D/S = 45 m/40 m. [16]

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R05**Set No. 1**

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WATER RESOURCES ENGINEERING-II
Civil Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) State the fundamental difference between Khosla's theory and Bligh's creep theory for seepage flow below a weir.
 (b) Explain the design of a weir on permeable foundations for surface flow conditions. [8+8]
2. Design a cross-regulator and the head regulator for a distributory from the following data.
 Discharge of parent channel = 110 cumecs
 Discharge of distributory = 15 cumecs
 F.S.L. of parent channel U/S / D/S = 200.00/199.80
 Bed width of parent channel U/S / D/S = 45 m/40 m. [16]
3. Explain the mass curve method that can be used for determining:
 (a) Reservoir capacity for fulfilling given demand?
 (b) Demand rate from a reservoir of a given capacity [8+8]
4. Design an open flume outlet with a discharge of 0.07 cumecs on a distributory channel with a full supply depth of 1.0 m. The available working head is 0.20 m. [16]
5. The following are the details of the section of a gravity dam. Calculate
 - i) Maximum vertical stress at the heel and toe of the dam.
 - ii) Major principal stress at the toe of the dam.
 - iii) Intensity of shear stress on a horizontal plane near the toe.
 RL of top of dam = 584.00 m
 Top width = 6 m;
 u/s face is vertical;
 RL of water level on u/s = 580.00 m.
 The batter on the d/s face starts from RL of 575.00 m;
 Slope of d/s batter = 2H:3V;
 RL of Tail water level = 506.00 m
 The horizontal distance between u/s face and center line of drain holes is 8 m.
 Consider reservoir full condition and neglect earthquake, silt pressure and wave pressure effects.
 Assume any other data not given. [16]

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6. Write short notes on the following:

(a) Dropping shutters

(b) Stop logs

Also draw the relevant sketches

[8+8]

7. Write short notes on

(a) Rock toe

(b) Horizontal drainage blanket

(c) Cut-off trench

(d) Rip-rap.

[4+4+4+4]

8. A canal syphon has the following data

(a) Canal Particulars Full supply discharge = 110.00 cumecs

Full supply level = 203.00

Bed level = 200 m

Bed width = 25.0 m

(b) Drainage Particulars High flood discharge = 100 cumecs

Bed level = 202.00

High flood level = 204.00

Assume other suitable data. Design draunage and cannel waterway, levels and roof barrel for the structure. [16]

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R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010
WATER RESOURCES ENGINEERING-II
Civil Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Design an open flume outlet with a discharge of 0.07 cumecs on a distributary channel with a full supply depth of 1.0 m. The available working head is 0.20 m. [16]
2. Write short notes on
 - (a) Rock toe
 - (b) Horizontal drainage blanket
 - (c) Cut-off trench
 - (d) Rip-rap. [4+4+4+4]
3. Design a cross-regulator and the head regulator for a distributary from the following data.
 Discharge of parent channel = 110 cumecs
 Discharge of distributary = 15 cumecs
 F.S.L. of parent channel U/S / D/S = 200.00/199.80
 Bed width of parent channel U/S / D/S = 45 m/40 m. [16]
4. (a) State the fundamental difference between Khosla's theory and Bligh's creep theory for seepage flow below a weir.
 (b) Explain the design of a weir on permeable foundations for surface flow conditions. [8+8]
5. The following are the details of the section of a gravity dam. Calculate
 - i) Maximum vertical stress at the heel and toe of the dam.
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 - iii) Intensity of shear stress on a horizontal plane near the toe.
 RL of top of dam = 584.00 m
 Top width = 6 m;
 u/s face is vertical;
 RL of water level on u/s = 580.00 m.
 The batter on the d/s face starts from RL of 575.00 m;
 Slope of d/s batter = 2H:3V;
 RL of Tail water level = 506.00 m
 The horizontal distance between u/s face and center line of drain holes is 8 m.
 Consider reservoir full condition and neglect earthquake, silt pressure and wave

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pressure effects.

Assume any other data not given.

[16]

6. Explain the mass curve method that can be used for determining:

(a) Reservoir capacity for fulfilling given demand?

(b) Demand rate from a reservoir of a given capacity

[8+8]

7. A canal syphon has the following data

(a) Canal Particulars Full supply discharge = 110.00 cumecs

Full supply level = 203.00

Bed level = 200 m

Bed width = 25.0 m

(b) Drainage Particulars High flood discharge = 100 cumecs

Bed level = 202.00

High flood level = 204.00

Assume other suitable data. Design draunage and cannal waterway, levels and roof barrel for the structure.

[16]

8. Write short notes on the following:

(a) Dropping shutters

(b) Stop logs

Also draw the relevant sketches

[8+8]
