Total No. of Questions : 8]

SEAT No. :

P3904

[Total No. of Pages : 2

[5155]-154
M.E. (Civil)
Water Resources And Environmental Engineering
DAM ENGINEERING
(2013 Course) (601093) (Semester - III)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer any FIVE questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary.***

Q1) a) Enumerate various forces acting on a gravity dam. Explain your answer with typical sketch of gravity dam. **[4]**

b) Explain analysis for safety of gravity dams in detail. **[6]**

Q2) a) Explain step by step procedure for design of earthen dam. **[6]**

b) Discuss maintenance of earthen dam. **[4]**

Q3) a) Explain any one theory for design of arch dam. **[7]**

b) State advantages of are dam over other types of dam. **[3]**

Q4) a) Explain various types of rock fill dams and draw the sketch of one of them. **[6]**

b) What is buttress dam? Explain the classification of buttress dam. **[4]**

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Q5) a) Explain straight drop spillway and ogee spillway. **[6]**

b) A saddle siphon has the following data **[4]**

Full reservoir level	435 m
Level of centre siphon outlet	429.6 m
High flood level	435.85 m
High flood dicharge	600 cumecs
If the dimensions of the throat of the siphon are : width = 4 m and height = 2m determine the number of siphon units required to pass the flood safely. This siphon discharges freely in the air.	

Q6) a) Explain determination of settlement of earth dam embankments. **[6]**

b) Explain determination of settlement and lateral movements in dam. **[4]**

Q7) a) State common objectives of ICOLD and ICID. **[4]**

b) Explain functioning of global water partnership (GWP). **[6]**

Q8) a) What care is taken to protect dams from global warming effect? **[6]**

b) What provisions are made for project affected people? **[4]**

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