

**GUJARAT TECHNOLOGICAL UNIVERSITY****B E Sem-VI Examination May 2011****Subject code: 160601****Subject Name: Advanced Construction Technology****Date: 16/05/2011****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Q.1 (a)** Explain under which conditions would you prefer pile foundation? Which points you will consider while selecting the type of pile? **07**

**(b)** Explain with sketch, different parts of well foundation along with bridge pier in the river. **07**

**Q.2 (a)** Enlist various methods of controlling ground water during construction and suggest their suitability for different soil conditions. Explain with sketches any two methods. **07**

**(b)** Compare: (i) Cast-in-situ piles and Pre-cast piles, (ii) End bearing pile and friction pile. **07**

**OR**

**(b)** What is cofferdam? Explain with sketches: (i) Rock-fill cofferdam, (ii) Cellular cofferdam. **07**

**Q.3 (a)** Explain with sketches construction procedure of: (i) Button-bottom pile, (ii) Simplex pile. **07**

**(b)** Under which circumstances pneumatic caisson is adopted? Discuss its construction procedure with a sketch. **07**

**OR**

**Q.3 (a)** Describe pile driving by Drop hammer method. State and explain dynamic formulae for determining load carrying capacity of piles. **07**

**(b)** What is meant by 'Tilt' and 'Shift' of a caisson? What are its causes? How can tilted caisson brought in correct position? **07**

**Q.4 (a)** What are the measures employed to prevent the leakage in a cofferdam? **07**

**(b)** Discuss the design features of temporary works. Draw the sketch showing the arrangement for centering of large span arches. **07**

**OR**

**Q.4 (a)** What are monoliths? Describe their method of construction and point out their advantages, disadvantages and uses. **07**

**(b)** Briefly explain: (i) Slip formwork, (ii) False work for bridges. **07**

**Q.5 (a)** What are the effects of seismic forces on buildings? What points do you consider while planning of earthquake-resistant building? **07**

**(b)** Discuss about the important points to be considered while construction of (i) Tall and (ii) Spatial structures. **07**

**OR**

**Q.5 (a)** What are the suggestive construction methods/measures for improvement of (i) masonry walls, (ii) R.C.C. columns and beams of buildings against the earth quake? **07**

**(b)** Which points should be considered during the procedure of safe demolition of structures? **07**

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