JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION, 2017

M.TECH II SEMESTER

COURSE CODE: 10M11CE213   MAX. MARKS: 25

COURSE NAME: CONSTRUCTION COST ANALYSIS

COURSE CREDITS: 03   MAX. TIME: 1.5 HRS

Note: *All questions are compulsory. Draw figure, sketches and give suitable example to illustrate your answers. Assume missing data suitably if required.*

1. Prepare the analysis of rates for half brick (10 cm thick) wall in 1:4 cement mortar with the following information –   [5]
   Labor required for 100 m^2 - Mason 13 man-days @ Rs. 350 per day
   - Mazdoor 20 man-days @ Rs. 250 per day
   - Bhisti 3 man-days @ 250 per day

   Material rates (including carriage and handling charges) –

   Bricks - Rs. 5,000 per thousand nos.
   Sand - Rs. 1,100 per m^3
   Cement - Rs. 300 per bag

2. What are the various steps to prepare the Accepted Cost Estimate (ACE) and draft a proper format of ACE to show different components of it?   [5]

3. A 750 MW thermal power project was built by the state at a cost of Rs 4950 million in the year 2007. It is proposed to build another power plant of 1250 MW capacity now by the state at same locality. The present cost index is 170.5, while the cost index at 2007 at the time of completion of previous project was 132.5. Compare the cost estimates of the new project if they are derived from the two methods (consider exponent as 0.65)
   i. Cost capacity factor estimate, and
   ii. Further using cost index on the estimate obtained from (i) above.   [4]

4. A rectangular beam 200mm x 300mm has clear span of 2.4m. The beam is reinforced with 3no.s 16Ø bar with two outer bars straight and U-hooked at ends and the inner bar bent up at 45° at 500mm from support on both sides with U-hooked at ends. At top, two outer hanger bars are 10Ø bar straight and U-hooked at ends. Stirrups are 6Ø bar and spaced at 200mm c/c. Bars are of mild steel and clear cover to concrete is 25 mm. Take the width of support as 300 mm at either end of the beam. Draw the suitable diagram of the beam and prepare Bar Bending Schedule for such beam.   [4]

5. Estimate the item rate for mechanical excavation in normal soil. Available information is given below.   [7]

Total scope 20000 m^3, duration 2 months, consider lead as 4 km.

Equipment	Hire charges (Rs./month)	Fuel consumption (lit/hr.)
Excavator	1,00,000	12
Dumpers	40,000	4

Consider 26 days working in a month. Assume any other data suitably if required.