

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION, 2016

M.TECH II SEMESTER

COURSE CODE: 10M11CE213

MAX. MARKS: 35

COURSE NAME: CONSTRUCTION COST ANALYSIS

COURSE CREDITS: 03

MAX. TIME: 2 HRS

*Note: All questions are compulsory. Draw figure, sketches and give suitable example to illustrate your answers. Assume missing data suitably if required. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. Describe different methods of approximate construction cost estimation with suitable example and mathematical expressions. [5]
2. A 100 hp air compressor costs Rs.150000 five years ago when the cost index was 130. Estimate the cost of a 300 hp air compressor today when the cost index is 255. The exponent is 0.8. [2]
3. Describe Life Cycle Cost elaborately and explain its importance. [5]
4. Prepare the analysis of rates for 12 mm thick cement plastering in 1:3 cement mortar with the following information: [6]  
Labor required for 100 m<sup>2</sup> area of plastering-  
Mason 1.2 man-days (wages Rs. 350 per day)  
Mazdoor 3.6 man-days (wages Rs. 250 per day)  
Material rates (including carriage and handling charges) –  
Sand - Rs. 1,200 per m<sup>3</sup>  
Cement - Rs. 330 per bag
5. Define a project and an operation with suitable example. [2]
6. Describe different steps involved for preparing a construction schedule in primavera. [4]
7. Estimate the item rate for mechanical excavation in normal soil. Available information is given below. [8]

Total scope 20000 m<sup>3</sup>, 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.

8. A precast concrete factory has to produce 50,000 railway sleepers per year. An economic choice has to be made between steel formwork and wooden formwork. The life of steel formwork is estimated to be six months, while that of wooden formwork is two months. The cost of preparing one set of steel mould and one set of wooden mould are Rs 200,000

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and Rs 50,000 respectively. It is further estimated that the labor costs for assembling and removing the steel and wooden formwork are Rs 12 and Rs 9 per sleeper respectively. Which formwork will you choose? Justify your answer. [3]