JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

M.Tech-1st Semester (CE-Construction Management)

COURSE CODE (CREDITS): 10M11CE112 (3) MAX. MARKS: 35

COURSE NAME: ESTIMATING AND COSTING

COURSE INSTRUCTORS: Dr. KAUSHAL KUMAR MAX. TIME: 2 Hours

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Scientific Calculator is allowed.

<table>
<tr><th>Q.No</th><th>Question</th><th>CO</th><th>Marks</th></tr>
<tr><td>Q1</td><td>Analysis of Rate of Earthwork in cutting or in embankment in ordinary soil excavation is to be done in the form of regular pits not exceeding 500mm in depth and earthwork in embankment to be done 200 mm layers including ramming and dressing the surface to the required levels and slopes including 1.5m lift and 30m lead for Rate for 100 m^3
<table>
<tr><th>Labour Category</th><th>Labours required</th><th>Cost of labours</th></tr>
<tr><td>Mason II class</td><td>3 Nos</td><td>Rs.488.00 each/day</td></tr>
<tr><td>Mazdoor category I</td><td>7 Nos</td><td>Rs.341.00 each/day</td></tr>
<tr><td>Mazdoor category II</td><td>33 Nos</td><td>Rs.308.00 each/day</td></tr>
</table></td><td>3</td><td>6</td></tr>
<tr><td>Q2</td><td>Prepare a detailed Analysis of Rate for laying a cement concrete road of 100 mm thickness using 1 : 2 : 4 concrete mix (cement : sand : 40 mm broken stone ballast) over a prepared sub-grade to proper camber, including supply of all materials, labour, tools and plant required for the proper completion of work.
The rate analysis should be worked out excluding only the cost of metal required for rectification of sub-grade, but including curing and mixer machine charges.
The road dimensions are:
Length = 10 m, Width = 4 m → Road surface area = 40 m²
Materials and Labour Requirement (for 40 m² Concrete Road Work)
<table>
<tr><th>Item</th><th>Quantity</th></tr>
<tr><td>Cement</td><td>312.6 kg</td></tr>
<tr><td>Sand</td><td>1.75 m³</td></tr>
<tr><td>40 mm broken stone</td><td>3.5 m³</td></tr>
<tr><td>Mason – I Class</td><td>0.17 Nos</td></tr>
<tr><td>Mason – II Class</td><td>2 Nos</td></tr>
<tr><td>Mazdoor Category – I</td><td>13 Nos</td></tr>
<tr><td>Mazdoor Category – II</td><td>2 Nos</td></tr>
</table></td><td>4</td><td>14</td></tr>
</table>

	Sub-grade Rectification **Item** — **Quantity** Mason – I Class — 0.5 Nos Mazdoor Category – I — 1 No Mazdoor Category – II — 1 No Curing (Mazdoor Category – II) — 9 Nos Mixer Machine Charges — 8 Nos **Cost of Materials at Site** **Item** — **Rate** Cement — ₹356.00 per bag Sand — ₹176.40 per m^3 40 mm broken stone ballast — ₹934.00 per m^3 **Cost of Labour** **Labour Category** — **Rate per day** Mason – I Class — ₹545.00 Mason – II Class — ₹488.00 Mazdoor Category – I — ₹341.00 Mazdoor Category – II — ₹308.00 Concrete Mixer Machine (per day) — ₹220.00		
Q3	Prepare a detailed estimate of P.C.C. bedding (1 : 4 : 8) under a column footing measuring: • Footing plan: 2.2 m × 2.2 m • Thickness: 0.25 m Rate of concrete = ₹6500/m^3 Calculate: a) Quantity of materials (cement, sand, coarse aggregate) using standard data. b) Cost of PCC work including 2% wastage.	**3**	**7**
Q4	A contractor is preparing to submit a bid for the construction of a Community Health Center building under a government project. The estimated cost prepared by the department is ₹1,48,00,000. As per bidding norms: Contractor must add 5% overhead charges, 10% profit margin, GST is to be applied at 18% on total cost (after profit). a) Calculate the final quoted bid amount to be submitted by the contractor. b) As part of the tender submission, the contractor must attach a Technical Report along with the bid. Write any five essential components that must be included in the Technical Report for bidding, and explain any one in detail.	**5**	**8**