



JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/ Backlog), April-May 2015

B. Tech. in Civil Engineering, Semester VI

Roll No.....

CE605: ESTIMATING AND COSTING

Time: 3.0 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

- Q.1A Objective type multiple-choice questions (10 questions @ 1 mark each) 10
- i. Room size is 5m x 4m, all wall thicknesses – 30cm, centre-to-centre length of **LW** at trench level 97.5m for excavation of E/W will be:
(a) 5.60m (b) 5.30m (c) 4.60m (d) 4.30m
 - ii. Room size is 5.6m x 4.6m, all wall thicknesses – 30cm, centre-to-centre length of **SW** at trench level 97.5m for excavation of E/W will be:
(a) 5.60m (b) 4.90m (c) 4.60m (d) 4.30m
 - iii. Room size is 5m x 4m, all wall thicknesses – 30cm, length of **LW** at trench level 97.5m for excavation of E/W if the trench width is 0.90m, will be:
(a) 6.20m (b) 5.75m (c) 5.30m (d) 4.90m
 - iv. Room size is 5m x 4m, all wall thicknesses – 30cm, length of **SW** at trench level 97.5m for excavation of E/W if the trench width is 0.90m, will be:
(a) 3.40m (b) 3.75m (c) 4.30m (d) 4.90m
 - v. Estimating is a:
(a) technique of calculating quantities
(b) technique of calculating costs/funds
(c) document of technique of calculating quantities
(d) document of technique of calculating costs/funds
(e) (a) and (b) both (f) (c) and (d) both
 - vi. Volume of **one (1) canal brick-tile** of FPS designation 100, in cft, will be:
(a) 0.083 (b) 0.085 (c) 0.83 (d) 0.85
 - vii. How many brick-tiles for canal lining of FPS designation 100 will be in a stack of 100cft: (a) 1200 (b) 1150 (c) 1175 (d) 1225
 - viii. How many bricks of FPS designation 75 will occupy in a stack of 100cft:
(a) 1422 (b) 0505 (c) 1522 (d) 0394
 - ix. 1 cum of wet CM 1 : 4 consumes cement bags if coarse sand is having voids 30%: (a) 7.50 (b) 7.25 (c) 7.75 (d) 8.00 (e) 7.00
 - x. The cost of cement component in 35.32 cft of wet CM 1 : 4 will be Rs, if cost of JK Lakshmi Cement Grade 53 is Rs 350.00 per bag:
(a)Rs 2625. 50, (b)Rs 2825. 50, (c)Rs 2725. 50, (d)Rs 3532. 50, (e)Rs 2537. 50,

Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	Enlist records required to prepare detailed estimate of a 5km long hilly road.	2.5
ii.	What are the needs of estimating of a Water Resources Project Items?	2.5
iii.	Enlist records required to prepare a contract for multi-story building in Jaipur City of Rajasthan or in Delhi Metrocity.	2.5
iv.	What are the needs of preparing a contract?	2.5
Q.3A	Explain Direct Costs/ Cost of Structure of an estimate?	05

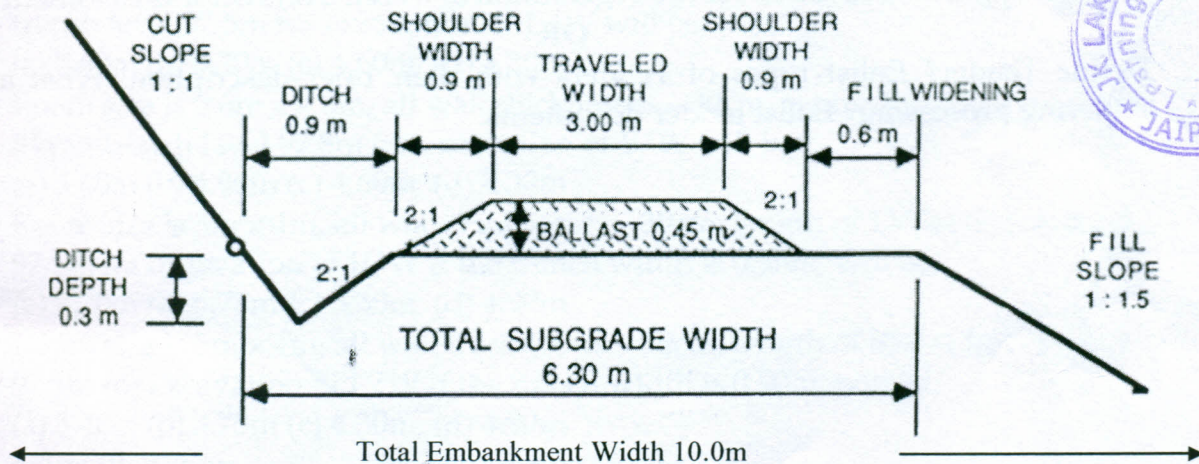
OR

Q.3A	Define Contract and its terms. Enlist essential documents of a building contract amounting Rs more than Sixty Thousand.	05
Q.3B	Define, briefly, estimating procedures with example?	05
Q.4A	Compute the CC quantities of thickness 0.3m and width 0.7m and Stone Masonry work of height 0.4m and 0.5m width of a Room size of 5.5m x 4.5m, all wall thicknesses - 30cm, trench level 100.0m, and trench width is 0.90m. Also draw the foundation PLAN at 100.7m.	05
Q.4B	What do you understand by Bill of Quantities of Earth-work? Justify with example and format.	05
Q.5A	Compute the Brick Masonry quantities (bricks, cement bags and sand) in CM 1:6 of single brick thickness of FPS designation 100 and width 3.75m and wall height 1.20m of a Room size of 5.5m x 4.5m , all wall thicknesses equal and no opening? Assume joint thickness 12.5mm .	05
Q.5B	Differentiate between the following SPECIFICATIONS : (1) Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and all lift upto 1.5m, disposed earth to be levelled and neatly dressed: All kinds of soil (2) Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including taking out the excavated soil and depositing and refilling of jhiri with watering & ramming and disposal of surplus excavated soil as directed with in a lead of 50 meter. All kinds of soils	05
Q.6A	Evaluate the dry components (Cement, coarse Sand and bricks) for 1 cum Brick Masonry in a cement mortar of ratio 1 : 5 in foundation trench, if sand is having 30 percent voids and joints are 15.0mm thick ?	05
Q.6B	Determine the Rate Analysis for 1 cum Brick Masonry in a cement mortar of ratio 1 : 5, if sand is having 30 percent voids and joints are 15.0mm thick . Cost of material is - Rs 3500 for one Thousand Bricks, Rs 600 for one cum Sand and Rs 350 per cement bag. Consider appropriate Labour Component and other charges.	05
OR		
Q.6B	Determine the Rate Analysis for 1 cum Brick-tile Masonry in a cement mortar of ratio 1 : 6 for canal lining, if sand is having 30 percent voids and joints are 12.5mm thick . Cost of material is - Rs 4500 for one Thousand Brick-tiles, Rs 600 for one cum Sand and Rs 350 per cement bag. Consider appropriate Labour Component and consider 20 percent CPOH.	05

Q.7A Evaluate Rate Analysis for **100cft** lined canal of carrying capacity **10 cusecs.** 05
Consider brick-tiles of size 12-inches by 6-inches by 2-inches and cement mortar of ratio 1:6 of 0.5-inch thickness in double tile lining at sides and bed-base plaster of 0.75-inch thickness. Assume rectangular section and any data which is necessary for rate analysis. Consider 20 percent CPOH.

Q.7B The depths at two ends of an embankment of road of length 70m are 2m and 2.5m. 05
The formation width and side slopes are 8m and 2:1, respectively. Estimate the Quantity of earth work for embankment considering Rajasthan PWD Circle-I, Jaipur BSR 2014.

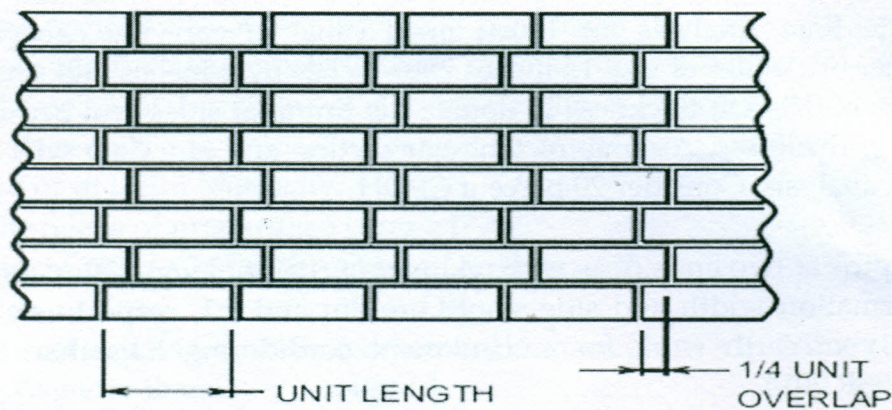
Q.8A Prepare a TENDER DOCUMENTS for the following data: 10
Width of road embankment is **10m** including shoulder width, ditch width and extension road, etc. The equal side slopes are 2:1. The depth along the centre line road at every **50m** intervals are **1.25, 1.10, 1.50, 1.20, 1.0, 1.10, 1.15m**. The road-section is shown in the fig below. Use Specifications, detailed estimate, and rate analysis, etc to prepare Tender.



OR

Q.8A Prepare a NIT & TENDER DOCUMENTS for the following data: 10
Brick masonry and cement plaster works for **2.5m** square-base under-ground water tank, 1.2m high, single wall thickness upto 0.8m height and remaining walls of half-brick thickness. The brick masonry joints are **12.5mm** thick, plaster of thickness **15mm**. The brick masonry and inner plaster is carried out in **CM 1:4**. Use Specifications, detailed estimate, and rate analysis, etc to prepare Tender. Take the advantage of rate analyses evaluated in Q. 6 for computation work for Labour Component only.

Q.8B Prepare a NIT & TENDER DOCUMENTS for the following data: 10
Brick masonry and cement plaster works for **2m long, 1.2m high** wall of **single brick thickness**. The brick masonry joints are **12.5mm** thick, plaster of thickness **10mm**. The brick masonry-section is shown in the following figs. Use Specifications, detailed estimate, and rate analysis, etc to prepare Tender. Take the advantage of rate analyses evaluated in Q. 6 for computation work for Labour Component only.



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| Q.9 | Prepare a NIT & TENDER DOCUMENTS for the following data:
Earthwork for a room of inner dimensions 5m by 4m and all brick-walls of thickness 0.30m including plaster. GL is 100.0m and Foundation Level is 98.5m and trench width at this level is 1.10m . Use Specifications, detailed estimate, and rate analysis, etc to prepare Tender. | 10 |
| OR | | |
| Q.9 | Explain an Agreement. Differentiate between Contract and Tender. Briefly describe Types of Contracts. How a registration of a civil Contractor is classified? | 10 |
| OR | | |
| Q.9 | Define Tender? Enlist types of Tenders with their brief description. What are tendering processing? Enlist tender documents. | 10 |

