

BANGLADESH SWEDEN POLYTECHNIC INSTITUTE, KAPTAI**SEMESTER PLAN****CONSTRUCTION TECHNOLOGY****Teacher's Name:** Md.Rashidul Islam (R.I) **Subject :** QUANTITY SURVEYING-2 (8862)
THEORETICAL

W:no	Content No.	Brief Description of Content
01	Understand the earth work in foundation and plinth.	1.0 Mention the unit of earth work in excavation for foundation trenches. 1.2 Mention the unit of earth work in filling the plinth. 1.3 State the method of calculating earth work in excavation for foundation trenches. 1.4 State the method of calculating earth work filling of foundation trenches. 1.5 State the method of calculating earth work in filling plinth for rooms and verandah.
02	Understand the brick flat soling and mass concrete work.	2.0 Mention the unit of brick flat soling and mass concrete work. 2.1 Calculate the quantity of brick flat soling in foundation. 2.2 Calculate the quantity of brick flat soling in floors. 2.3 Calculate the quantity of mass concrete work in foundation. 2.4 Calculate the quantity of mass concrete work in floors.
03	1ST Class Test	Chapter: 01 to 02
	Understand the reinforced cement concrete work in floors.	3.0 Mention the unit of reinforced cement concrete work in foundation. 3.1 State the method of calculating reinforced cement concrete work in column footing. 3.2 Calculate the quantity of reinforced cement concrete work in column up to plinth or below grade beam. 3.3 Calculate the quantity of reinforced cement concrete work in grade beam.
04	Understand the reinforced cement concrete work in superstructure.	4.0 Mention the unit of reinforced cement concrete work in superstructure. 4.1 Calculate the quantity of reinforced cement concrete work & ms rod in column. 4.2 Calculate the quantity of reinforced cement concrete work & ms rod in tie beam / lintels. 4.3 Calculate the quantity of reinforced cement concrete work & ms rod in floor / roof beams. 4.4 Calculate the quantity of reinforced cement concrete work & ms rod in floor / roof slabs / Cantilever slab, porch slab etc. 4.5 Calculate the quantity of reinforced cement concrete work isunshade,shelves, railing, drop wall, fins or louvers (horizontal and vertical) etc in sqm. 4.6Calculate the quantity of reinforced cement concrete work& ms rod in stair case.
05	2nd Class Test	Chapter: 03-04

	Understand the brick work in foundation and superstructure.	<p>5.1 Mention the unit of brick in foundation and superstructure.</p> <p>5.2 Mention the unit of brick (half brick thick wall) in partition walls.</p> <p>5.3 Calculate the quantity of brick in plinth wall.</p> <p>5.4 Calculate the quantity of brick work (one brick thick wall) in super structure.</p> <p>5.5 Calculate the quantity of brick work (half brick thick wall) in partition walls.</p>
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06	Understand the cement plaster work.	<p>6.0 Mention the unit of cement plaster works.</p> <p>6.1 Calculate the quantity of cement plaster work on inner side of brick wall.</p> <p>6.2 Calculate the quantity of cement plaster work on outer side of brick wall.</p> <p>6.3 Calculate the quantity of cement work on reinforced cement concrete surfaces such as column, lintel, beam, ceiling, sunshade, shelve, railing, drop wall, fins or louvers and stair case etc.</p>
07	Understand the wood work in doors and windows.	<p>7.0 Mention the unit of wood works in door and windows frames.</p> <p>7.1 Mention the unit of wood works in doors and window shutters.</p> <p>7.2 Calculate the quantity of wood work in door frames.</p> <p>7.3 Calculate the quantity of wood work in door shutters.</p> <p>7.4 Calculate the quantity of wood work in window frames.</p> <p>7.5 Calculate the quantity of wood work in window shutters.</p>
08	3rd Class Test	Chapter: 05-07
	Understand the grill works.	<p>8.1 Mention the unit of grill work.</p> <p>8.2 Calculate the quantity of grill works in windows and verandah.</p> <p>8.3 Calculate the quantity of grill works in verandah.</p>
09	Understand the patent stone flooring, mosaic work, tiles and skirting.	<p>9.1 Mention the unit of patent stone flooring, mosaic work tiles and skirting.</p> <p>9.2 Describe the method of calculating patent stone flooring.</p> <p>9.3 Describe the method of calculating mosaic work on toilet floor.</p> <p>9.4 Describe the method of calculating mosaic work on toilet wall.</p> <p>9.5 Describe the method of calculating glazed tiles on toilet wall.</p> <p>9.6 Describe the method of calculating skirting work.</p>
10	Understand the lime terracing work over roof slab.	<p>10.1 Mention the unit of lime terracing works.</p> <p>10.2 Describe the method of calculating lime terracing work.</p> <p>10.3 Describe the method of providing necessary slope to desired directions.</p> <p>10.4 Describe the method of providing ghundi or hollow.</p> <p>10.5 List the materials required for lime terracing work.</p>
11	Understand the surface finishing works of building.	<p>11.0 Mention the unit of surface works.</p> <p>11.1 Describe the method of calculating white wash (inside only).</p> <p>11.2 Describe the method of calculating color wash (outside only).</p> <p>11.3 Describe the method of calculating distemper (inside only).</p> <p>11.4 Describe the method of calculating plastic emulsion paint (mostly used inside only).</p> <p>11.5 Calculate the quantity of snowcem wash or weather coat (mostly used outside only).</p>
12	4th Class Test	Chapter: 08-11

	Understand the painting /varnishing of doors and windows.	<p>12.1 Mention the unit of painting and varnishing works</p> <p>12.2 Calculate the quantity of synthetic enamel paint to doors.</p> <p>12.3 Calculate the quantity of synthetic enamel paint to windows.</p> <p>12.4 Calculate the quantity of synthetic enamel paint to grills.</p> <p>12.5 Calculate the quantity of synthetic enamel paint to skirting.</p> <p>12.6 Calculate the quantity of varnishing/French polish to doors.</p> <p>12.7 Calculate the quantity of varnishing/French polish to windows.</p>
13	Understand the estimation of RCC slab culvert/ Understand the estimation of RCC T-beam decking bridge.	<p>13.1 State the purpose of culvert construction.</p> <p>13.2 Calculate the quantity of earthwork in excavation for foundation trenches of culvert.</p> <p>13.3 Calculate the quantity of brick flat soling in culvert.</p> <p>13.4 Calculate the quantity of mass concrete work in culvert.</p> <p>13.5 Calculate the quantity of brickwork in culvert.</p> <p>13.6 Calculate the quantity of RCC work in culvert.</p> <p>13.7 Calculate the quantity of cement plaster work in culvert.</p> <p>13.8 Calculate the quantity of earth-filling work in culvert.</p> <p>13.9 Distinguish between culverts and bridges.</p> <p>14.1 State the purpose of bridge construction</p> <p>14.2 Calculate the quantity of earth work in excavation for foundation trenches of bridge.</p> <p>14.3 Calculate the quantity of brick flat soling in a bridge.</p> <p>14.4 Calculate the quantity of mass concrete work in a bridge.</p> <p>14.5 Calculate the quantity of brick work in a bridge.</p> <p>14.6 Calculate the quantity of RCC work in a bridge.</p> <p>14.7 Calculate the quantity of cement plaster work in a bridge.</p> <p>14.8 Calculate the quantity of earth filling work in a bridge.</p> <p>14.9 Mention the comparison the advantages and disadvantages of RCC Bridge and wooden Bridge.</p>
14	Understand the estimate of RCC retaining wall.	<p>15.1 Mention the purpose of retaining wall.</p> <p>15.2 Calculate the quantity of earth work in excavation for foundation trenches of RCC retaining Wall.</p> <p>15.3 Calculate the quantity of brick flat soling in RCC retaining wall.</p> <p>15.4 Calculate the quantity of mass concrete work in RCC retaining wall.</p> <p>15.5 Calculate the quantity of RCC work in RCC retaining wall.</p> <p>15.6 Calculate the quantity of back filling work in RCC retaining wall.</p>
	Understand the estimate of septic tank& Understand the estimate of soak well.	<p>16.1 State the purpose of septic tank.</p> <p>16.2 State the way of calculating earth work in excavation for septic tank.</p> <p>16.3 State the method of calculating brick work in septic tank.</p> <p>16.4 State the method of calculating RCC work in septic tank.</p> <p>16.5 State the method of calculating cement plaster work in septic tank.</p> <p>16.6 State the method of calculating earth filling work in septic tank.</p> <p>17.1 State the purpose of soak well.</p> <p>17.2 State the way of calculating earth work in excavation for soak well.</p> <p>17.3 State the method of calculating brick work in soak well.</p> <p>17.4 State the method of calculating RCC work in soak well.</p>
15	4th Class Test	Chapter: 12-17

	<p>Understand the estimate of stanchion (vertical iron column)& Understand the preliminary estimate for building project work according to plinth area rate&</p>	<p>18.1 State the meaning of stanchion. 18.2 Identify the different components and accessories of stanchion. 18.3 State the way of calculating the quantities of steel (Iron) required in stanchion. 18.4 State the way of calculating the quantities of gusset plate, bolts and nuts used stanchion. 18.5 State the way of calculating the painting work of stanchion. 19.1 Mention the meaning of preliminary estimate. 19.2 Mention the basis of calculating preliminary cost estimate of a building project work. 19.3 Prepare preliminary cost estimate for building project work according to Plinth area rate.</p>
	<p>Understand the specification of materials and items of work.</p>	<p>20.1 Mention the meaning of specification of materials and items of work. 20.2 Mention the different types of specifications. 20.3 Describe the process of writing of specification of materials and items of work. 20.4 Mention the specification of particular form of works as per direction of the class teacher.</p>
<p>16</p>	<p>Understand the project of analysis of rates of various items of work as per PWD standard.</p>	<p>21.1 Mention the requirement of rate analysis. 21.2 Mention the importance of factor that affects the analysis of rates. 21.3 Describe the procedure of rate analysis to calculate the rate per unit of the item of works. 21.4 List the quantity of materials and number of different categories of labor For the following items of work and analysis the unit rate including Contractors profit, overhead expenses, income tax (IT) and value added Tax (VAT) as per PWD standard: a. Earth work in excavation for foundation trenches b. Earth filling and sand filling in foundation and plinth c. One layer brick flat soling in foundation and floor d. Cement concrete work (1:3:6) in foundation and floor e. Brick work in foundation up to plinth with cement mortar 1:6 f. 75 mm thick damp proof course (DPC) in proportion 1:1.5:3 g. Brick work of 250mm and above thick wall in superstructure with Cement mortar 1:6 and 1:4 h. Brick work of 125 mm thick wall in super structure with cement Mortar 1:4 i. RCC work in proportion 1:2:4 and 1:1.5:3 including shuttering cost (Footing, grade beam, column below and above plinth, lintel and tin Beam, drop wall, shelves, louver, parapet etc. and stair slab). j. Mild steel reinforcement fabrication work in different types of RCC Work for one quintal of k. Patent stone flooring in proportion 1:1.5:3 with neat cement finish. l. 20 mm thick cement plaster (1:4) with neat cement finish. m. Average 12 mm thick cement plaster (1:6) to brick walls n. Average 6 mm thick cement plaster (1:4) to RCC surfaces o. Line terracing work with proportion of 2:2:7 over roof slab p. Teak wooden door frame and 38 mm thick paneled door shutter. q. Aluminum swing door and sliding window. r. Steel glazed window shutters with Z-section, T-section and F1 bars. s. White washing, color washing, distempering, snowcem washing, Plastic emulsion paint, synthetic enamel paint wherever necessary. t. Installation of European type commode and Indian type long pan (WC) with jow level flashing tank, bath tub, wash hand basin, sink, Squaring and standing urinals.</p>

4th Class Test Chapter: 18-21 & Review all chapter.

	<p>Understand the specification of materials and items of work.</p>	<p>20.1 Mention the meaning of specification of materials and items of work.</p> <p>20.2 Mention the different types of specifications.</p> <p>20.3 Describe the process of writing of specification of materials and items of work.</p> <p>20.4 Mention the specification of particular form of works as per direction of the class teacher.</p>
<p>16</p>	<p>Understand the project of analysis of rates of various items of work as per PWD standard.</p>	<p>21.1 Mention the requirement of rate analysis.</p> <p>21.2 Mention the importance of factor that affects the analysis of rates.</p> <p>21.3 Describe the procedure of rate analysis to calculate the rate per unit of the item of works.</p> <p>21.4 List the quantity of materials and number of different categories of labor For the following items of work and analysis the unit rate including Contractors profit, overhead expenses, income tax (IT) and value added Tax (VAT) as per PWD standard:</p> <ul style="list-style-type: none"> a. Earth work in excavation for foundation trenches b. Earth filling and sand filling in foundation and plinth c. One layer brick flat soling in foundation and floor d. Cement concrete work (1:3:6) in foundation and floor e. Brick work in foundation up to plinth with cement mortar 1:6 f. 75 mm thick damp proof course (DPC) in proportion 1:1.5:3 g. Brick work of 250mm and above thick wall in superstructure with Cement mortar 1:6 and 1:4 h. Brick work of 125 mm thick wall in super structure with cement Mortar 1:4 i. RCC work in proportion 1:2:4 and 1:1.5:3 including shuttering cost (Footing, grade beam, column below and above plinth, lintel and tin Beam, drop wall, shelves, louver, parapet etc. and stair slab). j. Mild steel reinforcement fabrication work in different types of RCC Work for one quintal of k. Patent stone flooring in proportion 1:1.5:3 with neat cement finish. l. 20 mm thick cement plaster (1:4) with neat cement finish.

		<p>m. Average 12 mm thick cement plaster (1:6) to brick walls</p> <p>p n. Average 6 mm thick cement plaster (1:4) to RCC surfaces</p> <p>o. Line terracing work with proportion of 2:2:7 over roof slab</p> <p>p. Teak wooden door frame and 38 mm thick paneled door shutter.</p> <p>q. Aluminum swing door and sliding window.</p> <p>r. Steel glazed window shutters with Z-section, T-section and F1 bars.</p> <p>s. White washing, color washing, distempering, snowcem washing, Plastic emulsion paint, synthetic enamel paint wherever necessary.</p> <p>t. Installation of European type commode and Indian type long pan (WC) with jow level flashing tank, bath tub, wash hand basin, sink, Squaring and standing urinals.</p>
<p>4th Class Test Chapter: 18-21 & Review all chapter.</p>		

AIMS

- To be able to understand the estimating of framed structure multi-storied building.
- To be able to understand the estimating of bridge and culvert.
- To be able to estimate the quantity of MS rod for different RCC elements.
- To able to understand the public works account and forms.
- To be able to understand the rate analysis process for different items of work in Building construction as per PWD standard.

REFERENCE BOOKS

1. A Text Book of Estimating and Costing
-by G S Birdie
2. Civil Estimating Quantity Surveying and Valuation ,-- by Amarjit Agarwal