Examination Control Division 2079 Baishakh Programme BCE Pass Marks 32 Year / Part IV / I Time 3 hrs. Subject: - Estimating and Costing (CE 705) Candidates are required to give their answers in their own words as far as practicable. Attempt <u>All</u> questions. The figures in the margin indicate <u>Full Marks</u> <u>Necessary figures are attached herewith.</u> Define estimate and explain the necessary things required for estimating 	
2079 Baishakh Year / Part IV /1 Time 3 hrs. Subject: - Estimating and Costing (CE 705) ✓ Candidates are required to give their answers in their own words as far as practicable. ✓ Attempt <u>All</u> questions. ✓ The figures in the margin indicate <u>Full Marks</u> ✓ <u>Necessary figures are attached herewith.</u> ✓ Assume suitable data if necessary. 1. Define estimate and explain the necessary things required for estimating	
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1. Define estimate and explain the necessary things required for estimating	
	1
 What is Bill of Quantities (BOQ)? How do you distingue it with Abstract of Cost (AoC)? List out the general rules to be followed during measurement of building and civil engineering works.]
3. What are different methods of preparing approximate estimate? In what case do you need to prepare supplementary and approximate estimate, explain with an example.	
4. Explain the purpose of rate analysis for a project. How the government prepare their rate analysis?	
 Estimate the quantities of materials required for the 30 cm thick brick wall of length 10 m and height of 3 m. Local chimney bricks are laid using 1:4 cement sand mortar of joint thickness of 10 mm. 	•
 Prepare analysis of rates for providing and laying of 20 mm thick premix asphalt concrete road per 275 sq.m area. 	
 Why project reporting is important? Give the major outlines of project report. Discuss estimate of water supply project. 	
8. Calculate the following items of works from the attached drawing of building Figure 1 [5×4]	
 a) E/W in excavation in foundation b) 1st class B/W in 1:4 cement sand mortar in super structure c) Wood work in door and window frame d) 1:2:4 RCC work excluding steel reinforcement work. e) Sal wood work in paneled door shutter 	
9. Calculate the quantity of E/W for the portion of the road of 500 m. The formation width is of 8.0 m having side slope of 1:1 and 2:1 for cutting and banking respectively. Road takes falling gradient of 1 in 75 from chainage 0 to 100 m remains level surface from 100 to 200 m and again attains rising gradient of 1 in 90 from 200 to 500 m. The surveying data provide the following records.	
Chaingae (m) 0.00 100.00 200.00 300.00 400.00 500.00 RL of ground (m) 655.50 654.25 652.00 653.70 655.00 658.20 RL of formation (m) 654.93 653.60 654.71 655.82 656.93	
 10. Find following item of works from attached drawing of slab culvert (Figure 2). [4×3] a) Earthwork in excavation in foundation. b) First class brick work in cement sand mortar (1:4) c) Cement pointing works on exposed brickwork in cement sand mortar (1:3) from 15 below ground level. d) Reinforcement work in slab provided 16 mm bars as main reinforcement @ 100 mm c/c and 10 mm bars as distribution reinforcement @ 220 mm c/c. 	
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				nt.									
	Ex	INSTITU	TRIBHUVAN UN JTE OF ENC tion Conf 2078 Bhad	NIVERSIT GINEERI Trol Di ra	NG vision	Exan Level Prog Year	ramme / Part	BE BCE IV / I	Right	gular ull Marks ass Marks ime	80 32 3 hrs.		
		<u>.</u>	C.		Eating	ating or	d Costi	THE OF T	105)				
	< < < < <	Candida Attempt The figur Necessar Assume s	tes are requir <u>All</u> questions res in the man ry figures are suitable data	ed to giv rgin india if necess	e their a cate <u>Fui</u> <u>d herew</u> ary.	nswers in <u>Il Marks</u> . <u>vith.</u>	n their ov	ng (CE.7	as far as	practicable			
	1.	Explain	that estimate	ed cost i	s never	the act	ual cost.	What an	re the da	ata require	d for [3-	+21	
	2.	What are briefly. S	e the various state the diffe	s method rent facto	ls of ta	king out idered du	quantiti iring deta	es of civ iled estin	ril engine nation.	eering? Ex	plain [4-	+2]	
	3.	Prepare a 250m ² po wall of 0 10% buil necessary	a preliminary er story. The .90m height. It up area is v suitable pro	v estimate height of The cub covered visions.	e of the f each s e rate of by wall	four sto story is 3 f the buil s and 35	ried offic .5m and ding in th % by cir	the buildin on the ro nat localit culation	ng having oof floor ty is Rs. 1 purposes	g carpet ard there is par 250/cu.m. ' Assume c	ea of rapet Take other	[5]	
	4.	What are analysis.	e the require	ements f	or rate	analysis	? Explai	n the fac	ctors affe	ecting the	rate [4+	-4]	
	5.	Prepare a	n analysis of	rate for s	al wood	l'doors ai	nd windo	ws frame	per m ³ .			[4]	
	6.	Prepare ti 12 no/m ³	he analysis of /day, unskille	f rates on d 12 no/i	e metric m ³ /day.	ton of re Assume	einforcen suitable r	ates.	or norms	per MT sk	illed _. [6]	1
	7.	What are Explain in	the tasks you n brief. Discu	1 need to 1ss estim	conside ation irri	r in prep gation pr	aring esti oject.	mate of a	a building	g project w	ork? [4+	4]	
	8.	Prepare of attached l	letailed estin nerewith:	nate of	the item	of wor	k form 1	he build	ing draw	ring (figure	e 1) [4×	5]	4
		 a) Earth b) PCC (c) Brick d) Plaste 	work in excav (1:3:6) in four work in 1:6 c ring work 1:4	vation in ndation cement sa for the	nd mort	ar upto F	linth				 -		
	9.	Calculate acquisitio Bed width Free boar	the quantity n purpose for n = 4m d = 45cm	of earth	nwork an n of a ch	nd area (annel foi	of perma m follov	nent lanc ving data:	l require	d for the l	and [1	0]	-
•		Side slope Side slope Full Supp Top width There is 5	in banking = in banking = ly depth = $1n$ of bank = $3r$ 0cm fall at ch	= 1.5:1 n n left and nainage 8	1 1.5m ri 00m	ight							
*			Chainage	800	850	9.00	950	1000	1050				
			RL ground	109.8	109.7	109.55	109.30	109.25	109.15				
			RL Bed	109.52		Be	d slope 1	:250] .			
	10.1	From the	attached dra	wing (fig	gure 2) a	attached	of RCC	column,	estimate	the follow	ing [3+9	1	
	i (((i) RCC i (ii) Steel i	1:2:4 in colum einforcement	n work ex	cluding	formwor ¹ ***	15					1	i



Exam. TRIBHUVAN UNIVERSITY Back Full Marks INSTITUTE OF ENGINEERING Level BE 80 **Examination Control Division** Programme BCE Pass Marks 32 Year/Part IV/I Time 3 hrs 2076 Ashwin Subject: - Estimating and Costing (CE 705) Candidates are required to give their answers in their own words as far as practicable. Attempt All questions. The figures in the margin indicate Full Marks. Necessary figures are attached herewith. Assume suitable data if necessary. 1. What is an estimating? What are the purposes of estimating? Mention various data which are required for preparing detailed estimate. [1+3+2] 2. Explain the following: [2+2+2] a) Multiplying factors adopted in painting of Panelled door, flush door, Louver door and Glazed window. b) Rules for deductions from plastering for opening in brick surfaces c) Bill of quantities 3. a) When and where are the following estimates used: [6+5] (i) Detailed estimate (ii) Revised estimate (iii) Supplementary estimate b) Prepare a preliminary estimate of a five storied office building having total carpet area of 2500 m² for obtaining the administrative approval of the government, given the following data: (i) 30% of the built-up area will be taken up by corridors, verandah, staircase, lift etc and 10% of the built up area will be occupied by walls. (ii) Prevailing plinth area rate Rs. 25000.00 per m² (iii)Provide 20% extra cost for water supply and sanitary fittings, electrical works, contingencies and other services. 4. a) What is an analysis of rate? Mention various factors on which the unit rates of particular item of work depends and also mention the various purposes of rate analysis. [5+6+6] b) Calculate the quantities of materials required for 100m long 23cm thick and 1.20m high wall in (1:6) cement mortar. (Assume size of brick is 235×110×57mm and thickness of mortar 10mm) c) Prepare an analysis of rate for 40mm thick PCC (1:2:4) in floor per m². 5. A road is to be constructed in hilly area with formation width of 10m, side slopes in banking and cutting (2:1) and (1:1). The height of banking or depth of cutting at the centre line of the road are given below. The cross slopes of ground are also given at different sections. Calculate the quantities of earthwork. [9] Distance | Cutting | Filling | Cross slope of ground 0 0.50 12:1 50 0.60 10:1 0.40 100 15:1 0.60 150 12:1 7

6.	Calculate the quantity of earthwork of an irrigation channel with the following data: [9] Bed width of channel = 5m	
	Top width of both banks = 2m Longitudinal slope of bed = 1 in 3000	•
	Side slopes in cutting and filling = $1\frac{1}{2}$:1 (H:V)	e
	Fully supply depth = 1m Free board = 0.60m R.L. of bed at 0m = 1395.50m Ground level along the alignment are as given below:	
	R.L. of Ground 1397.50 1397.00 1396.50 1395.70 Distance 0 300 600 900	
7	Estimate the quantities of the following items of work from the accompanying building [12] drawings:	
	 a) Earthwork in excavation in foundation b) Brick work in 2nd footing in foundation c) Wood work for doors and windows frame 	
8	Estimate the quantities of the following items of work from the accompanying <u>RCC Stab</u> <u>Culvert</u> drawings: [10]	
	 a) Earthwork in excavation in foundation b) PCC (1:3:6) in foundation c) PCC (1:2:4) for RCC slab 	•

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TRIBHUVAN UNIVERSITY Exam. ular/ Poch Eull Marks INSTITUTE OF ENGINEERING Level BE Programme BCE Pass Marks 32 **Examination Control Division** Year / Part 2075 Chaitra IV/I Time. 3 hrs Subject: - Estimating and Costing (CE 705) Candidates are required to give their answers in their own words as far as practicable. Attempt All questions. The figures in the margin indicate Full Marks. Necessary figures are attached herewith. . Assume suitable data if necessary. 1. State, why estimated cost is necessary in construction work. Describe various data A . x. [3+3] required to prepare an estimate. 2. What do you mean by contingencies and work charged establishment. Enumerate the relationship and differences between the Bill of quantities and Abstract of Estimated cost. [2+4] 3. The plinth area of an apartment is 500 Sq.m. determine the total cost of building from the [4] following data: i) Rate of construction = Rs. 3450 per m^3 ii) The height of apartment = 16.25m iii) Water supply, sanitary and electrical installations each at 6% of building cost iv) Architectural appearance @ 1% of building cost v) Unforeseen item @ 2% of building cost vi) P.S and contingencies @ 4% of building cost 4. Explain the significance of analysis of rates in civil engineering projects. What are the requirements for analysis of rates? [3+3] 5. Calculate the quantities of material required for 10 m³ brick masonry in (1:3) cement sand mortar. (normal size of brick = $9 " \times 4 \frac{1}{2}" \times 3"$) [5] 6. Prepare analysis of rate for 25mm thick 1:2:4 for cement concrete floor 100 m². (Assume [5] suitable rate) 7. Define project. Discuss estimate of irrigation project. [6] 8. Calculate the quantity of earthwork of an irrigation canal with the following data. Bedwidth = 5m, freeboard = 0.6 m, fully supply depth = 1m, Trap width of both the bank =2m, Side slope in cutting =1:1, side slope in banking=1 1/2:1 0 300 600 m Distance (m) 325.24 324.80 Ground level (m) 324.43 Proposed bed level (m) 324.00 1 in 3000 downward 9. Prepare detailed estimate of the following items of work for a building from the attached [4×3] Fig.1. i) Earthwork in excavation in foundation ii) First class brick work in (1:4) cement mortar in foundation and plinth. iii) Wood work in door and window frame.

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10. Estimate the quantity of earthwork of a hill road when the formation width in cutting is 4m and side slope is 2:1. The formation width in banking is 6m and side slope 3:1. The ground and formation level at the centre of road and also the transverse slopes of ground surface are as below:

Chainage (m)	. 0	. 50	100	150	200	250
RL of GL(m)	1150.00	1150,60	1151.50	1150.80	1151.50	1152.00
RL of FL(m)	1149.20	1150.00	1150:80	1151.60	1151.50	1153.20
Cross slope (m)	1:10	1:1	1:14	1:12	0	1:10

- 11. Workout the quantity of well foundation of a bridge. The well is to be circular of 5m internal diameter with 800 mm wall in 1:6 cement and sand mortar. The well is to be founded on strata 15m below bed of river which is dry during winter. Bottom of the well is to be plugged with 1.5m thick cement concrete 1:4:8 and the top to be sealed with 1m thick cement concrete 1:2:4 and central portion is to be sand filled.
- 12. Find out the quantities of the following items of work of a T-Beam decking of a bridge with 6m span and 45 cm bearing at ends.
 - i) RCC work (1:2:4) excluding steel



[10]

[7]

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04 TRIBHUVAN UNIVERSITY INSTITUTE OF ENGINEERING

	Exam.		Back	
	Level	BE	Full Marks	80
n	Programme	BCE	Pass Marks	32
	Year / Part	IV / I	Time	3 hrs.

Examination Control Division 2075 Ashwin

Subject: - Estimating and Costing (CE705)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt <u>All</u> questions.
- The figures in the margin indicate <u>Full Marks</u>.
- ✓ <u>Necessary figures are attached herewith.</u>
- ✓ Assume suitable data if necessary.

1.	Enlist the purposes of preparing an estimate of quantities of work and its cost.	[4]
2.	What are various methods of taking quantities of works?	[4]
3.	What are the components of a complete estimate? Prepare a sample of abstract cost	4+4]
4.	Briefly explain the various factors that affect the rate analysis. Why is rate analysis in engineering necessary?	civil 4+4]
5.	Prepare quantities of material required of 12 mm thick (1:6) cement plastering per 10m ² in 1 wall.	orick [4]
6.	Prepare rate analysis of plain cement concrete (1:3:4). Assume suitable rates of material labor.	and [6]
7.	What do you mean by Project estimate? How do you prepare project estimate? State the report on estimate. [1+	ports 2+3]
8.	Find the quantity of the following from attached drawing. (fig. 1)	3x4]
	 a) Brick work in cement mortar (1:6) up to plinth. b) 10 mm thick cement plastering in ceiling and underside of roof projection. c) P.C.C. in foundation (1:3:6) 	

Find the quantity of earth work of a hill road from the following data. Formation width is 10 m, side slope in filling and cutting 2:1 and 1¹/₂:1 respectively. [12]

					and the second se		
Chainage (m)	0	100	200	300	400	500	600
RL of Ground (m)	1115.20	1116.10	1116.85	1118.00	1118.25	1118.10	1117.75

Formation: RL at chainage 0 is 1116.5 m, upward gradient 1 in 200 up to chainage 300m. Downward gradient 1 in 400 from chainage 300m to onward.

10. Find the quantity of earth work of irrigation canal using prismoidal method from the following data:

Distance (m)	0	50	100	150	* 200
RL of Ground (m)	100.00	101.00	101.00	99.00	100.00
RL of Formation(m)	99.50	99.00	89.50	89.00	88.50

Formation bottom width of canal is 6 meter and side slope 1:1.

11. Workout quantity of (i) earth work excavation and (ii) brick work of slab culvert. (fig. 2) [4+6]





04 TRIBHUVAN UNIVERSITY	Exam.		Regular	
INSTITUTE OF ENGINEERING	Level	BE	Full Marks	80
Examination Control Division	Programme	BCE	Pass Marks	32
2074 Chaitra	Year / Part	IV / I	Time	3 hrs.

Subject: - Estimating and Costing (CE705)

- Candidates are required to give their answers in their own words as far as practicable. ~
- Attempt <u>All</u> questions. \checkmark
- The figures in the margin indicate Full Marks. ~
- ✓ <u>Necessary figures are attached herewith.</u>
 ✓ Assume suitable data if necessary.

1.	Write five u	inits of measu	rement of eac	ch length, area	and volume.		[5
2.	Explain van contingenci	rious methods es and work c	s of building harge establis	shment.	th suitable sketch. I	Explain the term	[5+5]
3.	Why revise	estimate shou	ld be prepare	d? What is Ra	te analysis? Explain	its important.	[5]
4.	Workout of 230mm×110 Prepare rate materials.	quantities of 0mm×55mm analysis of p	materials and mortar jo lain cement c	required in bint thickness concrete (1:2:4	brickwork (consi- as 10 mm) in ceme). Assume suitable r	der brick size ent mortar (1:6). ates of labor and	14+6
5.	Define proje	ect. Discuss es	timation of re	oad project.		L	[5]
6.	Calculate th Formation v slope in filli	ne quantity o vidth = 10 m ng = 2:1.	f earthwork in banking an	for a portion nd 8 m in cut	of hill road from ting, side slope in cu	following data: atting = 1:1, side	[10]
		Chainage	Cut depth	Fill height	Transverse slope		
		0+060	0.5	-	10:1		
		0+090	0.6		15:1		
		0+120	-	0.7	12:1		

7. A drawing of a building is attached herewith. Calculate the quantities of:

	1) Brickwork in cement mortar (1:6) up to plinth	[10]
	ii) 35 mm thick paneled door shutters.	[5]
	iii) 10 mm thick cement plaster in ceilings and underside of roof projection.	[5]
8.	Workout quantity of brickwork of a septic tank.	[5]



SEPTIC TANNK

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SECTION



PLAN

A	5	TRIBHUVANUNIVERSITY	Exam.		Back	and the second
0	INS	TITUTE OF ENGINEERING	Level	BE	Full Marks	80
Ex	am	ination Control Division	Programme	BCE	Pass Marks	32
		2074 Ashwin	Year / Part	IV/I	Time	3 hrs.
		Cybiaat: Estimat	ing and Cost	ing (CF705)	an na sa	an ann ann an Anna an Anna ann an Anna
		Subject Estimat			for as presticable	
/	Car	and idates are required to give their and	swers in their o	wn words as	far as practicable	
/	The	figures in the margin indicate Full	Marks.			
1	Nee	cessary figures are attached herewin	<u>th.</u>			
~	ASS	ume sullable dala ij necessury.				
	a)	Mention the various purposes of Est	timating.			[4
	b)	Write the units of measurement and	payment for th	e following	items of work:	[4
		(i) Surface excavation (ii) Brick	k work in well s	steining		
		(iii)Lightening conductor (iv) Corr	nice			F.
2.	De	scribe how will you prepare a detaile	ed estimate of a	building.	10	L.
3.	Un	der what circumstances the followin	g types of estim	ates prepare	d?	Į.
	a)	Preliminary estimate b) Revised	estimate c)	Supplementa	iry estimate	
	d)	Complete estimate				F.4. *
4.	a)	What are the factors on which the u	nit rates of part	icular item o	t work depends?	[4×.
	b)	Calculate the quantities of materials	s required for th	e following	items of work:	
		(i) 75 m^3 of Brick work in (1:3) cert (ii) 115 m^2 of 75 mm thick PCC (1:	ment mortar 2:4) in floor			
	c)	Prepare an analysis of rate for WC	Pan with low le	evel Cistern.		
			OR			
		Prepare an analysis of rate for pr Premix Asphalt carpeting per m ² .	oviding, laying	, and consol	idation of 40mm	thick
5.	a)	A town planning authority has to ac	cquire an area o	f 500000 m ²	for the developm	ient of
		New colony. After developing the Workout the maximum compensati	area it is propo	be given to th	le owners whose l	and is
		to be acquired for the development	of the colony, a	assuming:		[
		(i) the authority is establishment cl	harges 15% on	the sale price	•	
		(ii) 40% area is to be provided for i	roads, parks etc are Rs 8.00 per	m^2		
		(iv)Engineers and architect's fee fe	or surveying an	id planning t	he colony at 4%	on the
	b)	Write short notes on:				Г
	0)	wille short notes on.				L

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6. Estimate the quantities of the following items of work from the accompanying RCC slab culvert drawings: [12]

- a) Earthwork in excavation in foundation
- b) PCC (1:3:6) in foundation
- c) Brick work in (1:4) cement mortar
- d) PCC (1:2:4) for RCC slab
- 7. Estimate the quantities of the following items of work from the accompanying Building drawings: [12]
 - a) Earthwork in excavation in foundation
 - b) Panelled door shutter
 - c) Brick work in foundation and plinth
- 8. Calculate the quantities of earthwork of a hill road in side long ground from 0 m to 400 m partly in cutting and partly in filling with the following data: width of road = 10m, side slope in cutting and filling = (1:1) and (2:1). The road has a downward gradient of 1 in 200. The cross slope of ground = 1 in 5. Formation level at 0 m = 1203.50m.

Ground level	1202.50	1201.97	1202.35	1199.66	1200.50
Distance	0	100	200	300	400

[10]

Assume suitable rates.

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R.C.C. SLAB CULVERT 1.50 m SPAN with standard modular bricks



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(NICTIT	TRIBHUVAN U	NIVERSITY	L'xam.	BE	Full Marks	80	
7-	Insin	ation Cont	trol Division	Programma	BCE	Pass Marke	32	
LX	amm	2072 CL	UUI DIVISION	Vear / Part	IV/I	Time	3 hrs	
		2013 Shrav	ubiant - Ectim	ating and Cos	ting (CE70	5)		
	n a Manada Manana ya kata kata na Pana Angala (Marana	C	ubject Listill	lating and Cos	ung (CL/U	<i>J</i>]		
1	Candid Attemp	lates are require that All questions	red to give their a s.	inswers in their o	wn words a	s far as practicable	e.	
,	The fig	fures in the ma	rgin indicate <u>Fu</u>	<u>ll Marks</u> .				
,	Necess	ary figures ar	e attached herew	vith.	•			
	a) De Me	scribe the term	n estimate. State	the necessity of e	estimated co tailed estimated	st in construction ate.	work. [2+2+2]	
	b) (;)	Describe brief	he how will you	ranara a datailar	l estimate of	fa building	[2×5]	
	(ii) (ii)	Prepare bill T-beam Deck	of quantities fro ing bridge.	m the following	data for th	e construction of	RCC	
	Ouar	ntity of work	Detail of work		Rate	per unit of work	1	
	108	m ³	PCC (1:1:2) fo	r RCC works	Rs 1	3,200.00		
	3240	m^2	Formwork for	RCC works	Rs 7	50.00		
	2160	00 kg	Steel reinforce	ment for RCC wo	orks Rs11	5.00		
	18 m	13	PCC (1:2:4) we	earing coat	Rs 1	2090.00		
•	a) wi sui b) Est BU	tability of each timate the qui ILDING draw i) Lime con- ii) Brick wor iii) DOOR sh iv) 25 mm th	antities of the f vings. crete in foundation with the second footi utters ick DPC	Sollowing items on ing	of work fr	rom the accompa	[6] nying [10]	
•	i) wh	ile preparing a	nalysis of rate?	sand and coarse	agoregate r	equired for 12 cm	[4×4]	
	RC	CC slab of (1:1	¹ / ₂ :3) mix proport	ion. The outside	dimensions	of slab are 4.20m	×3m.	
	in) Ca cer 12	nent mortar, (mm)	(the size of bric	k is 240×115×6	0 mm and	thickness of mor	rtar is	
	iv) Pre	epare an analys	sis of rate for 12	nm thick cement	plaster (1:3) in ceiling per 10	m ⁴ .	
	Calcul	ate the followi	ng items of work	from the attache	d building d	lrawing.	[16]	
	i) Eau ii) Sto iii) P(iv)Bri	rthwork in exc one soling in fo CC for RCC up ick work upto p	avation oundation and sar pto plinth beam plinth	nd filling in floor				
5.	Prepare Format Side sl Side sl	e an estimate c tion width =8 n ope in cutting ope in Bankin	of earthwork for a m in cutting and = 1:1 g = 2:1 (H:V)	a road portion fro 10 m n banking	m the follow	ving data:	[16]	
	F	RD:	0	30 60	90	120		
	F	RLS of ground:	507.0	507.95 507	7.30 506.9	0 506.50		
	· ł	formation level:	507.0	and upward gradie	ent @ 1 is 15	0	`	



04 TRIBHUVAN UNIVERSITY INSTITUTE OF ENGINEERING Examination Control Division 2071 Chaitra

Exam.		Regular	
Level	BE	Full Marks	80
Programme	BCE	Pass Marks	32
Year / Part	IV / I	Time	3 hrs.

[3]

[3]

[6]

[5]

[4] [4]

[4] [4]

Subject: - Estimating and costing (CE705)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt <u>All</u> questions.
- The figures in the margin indicate <u>Full Marks</u>.
- ✓ <u>Necessary figures are attached herewith.</u>
- Assume suitable data if necessary.
- 1. Explain with example process of preparation of a preliminary estimate of a office building. [5]
- a) Explain with neat sketches to workout quantity of semi-circular arch (span, thickness and rise of arch given).
 - b) Prepare tables of quantity sheet and abstract cost for a residential building.
 - c) What is Bill of quantities? State its importance.
- 3., List most common units of measurement and payment for civil works and sanitary works (at least five from each). [5]
- 4. a) Prepare materials required for an items of brickwork in cement mortar (1:4). Size of brick is 230mm×110mm×55mm, with mortar joint 10mm. [6]
 - •b) Prepare rate analysis for 20mm thick cement sand plaster (1:4) in wall per 100m². [6]
- c) Explain various factors which affects the rate analysis.
- 5. Define project. Discuss estimate of irrigation project.
- 6. a) Estimate detailed quantities for the following items form attached building drawing:
 - i) Earth work in excavation in foundation
 - ii) Brick work in cement sand (1:6) mortar up to plinth
 - viii) 40 mm thick sal work wood paneled door shutter
 - 'iv) 12 mm thick inside cement plaster (1:6)
 - b) Calculate the quantities of earthwork of a portion of hill road from the following data: [12]
 Formulation width = 8m, side slope in cutting and filling = (1:1) and (2:1)

Distance	Depth of cut	Depth of fill	Cross slope of
	_	· .	ground
0 m	0.30	-	10:1
30 m	0.20	-	15:1
60 m	-	0.50	12:1
90 m	-	0.70	8:1

c) Workout the quantity of well foundation of a bridge. The well is to be circular of 4.5 meter
 internal diameter with 800 mm wall in 1:6 cement and sand mortar. The well to be founded on strata 15 meter below bed of river which is dry during the hot weather. Bottom of the well to be plugged with 1.0 meter thick cement concrete 1:4:8 and the top to be sealed with 0.75 meter thick cement concrete 1:4:8 and central portion is to be sand filled. [9]

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0	5 TRIBHUVAN	UNIVERSI	ΓY	Exam.			Regular	
	INSTITUTE OF I	ENGINEE	RING	Level		BE	Full Marks	80
Ex	amination Co	ontrol I	Division	Progra	mme	BCE	Pass Marks	32
	2070 C	haitra		Year / I	Part	[V / I	Time	3 hrs.
					~ •			
		Subject	: - Estimat	ting and	Costin	ig <i>(CE705)</i>	ana an' amin' a	•
✓	Candidates are re-	quired to g	ive their an	swers in t	their ow	n words as fa	r as practicable	
✓	Attempt <u>All</u> quest	ions.					-	
1	The figures in the	margin in	dicate <u>Full</u>	<u>Marks</u> .				
v. √	Assume suitable a	fata if nece	neu nerewu essarv	<u>In.</u>				
		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , .					
1.	a) What are the Estimating.	purposes	of Estimat	ting and	Costing	? Explain th	ne data require	d for [3+5
	b) Explain in sho	ort the vari	ous method	s of takin	g quanti	ties in buildi	ng works.	- ۲4
r	a) What do you	understa	nd by ann	rovimoto	astimat	a? When d	way need re	uined.
۷.	estimate? And	Why? Ex	plain.	TOXIMALE	estimat		b you need le	vised [4+4
	b) What are the p	ourposes o	f Rate Anal	ysis? Prej	pare Rat	e analysis of	the following:	[4+4+4
	i) 1 st class br ii) 25 mm thi	rick work i ck premix	s 1:6 C.S m carpeting p	ortar per er m ² W.	m ³ C comm	ode low leve	l cistern per no	•
3.	a) What are the v	works that	an estimato	r has to ta	ake acco	unt in project	t estimate? Exp	lain. [6
	b) Find out the q with 6 m span	uantities o and 45 cn	f the follow bearing at	ring items ends.	of worl	c of a T-beam	n seeking of a b	ridge [5+3
	i) RCC work	(1·2·4) ex	cluding ste	el				Ľ
	ii) Cement co	oncrete (1:2	2:4) in wear	ing coat				
4.	Prepared a detail attached here with	ed estima	te of the f	ollowing	items o	of work of a	a building (dra	wing [5+4+5
	i) Earth work in	excavation	n					
	ii) PCC (1:3:6) ir	1 foundation	n					
	iii) Brick work is	1:6 c.s mo	rtar in foun	dation an	d phith			
5.	Estimate the quati	ties of ear	thwork for a	a portion (of a hill	y road from f	ollowing data:	[10
	Formation width =	= 10 m						
	Side slopes in cut	ting = 1:1	and in Bank	ing = 2:1	(H.V) l	ength of chai	n = 30 m	
	Chainage:		12 13	14	15			
	Ht of Banking		0.4 0.2	- 0.3	0.5			
	Transverse slope o	of ground:	1:10 1:1	2 1:10	1:8			
6.	Calculate the quar Bed width = 3	ntity of ear	th work for	a portion	ofchan	nel with the	following data:	[10
	• Free Board = (0.44 m						
	• Side slope for	digging =	1:1					
	• Side slope for	Banking =	= 1: 1½ (V:F	H)				
	 Fully supply d Ton width of b 	epth = 1 n	1					
		Jailk -1.3	20	60	00	120	150	
	Chainage:	0	00	00	90	120	100	
	RL of GL:	225.24	224.8	224.43	224.12	224.5	224.98	
	Proposed level:	224.00	223.94	223.88	223.82	2 223.76	223.7	

Also draw a typical X-section.



_0	5	TRIBHU	JVAN UNIVERSITY	Exam.	•	Regular / Back		
	INST	TITUTE	OF ENGINEERING	Level	BE	Full Marks	80	
Ex	ami	nation	Control Division	Programme	BCE	Pass Marks	32	
		2068	Baishakh	Year / Part	IV/I	Time	3 hrs.	
	• •		<i>Subject</i> : - Esti	mating and V	aluation			· .
✓	Cano	lidates ar	e required to give their ar	swers in their o	wn words as	s far as practicable		•
\checkmark	Atter	npt <u>All</u> q	uestions.	•		F	•	
1	The j	figures in	the margin indicate <u>Ful</u>	Marks.				
√	Assu	essary fig	ures are attached herewi hle data if necessary	<u>th.</u>				
	-	nie Suna	sie uulu ij neeessury.			-		
1.	a) H a	Iow are t nd paym	he following items of wo ent? (i) Pointing work (ii)	ork measured? V Steel reinforce	That are the ment	ir units of measure	ement	[3
i tele	b) E	Explain w	hat do you understand by	r: (i) Bill of quai	ntities (ii) C	ontingency		[3
	c) I	- Explain v	why approximate estima	te of any stru	cture is do	ne before the de	tailed	τ.
	e	stimate a	nd final cost is worked or	ut?		•		[4
2.	Desc	ribe how	will you prepare a detail	ed cost estimate	of a buildin	ıg.		[4
3.	a) \	What do y	you mean by analysis of r	ates? What are t	he requirem	ents of rate analys	sis?	[2
	b) (Calculate	the quantities of material	s required for th	e following	items of work:		[2×3
	i) 105m	³ of PCC (1:4:8) in found	ation				
	i	i) 725m	² of 20mm thick cement p	blaster (1:4) in w	all.			,
	c) I	Prepare a Assume s	n analysis of rate of brick ize of brick $240 \times 130 \times 6$	masonry in (1: 55mm and thick	5) cement m ness of mor	iortar in super stru tar joint is 12mm.	icture.	[4
• •	1	÷.		OR				
	1	repare a	n analysis of rate for 40m	m thick asphalt	concrete we	earing coat per 10r	n^2 .	••••
	d) I	Prepare a	n analysis of rate for W.C	C. commode with	n low level o	vistern.		[4
4.	.a) V	What are	the factors which sho	ould be kept in	mind wh	ile evaluating fai	ir and	
\mathbf{N}	I	easonabl	e value of the property?	•		· · · ·	•	[2
	b) 1	Discuss t	he various methods of val	luation of the pr	operty.	•		[4
	c) '	Workout	the valuation of a cold sto	orage with the fo	ollowing dat	a:		[8
	i) Cost	of land = Rs. $20,00,000.0$	0			•	
	1	1) Gross Exner	nses incurred per year = Ks. 93	as follows:				
	j	iii) Staff	salary, electricity charges	at the rate of 25	5% of gross	income.		
	j	iv) Repai	ir and maintenance of ma	chinery, plants,	equipments	s etc at the rate of	5% of	
		their (v) Sinki	capital cost, which is Rs.	15,00,000.00. nlants etc with	25 vrs life	at the rate of 49	% after	`.
		allow	ing 10% scrap value.	prairies ete with	<i> y</i> 10 mi0			
		vi) Insur	ance premium per year is	Rs. 15,000.00				
	-	Assume rate of 49	year's purchase for 60 yr %.	s at the rate of	8% and red	emption of capita	l at the	
5.	a)	Estimate	the quantity of Earthwor	k of a portion of	road from	the following data	•	[
							÷	

•.

Formation width of the road = 10m

Side slope in banking = 2:1 (H:V.) Side slope in cutting = 1:1

Downward grade 1 in 120 from distance 0 to 30m while it remains in level from distance 30m to 90 m and have again upward grade 1 in 90 from distance 90 to 120m. The formation level at distance 60m = 1197.50m.

The ground levels of the centre line of road are as under:

R.L. of ground	1198.65	1196.40	1199.30	1200.40	1198.10
Distance in m.	0	30	60	90	120

b) Work out the quantity of Earth work in cutting and filling of a portion of a hill road as per data given below:

[10]

Cross slope = 1 in 5 Formation width = 8mSide slope in cutting = 1:1 Side slope in filling = 2:1

.

R.L. of formation	699.20	702.20	704.20
R.L. of ground	698.80	700.00	706.20
Distance(m)	0	30	60

6. Estimate the quantity of the following items of work from the accompanying building drawings: [3+5+4+4]

i) PCC (1:3:6) in foundation

ii) Brick work in (1:6) cement mortar in foundation and plinth.

iii) Salwood work for doors and windows frame

iv) PCC M20 for R.C.C. slab

		<u>.</u>	· .					
	•			·				
. 0	6	TRIBHUVAN UNIVERSITY	Exam.	[Regular/Back		l	
Ū	INS	STITUTE OF ENGINEERING	Level	BE	Full Marks	80		
Ex	an	ination Control Division	Programme	BCE	Pass Marks	32		
		2067 Ashadh	Year / Part	IV / I	Time	3 hrs.		
		Subject: - Estin	nating and V	aluation				
 ./	Co	adidates are required to give their on	myorg in their o		for an anasticatio			
▼ √	Ca Att	empt All questions	swers in their o	wn words as	far as practicable	•	•	
✓	Th	e figures in the margin indicate Full	Marks.		•	•		•
√	<u>Ne</u>	cessary figures are attached herewin	<u>h.</u>					
√	Ass	nume suitable data if necessary.	1-1	-				• •
			quantit	Ý				
1.	a)	What is an estimate? What is meant cost and actual cost.	by quality surv	vey? Distingu	ush between estir	nated	[3]	
	b)	What is meant by analysis of rate?	What are the fac	tors which a	ffect the rate anal	vsis?	[3]	
2.	a)	Prepare a preliminary estimate	of two storie	ed health p	oost building to) get	[-]	
		2004 hasilt and approval of initiative	. Data are given	as delow.			[0]	
		10% built up area is occupied by cin	culation space.		· · · · · · · · · · · · · · · · · · ·			
		Plinth area rate is Rs. 18000.00/sq.r	n.					
		Extra cost for interior design 1% of	building cost.					
		Extra cost for electrical installation	8% of building	cost.	·			•
		Extra cost for other service 5% of b Contingency $= 5\%$	uilding cost.			•	,	
		Contingency = 5%						
10	(fact							n 1973
- 14 	b)	How are the following items of wor	k measured?				[4]	n istr
	b)	How are the following items of wor i). Placter work	k measured?				[4]	1. F. (1.0)
	b)	How are the following items of wor i) Plaster work	k measured?				[4]	-, - 1203
	b)	How are the following items of wor i) Plaster work ii) Cornice work	k measured?			[2]	[4]	1.5 BO:
	b) c)	How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three)	k measured?		· · · · · · · · · · · · · · · · · · ·	[3;	[4] ×2]	
	b) c)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task on out turn of much 	k measured?			[3;	[4] ×2]	
	b) c)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value 	k measured?			[3;	[4] ×2]	
	b) c)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund 	k measured?			[3:	[4] ×2]	
3.	b) c)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 	k measured? (1:1½:3) for R(CC work per	10m ³ .	[3;	[4] ×2]	
3.	b) c) a)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 Calculate the quantities of material 	k measured? (1:1½:3) for R(CC work per	10m ³ . ks:	[3:	[4] ×2] [6] ×4]	
3.	b) c) a) b)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 Calculate the quantities of materials ii) 10m³ brick mason win 1:6 common 	k measured? (1:1½:3) for R(s required for fo	CC work per bllowing work	10m ³ . ks:	[3:	[4] ×2] [6] ×4]	
3.	b) c) a) b)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 Calculate the quantities of materials i) 10m³ brick masonry in 1:6 cem ii) 10m³ PCC (1:3:6) in foundation 	k measured? (1:1½:3) for R(s required for for ent mortar	CC work per blowing work	10m ³ . ks:	[3:	[4] ×2] [6] ×4]	
3.	b) c) a) b)	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 Calculate the quantities of materials i) 10m³ brick masonry in 1:6 cem ii) 10m³ PCC (1:3:6) in foundation 	k measured? (1:1½:3) for R(s required for for ent mortar quired? Differ	CC work per ollowing work	10m ³ . ks: een obsolescenc	[3: [2 e and	[4] ×2] [6] ×4]	
3.	 b) c) a) a) 	 How are the following items of wor i) Plaster work ii) Cornice work Write short notes on: (any three) i) Overhead charge ii) Task or out turn of work iii) Salvage value and scrap value iv) Sinking fund Prepare an analysis of rate for M20 Calculate the quantities of materials i) 10m³ brick masonry in 1:6 cem ii) 10m³ PCC (1:3:6) in foundation Why valuation of property is redepreciation. 	k measured? (1:1½:3) for R(s required for for ent mortar quired? Differ	CC work per ollowing work entiate betw	10m ³ . ks: een obsolescenc	[3: [2 e and	[4] ×2] [6] ×4]	

c) A town planning authority has to acquire an area of 4,50,000m² for the development of a new colony. After developing the area it is proposed to be sold at a rate of Rs. 40.00 per m². Work out the maximum compensation which shall be given to the land owners, whose land is to be acquired, assuming:

[7]

[7]

[7]

[14]

- i) The town planning authority's establishment charges @ 15% on the sale price.
- ii) 35% area is to be provided for roads, parks and other public amenities.
- iii) Colony improvement expenditure @ Rs. 6.00 per m².
- iv) Engineer's and Architect's fee for surveying and planning the colony @ 4% on the sale of plots.
- 5.
- a) Estimate the quantity of earthwork in cutting and filling from the following data for a portion of road.

Formation width = 10mSide slope in banking = 2:1 Side slope in banking = 1:1

Chainaga	Depth of	Height of	Cross slope	
Channage	cutting (m)	filling (m)	of ground	
0	0.60		10:1	
20	0.30	•	8:1	
40	0.50		12:1	
60		0.35	10:1	
80	·	0.70	12:1	

b) Find out the quantity of earthwork of a portion of road to be constructed with the following data:

Formation width of the road throughout = 10m

Side slope in banking (2:1) and side slope in cutting (1:1)

Downward grade 1 in 120 from distance 90m to 120m. While it remains in level from distance 120m to 180m and have again upward grade 1 in 90 from distance 180m to 210m.

The formation level at distance 180m = 1197.50m. The ground levels are as under

R.L. of ground	1198.65	1196.40	1199.30	1200.40	1198.10
Distance (m)	90	120	150	180	210

6. Estimate the quantities of the following items of work from the accompanying drawing.

a) Earthwork in excavation

b) Cement concrete

c) 1st class brick work

d) RCC work

01R TRIBHUVAN UNIVERSITY INSTITUTE OF ENGINEERING

Examination Control Division

2067 Poush

Exam.		Back	
Level	BE	Full Marks	.80
Programme	BCE	Pass Marks	-32
Year / Part	IV / I	Time	3 hrs.

		Subject: - Estimating and Valuation				
\checkmark	Са	Candidates are required to give their answers in their own words as far as practicable.				
√	Ati	tempt <u>All</u> questions.				
v √	1 h Na	the figures in the margin indicate <u>Full Marks</u> .				
\checkmark	As	ssume suitable data if necessary.				
1. a) Describe how will you prepare a preliminary estimate of a government office building for administrative approval of government including external services. The external services should be specified						
	b)	How are the following items measured?	[5]			
	·	i) Plaster work ii) Cornice work				
2.	a)	Prepare an analysis of rate for p.c.c $(1:3:6)$ pr m ³ .	[6]			
b) Calculate the quantities of materials required for the following works:			[10]			
		 i) 150m³ of brick work in (1:4) cement mortar in super structure ii) 120m² of 20mm thick cement sand plaster(1:4) 	[]			
3.	a)	Distinguish clearly between:	[6]			
	2	 i) Value and cost ii) Salvage value and scrap value iii) Cost based method of valuation and development method of valuation 				
	b)	A building is situated in a town on a land measuring $600m^2$. The area of the built up portion is $20m \times 15m$. The building is provided with water supply, sanitary and electrical fittings and is of very sound construction and the life of which may be assumed as 100 yrs. Work out the valuation of the property, if the age of the building is 30 yrs. The prevailing built area rate is Rs 15000.00 per m ² and value of land is Rs 500.00 per m^2 p)inth				
4.	a) Find out the quantity of earth work of a portion of road to be constructed with the following data:					
	 a) Find out the quantity of earth work of a portion of road to be constructed with the following data: [10] Formation width of the road = 10m Side slopes in banking and cutting = (2:1) and (1:1) Downward grade 1 in 120 from distance 90 to 120m while it remains in level from distance 120 to 180m and again upward grade in 1 in 90 from distance 180 to 210m. The formation level at distance 150m = 1197.50 					
		R.L. of ground 1198.65 1196.40 1199.30 1200.40 1198.10				
		Distance (m) 90 120 150 190 210				
	b)	Calculate the quantity of earthwork in cutting and filling in a portion of a hill road from km 8.50 to km 9.00 having cross slope (transverse slope) of ground in 5 with the following data.	[10]			
	 b) Calculate the quantity of earthwork in cutting and filling in a portion of a hill road from km 8.50 to km 9.00 having cross slope (transverse slope) of ground in 5 with the following data. [10 Formation width of road = 8m Side slope in cutting = (1:1) Side slope in filling = (2:1) Depth of cut at centre line at km 8.50 = 40cm Depth of cut at centre line at km 9.00 = 80cm 					
	5.	Estimate the quantities of the following items of work from the accompanying drawing:	[18]			
		 a) Earth work in excavation in foundation b) Brick work in foundation and plinth c) Inside wall and ceiling cement plaster *** d) Brick work in superstructure 				



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TRIBHUVAN UNIVERSITY **INSTITUTE OF ENGINEERING Examination Control Division** 2066 Bhadra

Exam.	Regular / Back		
Level	BE	Full Marks	80
Programme	BCE	Pass Marks	32
Year / Part	IV / I	Time	3 hrs.

Subject: - Estimating and Valuation

- Candidates are required to give their answers in their own words as far as practicable.
- Attempt All questions.
- The figures in the margin indicate Full Marks.
- $\checkmark \cdot$ Necessary figures are attached herewith.

Assume suitable data if necessary.

- a) What are the purposes of estimating? 'An estimate is never the actual cost of the 1. work', justify your answer. [5] [5]
 - b) What are the different types of estimates? How do they differ from each other?
- 2. a) Prepare a preliminary estimate of a 4 storied office building having total carpet area of 2000m² for obtaining the administrative approval of the ministry. Given the following data. 30% built up area will be taken up by corridors, verandah, toilets, staircase etc and 10% of the built up area will be occupied by walls. [7]
 - Plinth area rate is Rs. 15000/sqm Extra for special architecture treatment 1.5% of building cost Extra for electrical installation 8% of building cost Extra for other services 5% of building cost Contingencies 5% of building cost Supervision charge 5% of building cost
- [6] b) Write short notes on (any three): i) Approximate estimate
 - ii) Revised estimate

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- iii) Centre line method
- iv) Capitalized value
- 3. a) Prepare an analysis of rates for supplying and laying premix asphalt concrete per m². [7] CmX [10] b) Calculate the quantities of material required for following works.
 - i) 100m² cement sand plaster 12mm thick in (1:6)
 - ii) 100m³ P.C.C. (1:2:4)

4. a) You have been asked to prepare a valuation report of land for a security of loan. Describe various data which you will collect as a valuation.

[5]

[10]

- b) A 4 storey building has just completed at a cost of Rs. 40,00,000. The building is constructed on a plot of 19 aana purchased for Rs. 25,00,000 in 2060. The prevailing rate of plots in the locality is Rs. 32,00,000 per ropani. Work out the standard rent per floor per mouth assuming the following outgoings
 - i) Municipal tax 25% of ratable value
 - ii) Collection and management charge @ 3% of gross rent
 - iii) Repairs at 1% on 9/10th cost of construction
 - iv) Sinking fund @ 5% for 65 years on 90% cost of construction
 - v) Miscellaneous expenses @ Rs. 500 per month

5. a) Estimate the quantity of earth work for a portion of road, when formation width is 10m. Side slope in cutting and filling are 1:1 and 2:1 respectively.

Om	30m	60m	Distance 90m
100m	110m	 111m	R.L.G 112m
[upward grad (1:100)	R.L.F

b) Find out the quantity of a hell road when the following data are given: formation width is 10m. Side slope in cutting and filling are (1:1 and 2:1) respectively.

Chainage	Depth of cutting at centre line	Cross slope of ground
0	0.5m	10:1
30	0.30m	12:1
60	1.00m	10:1

Draw cross section at each point.

6. Estimate the quantities of the following items of work from the accompanying drawing.

- a) Earthwork in excavation
- b) Cement concrete in foundation

c) Brick work

d) RCC work

[5]

[14]



All dimensions in centimetre

066 Bludra Estimating & Valuation

05 TRIBHUVAN UNIVERSITY INSTITUTE OF ENGINEERING Examination Control Division 2065 Shrawan

Exam.	Regular/Back		
Level	BE	Full Marks	80
Programme	BCE	Pass Marks	32
Year / Part	IV / I	Time	3 hrs.
	L		***************

Subject: -	Estimating	and Valuation
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 \checkmark Candidates are required to give their answers in their own words as far as practicable.

✓ Attempt <u>All</u> questions.

The figures in the margin indicate <u>Full Marks</u>.

✓ <u>Necessary figure is attached herewith.</u>

✓ Assume suitable data if necessary.

- 1. a) What is an estimate, why it should be prepared before construction work? What are the requirements of estimating?
 - b) Under what circumstances different types of estimate is prepared? Describe each of them with conditional examples.
- 2. a) Prepare a preliminary estimate of a two storied VDC's office building to get administrative approval of district development committee having carpet area 500m². 30% of the built up area is occupies by circulation element and 10% of built up area is occupies by walls. Plinth area rate for civil work is Rs. 10,000 per m² cost of water supply, sanitary and electrification is 15% of civil cost. Cost of other services is 10% of civil cost. Departmental charge 8% of total cost.
 - b) Write short notes on (any three)
 - i) Contingency
 - ii) Bill of quantities
 - iii) Distress value
 - iv) Depreciation

3. a) Prepare an analysis of rates for doors and window frame per m³.

OR

Prepare an analysis of rates for supplying and laying W.C. commode with low level cistern.

[5]

[5]

[7]

[3×2]

[7]

- b) Calculate the quantities of materials required for
 - i) 10m³ Brick masonry in 1:4 cement mortar
 - ii) 100m³ PCC 1:3:6 in foundation.
- a) Mention various method of valuation and under what circumstances each one is prepared?
 - b) A 4 story building having a cubic content of 400m³ was constructed 25 yrs ago on a freehold land measuring 500m². The building fetches a rent of Rs. 25,000.00 per month. What amount will you recommend for advancing a loan to the owner against mortgage if the rate of land in that area is Rs. 2000.00 per m². Assume the following outgoing:
 - i) Municipal and property taxes @ 30% of gross rent.
 - ii) Collection and management charges @ 3% of the gross rent.
 - iii) Repairs and maintenance @ 8% of gross rent. Assume the future life to be 65 yrs. Rate of interest as 8% and for redemption of capital 4%.
- 5. Estimate the quantity of earthwork in cutting and filling from the following data for a portion of road 80m length.

Formation width – 10m Side slopes in banking 2:1 Side slopes in cutting 1:1

	Chaiange	Depth of cutting at centre line	Height of banking	Cross slope of ground
	0m	0.60		10:1
	20m	0.70	quincin	12:1
•	40m	0.50	·	15:1
	60m		0.30	12:1
	80m		0.70	10:1

- 6. Estimate the quantities of the following items of work from the accompanying drawing. (Aqueduct)
 - a) Earthwork in excavation
 - b) Cement concrete in foundation
 - c) Brick work
 - d) RCC work

[15]

[5]

[10]

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