THE OPEN UNIVERSITY OF SRI LANKA
Department of Civil Engineering
Construction Management Programme - Level 7
Post Graduate Diploma
CEX7104- Estimating Tendering & Marketing in the Construction Industry

FINAL EXAMINATION   -   2011/2012
Time Allowed: Three (03) Hours

Date: 29-02-2012 (Wednesday)	Time: 0930 - 1230 hrs.

Answer *Four (04)* questions with at least one *(01)* question from each section.

SECTION A: ESTIMATING AND TENDERING

Q1.

Structural proposal for a multistory apartment buildings with two-level basement car park, recommends Secant piling system instead of traditional temporary earth work support system. The proposed Secant piling arrangement consists of Primary Piles (unreinforced concrete) and Secondary Piles (reinforced concrete) each having a diameter of 800 mm. The depth of excavation for basement is 6.5m and the Secant piles are to extend to a depth of 4m beyond the depth of the basement. Reinforcement ratio in Secondary Piles is 160 kg per m^3 of concrete and concrete is of Grade 30.

Prepare a preliminary estimate for basement excavation including Secant piling using the following information:

- The external length and width of basement are 52.50m and 28.0m respectively

- Hard rock level is 13.0 m from the existing ground level.

- Rate for drilling for 800 mm dia piles through any material except hard rock is assumed as Rs. 7,400 per metre and drilling through hard rock as Rs. 36,000 per metre.

(Marks 25)

Q2.

Calculate the cost of making 60m³ of Grade 25 concrete at site (excluding placing) conforming to the specification, on Prescribed Mixes for Ordinary Structural Concrete, displayed in Table 50 of ICTAD Specification SCA/4 Volume 1. The following table which is an extract of Table 50 displays weights of cement and total dry aggregates in kg to produce approximately one cubic metre of fully compacted concrete together with the percentages by weight of fine aggregates:

Grade	Attribute	Nominal max, size of aggregate (mm)					
		40		20		14	
	Workability	Medium	High	Medium	High	Medium	High
	Limits to slump that may be expected (mm)	50-100	100-150	100-125	75-125	10-50	50-100
20	Cement (kg)	300	320	320	350	340	380
	Total dry aggregate (kg)	1850	1750	1800	1750	1750	1700
	Sand (dry)						
	Zone 1 (%)	35	40	40	45	45	50
	Zone 2 (%)	30	35	35	40	40	45
	Zone 3 (%)	30	30	30	35	35	40
25	Cement (kg)	340	360	360	390	380	420
	Total dry aggregate (kg)	1800	1750	1750	1700	1700	1650
	Sand (dry)						
	Zone 1 (%)	35	40	40	45	45	50
	Zone 2 (%)	30	35	35	40	40	45
	Zone 3 (%)	30	30	30	35	35	40

Prices details:
(i)   Cement, at site   –Rs   785 per bag
(ii)   Sand (Zone 2), at site –Rs. 4,420 per m³
(iii)   20mm metal, at site   –Rs. 4,600 per m³

Weight per m³ of aggregates etc:
(i)   Metal   –   2540 kg per m³
(ii)   River sand   –   1610 kg per m³
(iii)   Slump   –   100-125 mm

(Marks 25)

Q3.

Internal plaster to narrow widths (reveals) at door and window openings had been omitted in a Bill of Quantities. Subsequently an order was given by the Engineer to plaster narrow widths (not exceeding 150mm). The internal plaster, finished smooth with lime putty, is 16mm thick and consists of 1:1:5, lime : cement : sand mortar; the rate of which is Rs. 380/- per m² . Compute the rate per linear meter of the above plaster to narrow widths giving reasons to substantiate the rate recommended by you.

B.S.R. gives the following norms for the internal plaster of the above description.

For 10m²
Slaked Lime	0.65 bags of 50 kg
Cement	0.86 bags of 50 kg
Sand	0.21m³
Skilled labour	1.61days
Unskilled labour	1.61days
Tools etc.	3% of labour

Prices
Refer Question 2 for prices of cement and sand.
Skilled Labour rate	-Rs. 1200per day
Unskilled Labour rate	-Rs. 800per day
Slaked Lime	-Rs. 42 per kg.

(Marks 25)

Q4.

Explain the term "Day Works".

Compute the Day Works rate per hour that you would recommend to a skilled tradesman whose daily wage is Rs. 1200 (8 hour day). Also show a detailed breakdown of the recommended rate.

(Marks 25)

SECTION B: MARKETING

Q5.

(a) Explain four important business (concepts) strategies which entrepreneurs tend to adopt to succeed in their businesses knowing only the perceived merits in each. You may use the case of a business involved in constructing houses for sale to illustrate your answer. The answer should have a special reference to the beliefs, focus and means of each method. Also comment on their applicability in the current business scenario.

(Marks 15)

(b) Describe in detail what is understood by market research. Explain how a contractor could use 'market research' for survival in a competitive environment.

(Marks 10)

Q6

(a) There are many approaches a firm can take in selecting a target market. Describe each approach with the aid of illustrations.

(Marks 06)

(b) Using the core product (or service), 'designing of building/civil engineering structures', provide examples for different 'product (or service)' and 'markets' under each approach referred to in part (a) for selection of target market.

(Marks 06)

(c) Describe what is meant by 'market segmentation' and explain how this procedure could be used successfully by a manufacturer engaged in producing paint.

(Marks 06)

(d) Explain how a pantry cupboard manufacturer could apply four P's of marketing mix in his business.

(Marks07)