ME Sem II / Choice / CIVIL / First Half 2018

806: PEPM.

21/05/2018

Q. P. Code: 21370

3 Hours **Marks: 80**

Note: 1. Attempt any 4 Questions **2. Assume suitable data, if required**
3. Figures to the right indicate marks **4. Attempt sub questions in order**

1. a) Draft a detailed report for raising funds for metro rail project in Mumbai city through central and state governments as well as local bodies with their respective shares. Design an innovative model like the Konkan Railway. [12]

   b) What do you understand by a master budget? What are the various steps involved in the preparation of a master budget [08]

2. Answer the following [20]
   a) Explain CIDC-ICRA grading system of construction entities
   b) Explain the role of 'Lender's Engineer' in developer loan approvals.
   c) What do you understand by an Escrow Account
   d) Explain Mergers and acquisition with examples

3. a) The following data is generated from the income and expenditure statements of a contracting firm on a particular project which includes foreign collaboration: [14]

   Total Project cost: ₹ 3000 crores/- Due Date

   i. 1st R.A bill: ₹ 500 crores/- July 2017

   ii. 2nd R.A bill: ₹ 700 crores/- Jan 2018

   Every Running Account bill will be paid in INR

   iii. Cost of materials: 45%

   iv. Cost of labour: 25%

   v. Cost of equipment/machinery/plants: 20%

   vi. Indirect costs: 5%

   vii. Net profit: 5%

   Fluctuating exchange rate is to be considered for billing considerations:

   viii. Material payment is 30% USD, 20% Euro, 18% Yen, 12% Saudi Riyal & 20% in INR

   ix. Labour payment is 15% Bangladeshi Takka , 5% Sri Lankan Rupee & 80% in INR

   x. Equipment payment is 15% Chinese Yuan, 30% Yen, 10% British Pound, 10% USD & 35% in INR

   When the bid was awarded in Jan 2017, and in the subsequent half-yearly periods, the exchange rates were as follows:

Currency	No. of Units	Exchange rate (Equivalent INR)		
		Jan 2017	July 2017	Jan 2018
USD	1	67	66	65
Euro	1	89	82	81
Yen	1	0.58	0.52	0.54
Saudi Riyal	1	17.8	17.6	17.8
British Pound	1	82	83	91
Sri Lankan Rupee	1	0.4	0.38	0.42
Chinese Yuan	1	8	8.5	7.5
Bangladeshi Takka	1	0.85	0.85	0.82

Based on the above tender conditions, workout the impact of the above exchange rate fluctuations on the total project direct cost and net profit considering one year from January 2017 to January 2018. Ignore effect of exchange rate fluctuations on indirect costs.

b) Draw a sample Profit and Loss account for a construction contractor's firm. **[06]**

4. a) Explain with an example Project Portfolio Management **[06]**

b) A contractor has to take a decision whether to bid for a construction project or not. The decision criteria are based on NPV. The project worth is ₹ 750 crores to be completed in 4 years. Based on the tender conditions and the company policy, following information is generated: **[14]**

i. Mobilization Advance: 12% of project worth. Mobilization Advance will be deducted in 3 equal installments, starting from the first year

ii. C.E Advance: 8% of project worth. It will be deducted in 2 equal installments starting from the 3rd year

iii. Material cost component of the project is 45%. Secured advance against materials brought to site is 50% of the material cost. Secured Advance is accounted in proportion to the yearly bill payable to the contractor. Secured Advance will be deducted in 3 equal installments from the running bills starting from the 2nd year

iv. Contractor has to pay 2% as Performance Security in the beginning and 3% Retention amount, which are deductable from each running bill. Performance Security will be released after the end of the project during the 5th year and retention amount will be released in the 6th year at the end of defects liability period.

v. The estimated yearly bills payable to the contractor including the retention amount are as follows:

Year	Estimated Amount (in crore ₹)
1	100
2	250
3	300
4	100

vi. Net profit from the above project before deduction of taxes is 18%. Profit is accounted yearly in proportion to the bill amount

vii. Income tax is charged at 25%. Working capital required to be raised is estimated at 10%. Working capital may be divided in the proportion of yearly bill. Interest on the working capital is 15% (simple interest). Repayment of working capital is to be considered in the 5th and 6th year together with its simple interest

viii. Consider the cost of capital as 10%

ix. Estimated cost of the defects arising during d.l.p is 1% of the project worth

Prepare a cash flow statement for the contractor over the 6-year period. Represent the total yearly inflows and outflows w.r.t time graphically and identify whether additional funds may become necessary. Based on NPV, suggest whether the investment in the above project is feasible or not.

5 a) A typical cost sheet of a manufacturing company provides following particulars: **[08]**

Sr. no.	Particulars	Amount per units(₹)
1	Element of costing:	
	a. Raw materials	85
	b. Direct labours	50
	c. Overheads	35
2	Profits:	40

The following additional details are available:

i. Raw material in stock – on an average 2 month

ii. Material in production – on an average ½ month
iii. Finished goods in stock – on an average 1 month
iv. Credits allowed by suppliers – 3 months
v. Credits allowed to purchasers – 2 months
vi. Lagged payment of wages – on an average 1 week
vii. Overhead expenses (Lagged payment) – 1 month
viii. ¼th of goods are sold against cash
ix. Cash in hand and bank accounts is desired to be maintained at ₹ 1,50,000/-

Estimate the working capital needed to be kept ready for production of 1.5 lakh units per annum (assuming production is carried out throughout the year)

b) The details of ABC Company are as under: **[12]**

Sales (40% cash sales)	15,00,000
Less: Cost of sales Gross Profit:	7,50,000
	7,50,000
Less: Office Exp. (incl. int. on debentures)	1,25,000
Selling Exp.	1,25,000
Total	2,50,000
Profit before Taxes:	5,00,000
Less: Taxes	2,50,000
Net Profit:	2,50,000

Balance Sheet

Particular	Rs.	Particular	Rs.
Equity share capital	20,00,000	Fixed Assets	55,00,000
10% Preference share capital	20,00,000	Inventory	1,75,000
Reserves	11,00,000	Debtors	3,50,000
10% Debentures	10,00,000	Bills receivable	50,000
Creditors	1,00,000	Cash	2,25,000
Bank-overdraft	1,50,000	Fictitious Assets	1,00,000
Bills payable	45,000		
Outstanding expenses	5,000		
	64,00,000		64,00,000

The opening stock was of Rs. 3,25,000. Taking 360 days of the year, calculate the following ratios; also discuss the position of the company:

1. Inventory turnover ratio.
2. Operating ratio.
3. Current ratio.
4. Liquid ratio.
5. Debtors ratio.
6. Creditors ratio

(34)

6. a) The cost of machine A and B are ₹ 10,00,000 each. Estimated life of both machines is five years. Income generated from both machines is given in table below: [08]

Year No.	Project A in lakh ₹	Project B in lakh ₹
1	2,30,500	2,44,850
2	2,28,950	2,26,550
3	2,17,200	2,19,250
4	2,16,250	2,10,200
5	2,14,850	2,10,000

i. Which machines is better from the point of view of payback period?
ii. Based on B/C ratio, suggest the better machine
iii. Calculate average rate of return when salvage value of machine A turns out to be ₹ 50,000 and when B machine has 30,000 salvage value.

b) The estimated cost of an expressway to be constructed on BOT basis between 2 megacities is ₹ 1500 crores. The project is to be completed in 4 years and the expected life of the project after vehicles start plying on it is 25 years; after which it needs to be scrapped off and replaced. The commissioning period for the contractor is 10 years, after which the project becomes government property. The contractor had taken a bridging loan of ₹ 500 crores (on simple interest of 12%p.a) at the start of the project which he needs to repay back between the years 6-10 of the project life cycle in equal yearly instalments. The cashflows at the end of each years are estimated as follows: [12]

Year No.	Construc-tion costs	Expected Toll to be collected	Expected Repairs and maintenance	Year No.	Expected Toll to be collected	Expected Repairs and maintenance
	In crore ₹	In crore ₹	In crore ₹		In crore ₹	In crore ₹
0				15	950	300
1	300			16	970	330
2	450			17	990	360
3	380			18	1000	390
4	370			19	1020	420
5		800	115	20	1040	750
6		810	130	21	1070	490
7		820	145	22	1100	530
8		830	160	23	1130	570
9		840	175	24	1160	610
10		850	300	25	1190	650
11		870	210	26	1220	700
12		890	230	27	1250	750
13		910	250	28	1200	800
14		930	270	29	1100	700

Determine, based on NPV, whether the project is feasible for both the project parties. Also show the BEP of the project