Khulna University of Engineering & Technology

Department of Architecture

B. Arch Special Backlog Examination, 2023

Course No: CE 5125   Course Title: Project Planning and Construction Management

Full Marks: 210   Time: 03 Hours

N.B.   i) Answer any three questions from each section in separate script
        ii) Figures in the right margin indicate full marks

Section-A

1.	a) Define : i) Public fund ii) Public procurement iii) Procurement planning (PP)	09
	b) Classify procurement ethics-explain each.	10
	c) What are the steps of procurement cycle-discuss briefly.	08
	d) What is procurement methods? What are the distinct stages of construction project?	08
2.	a) Define construction project. What are the distinct stages of construction project?	07
	b) What is project life cycle? Draw a typical life-cycle and explain it briefly.	14
	c) What are the objectives of project management? Discuss the different levels of management.	14
3.	a) What are the general principles of management? Explain each.	26
	b) What are the key factors for successful project and unsuccessful project?	09
4.	a) What are the common types of construction equipment?	10
	b) What is earth excavator? What are the uses of excavator? Describe of any two excavator briefly.	13
	c) What are the safety precautions that cause a construction site safe?	12

Section-B

5.	a) What is meant by engineering economy? How it is important for an Architect?	10
	b) What do you understand by minimum attractive rate of return? How to calculate rate of return for a project?	10
	c) A young architect bought a second hand car worth 15 lacs BDT if paid in cash. On the installment basis, he paid 5 lacs as a down payment, 3 lacs at the end of year 1, 4 lacs at the end of year 2 and a final payment at end the year 4 has to be made. What will be the final payment if interest rate i=15% per anum.	15
6.	a) Select the better alternative among the two different proposal for street lighting in Khulna division by using present worth method.	17

	Proposal 'A'	Proposal 'B'
First cost (BDT)	11×10^6	27×10^6
Annual O & M (tk/year)	100,000	90,000
Annual Benefit (tk/year)	990,000	240,000
Annual dis-benefit (tk/year)	120,000	100,000
Major maintenance every 5 yrs. (tk)	200,000	10,00,000
Life (year)	20	40

b) KUET authority is going to buy a furnace. It has received tenders for three different manufacturers of furnace. Their comparative details are as follows. **10 18**

	Manufacturer		
Details	A	B	C
Initial cost (tk)	7×10^6	8×10^6	9×10^6
Annual operating & maintenance cost (tk)	6×10^5	4×10^5	4×10^5
Salvage value (tk)	5×10^5	4×10^5	6×10^5
Life (years)	12	12	12

7. a) For the following project find out the optimum crashed duration and cost, when project indirect cost in 1000 tk/day. 28

Activity	Normal		Crash	
	Duration	Cost	Duration	Cost
	Weeks	(000, tk)	Weeks	(000, tk)
1-2	8	1000	6	2000
1-3	5	1500	3	3000
2-4	3	1000	2	1500
2-5	10	500	6	1000
2-6	8	700	5	1400
3-4	7	2000	5	3000
4-5	9	1500	7	2500
5-7	7	1200	5	1800
6-7	4	800	2	1400

b) Define critical path and activity. 07

8. a) As a decision maker, you need to choose an alternative among two types of project, alternative on the basis of B/C ratio with an interest of 6% per annum. 17

	Alternative-1	Alternative-2
Initial cost, $	11×10^6	20×10^6
Annual O & M ($/year)	100,000	30,000
Annual Income ($/year)	500,000	900,000
Annual dis-benefit ($/year)	120,000	100,000
Life (years)	∞	∞

b) For the following network diagram, find out 18

    i)   Total float of each activity

    ii)   The critical path