



**KOLEJ UNIVERSITI TEKNOLOGI
TUN HUSSEIN ONN**

**FINAL EXAM
SEMESTER I
SESSION 2006/2007**

SUBJECT : ENGINEERING MANAGEMENT
CODE OF SUBJECT : BKA 5013
COURSE : 5 BKA
DATE : NOVEMBER 2006
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS FINAL EXAM PAPER CONSISTS OF 5 PAGES

- Q1**
- (a) Activities in **Table Q1** are a small project conducted by a contractor. The activities are started at 1st March 2005. Draw S curve for the project. (20 marks)
- (b) If manpower was increase three times, calculate duration and total manpower at peak in design stage using trapezium method. (10 marks)
- (c) A contractor get a contract valued RM 200,000 to construct the activities in **Table Q1**. If the deposit will be paid 10% at the first week and other payment will be paid according to the progress as mention in table below, calculate when the payment will be given and the value for each payment. Calculate the variance value for each week.

Payment	Progress	Total payment
I	25%	15%
II	50%	20%
III	75%	25%
IV	100%	25%
V	After 3 weeks	5%

- (15 marks)
- (d) If overhead cost, tax, insurance and other unexpected cost are RM 20,000, how much profit is gained by the contractor? (5 marks)

Q2 The planning data for a building construction is as stated in **Table Q2**.

- (a) Sketch the network diagram using PDM (Precedence Diagram Method) and identify project duration and critical path. (10 marks)
- (b) Sketch the bar chart based on data above. (5 marks)
- (c) Draw the histogram of human resource needed for every unit of time. (5 marks)
- (d) To reduce human resource problem in the activities, plan the sources using resource leveling method. (5 marks)

- Q3** Develop a budget for the project describe in **Table Q3** assuming that the cost of each activity is linearly distributed over its duration.
- (a) Assuming a late start schedule. (8 marks)
 - (b) Generate the crashing chart for the project. (11 marks)
 - (c) Calculate the cost if after week 10 contractor has to pay penalty of RM1000 per week and overhead cost of RM500. (6 marks)
- Q4**
- (a) What is management concept and basic activities in management? (7 marks)
 - (b) Explain the project phases and identify objective and activities for each phase. (10 marks)
 - (c) Explain **four (4)** types of contract. (8 marks)

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Table Q1 Project Activities of Building Construction

Number	Activity	Duration (weeks)	Successor	Manpower	Cost (RM)
1	Foundation and slab utility	3	2	20	8,000
2	Steel structure	2	3	30	2,500
3	Roof	2	4,5	10	24,000
4	Floor	1	-	5	20,000
5	Wall	3	6	30	16,000
6	Door and window	1	7,8	5	12,000
7	Mechanical	7	-	30	8,000
8	Electrical	7	9	35	10,000
9	Insulation	2	10	25	24,000
10	Finishes	3	-	10	21,000

Table Q2 Project Activities of Shop Building Construction

No	Activity	Duration (days)	Successor	Relationship	LAG (days)	Cost (RM)	Resource (man)
1	A	3	B	S - S	2	600	6
			C	F - S	0		
			D	F - S	0		
2	B	2	E	F - S	0	1500	6
3	C	5	G	F - S	5	1500	15
4	D	4	F	F - S	0	1000	8
5	E	6	H	F - S	1	3000	18
6	F	2	G	F - S	0	800	4
7	G	1	-	-	-	200	2
8	H	9	G	F - F	0	1400	18

* S - Start
 F - Finish

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Table Q3 Project Activities Of Housing Construction

No	Activity	Predecessors	Normal		Crash	
			Duration (week)	Cost (RM)	Duration (week)	Cost (RM)
1	A	-	4	100	2	300
2	B	-	3	200	1	200
3	C	A,B	2	50	1	100
4	D	A,B	3	100	2	300
5	E	A	4	150	1	400
6	F	C,D	4	250	1	100
7	G	D,E	2	300	1	200
8	H	F,G	3	200	2	100