



UNIVERSITI SAINS MALAYSIA

1st. Semester Examination
2000/2001 Academic Session

SEPTEMBER / OCTOBER 2000

EAA382/2 – Construction Management

Time : [3 hours]

Instruction to candidates:-

1. This paper consists of **SIX** (6) questions. Answer **FOUR** (4) questions only.
2. Answers **MUST BE** written in Bahasa Malaysia.

1. (a) Explain why quality management in construction industry is so different from the quality management in manufacturing industry. (5 marks)
 - (b) Name **FIVE (5)** elements of management and discuss each one of them in a construction management context. (10 marks)
 - (c) Name **FIVE (5)** obstacles which can influence project planning. (5 marks)
 - (d) Explain one of the shortcomings of a bar chart (Gantt Chart) which can be overcome by utilising critical path method. (5 marks)
2. Draw the I-J network for the activity list. Number all nodes. Calculate the early start date (ESD), late start date (LSD), early finish date (EFD), late finish date (LFD), total float (TF), and free float (FF). Label the critical path.

Table 1

Activity	Duration	Depends on
A	6	-
B	3	A
C	4	A
D	9	A
E	12	-
F	8	-
G	3	B, D
H	6	C, D
I	4	C
J	4	E
K	3	E
L	1	E
M	6	G, H
N	7	H
O	4	N, I, J
P	2	K, L

(25 marks)

3. (a) Define the following terms in the context of safety in construction industry;
 - (i) Safe
 - (ii) Hazardous
 - (iii) Accident

(6 marks)

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3. (b) Discuss **TWO (2)** safety problem in construction industry. (4 marks)

(c) Based on the following diagram, estimate the quantity of reinforcement bar required for the footing base and column base. (Hint : three types of re-bar are used. 20mm, 12mm and 6mm)

(15 marks)

4. (a) Discuss the various parties involving in the construction industries. (15 marks)

(b) Explain the Turnkey and Conventional Contract based bill of quantities. Explain also the difference between these two types of contracts.

(10 marks)

(c) Discuss the content of a Tender Document.

(5 marks)

(d) Explain the role and responsibilities of the Suprintending Officer.

(5 marks)

5. (a) What is meant by the term contract variation. State reasons for the contract variation and method of estimating the variation.

(7 marks)

(b) Explain **FIVE (5)** factors that can be considered for granting extension of time to the contractor.

(5 marks)

(c) Based on Table 2, draw the precedence diagram.

Table 2

No.	Activity	Duration	Depends On
1	A	5	-
2	B	7	A
3	C	10	A
4	D	12	A
5	E	2	A
6	F	3	A, B, C, D
7	G	4	A, D, E
8	H	1	B, C, F, G
9	I	5	B, C, F, G, H

(6 marks)

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5. (d) Based on the above precedence diagram;
- (i) state changes to the schedule, when activities is delayed by 4 days. (4 marks)
 - (ii) Based on question (i), state what changes to the schedule is required for the project to be completed as originally scheduled. (3 marks)
6. (a) Explain the various types of delay in a project. (6 marks)
- (b) What is meant by time cost optimisation. (4 marks)
- (c) The precedence diagram of a construction project is shown in Figure 1 and the list of activities in Table 3. What is the shortest possible duration of the project.

Figure 1

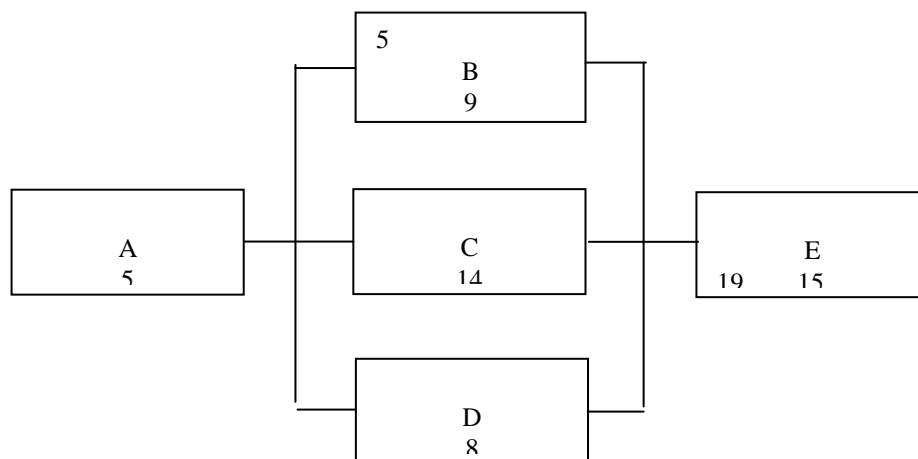


Table 3

Activity	T_N	Z_N	T_c	Z_c	$\frac{Z_c - Z_n}{T_N - T_c}$
A	5	300	3	600	150
B	9	200	3	800	100

C	14	700	7	2100	200
D	8	1600	4	3200	400
E	15	1200	9	4800	600

(15 marks)

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