UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022

COURSE NAME	:	CONSTRUCTION PLANNING AND SCHEDULING
COURSE CODE	:	BFP 40103
PROGRAMME CODE	:	BFF
EXAMINATION DATE	:	JULY 2022
DURATION	:	3 HOURS
INSTRUCTION		1. ANSWER ALL QUESTIONS 2. THIS FINAL EXAMINATION IS AN **ONLINE** ASSESSMENT AND CONDUCTED VIA **CLOSED BOOK**. 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

Q1 A contractor must complete a project as information given in **Table Q1**. If the concrete supply is limited to $8m^3$/day for this project, organize the concrete supply manually to ensure smooth distribution. The supply must start low, increase the resources gradually until it reaches the peaks, somewhere in the middle of the project duration, and gradually decrease towards the end of the whole project duration. The concrete supply schedule must satisfy the preceding activity. Present your answer in all suitable tables and figures.

(30 marks)

Q2 A construction project with activities in **Table Q2** is scheduled to start on 20th June 2022.

a) Construct a network diagram to determine the early start (ES), early finish (EF), late start (LS), late finish (LF) and total float (TF) for each activity.

(6 marks)

b) Using the information given in **Figure Q2**, estimate the planned finish date for the project in a form of a Gantt Chart.

(7 marks)

c) On day-20, the earned value for the project is RM 13,800. Measure the Schedule Variance (SV), Cost Variance (CV) and the Percent Complete of the project and show the value on the suitable graph.

(13 marks)

d) Using the value from **Q2(c),** evaluate the project status.

(4 marks)

Q3 The activities given in **Table Q3** are for small renovation work. However, the owner requests to finish the work in 25 days. Evaluate your project as it can meet the owner's requirement with an incremental cost of less than 20%, and give your suggestion to help the owner about his decision-making.

(25 marks)

Q4 a) Explain in detail the factors that influence the project manager's decision in construction project planning and relate it with the competency required by the Project Manager to handle the issues.

(10 marks)

b) Elaborate on the impact and cause of poor planning in construction projects toward the project duration.

(5 marks)

-END OF QUESTIONS –

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Table Q1

Activity	Duration (days)	Successor(s)	Numbers of concrete require/ day (m^3/day)
Start		Act. 100, Act. 110, and Act. 120	
Act. 100	6	Act. 130	2
Act. 110	2	Act. 130 and Act. 140	3
Act. 120	9	Act. 180	3
Act. 130	4	Act. 150 and Act. 160	3
Act. 140	7	Act. 160	4
Act. 150	5	Act. 170	2
Act. 160	10	Act. 170 and Act. 180	3
Act. 170	8	Act. 190	3
Act. 180	3	Act. 190	2
Act. 190	2	Finish	3
Finish		-	

Table Q2

Activity	Duration (days)	Relationship	Lag/ Lead (days)	Planned cost (RM)	Actual cost/day (RM)	Actual start date	Actual finish date
Start							
A	3	Start	-	600	300	20/06/2022	22/06/2022
B	2	FS (A)	-	1,000	400	23/06/2022	25/06/2022
C	3	FS (A)	+3	750	400	27/06/2022	30/06/2022
D	3	FS (B)	-1	3,000	1,200	27/06/2022	29/06/2022
E	5	FS (C)	-	1,600	500	01/07/2022	08/07/2022
F	7	SS (E)	-	2,100	450	02/07/2022	12/07/2022
G	6	FS (D), FS (E)	-	1,500			
H	4	FF (G)	-	1,600			
I	5	FS (H)	-	2,500			
Finish		FS (I), FS (F)	-				

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June 2022						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

July 2022						
M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Information:
Working hours: Monday to Saturday (8 am to 12 pm and 1 pm to 5 pm)
Public holidays: Shown in calendar (Coloured in red)

Figure Q2

Table Q3

Activity	Successor(s)	Normal duration (days)	Normal cost (RM)	Crash duration (days)	Crash cost (RM)
A	B,C,D	5	500	4	600
B	E	7	350	5	500
C	E,F	8	800	5	920
D	G	11	1,200	7	1,400
E	H	6	600	4	700
F	G	4	500	4	500
G	H	7	700	5	1,000
H		6	300	5	420