UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2021/2022

COURSE NAME	:	SOFTWARE PROJECT MANAGEMENT
COURSE CODE	:	BIE 30503
PROGRAMME CODE	:	BIP
EXAMINATION DATE	:	JANUARY / FEBRUARY 2022
DURATION	:	3 HOURS
INSTRUCTION	:	1. ANSWER **ALL** QUESTIONS
		2. THIS FINAL EXAMINATION IS CONDUCTED ONLINE AND CLOSE BOOK

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES.

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Q1   Draw a network diagram activity with Early Start (ES), Early Finish (EF), Late Start (LS), Late Finish (LF) based on information in **Table Q1**.

Table Q1: Student Information System Tasks

Activity	Duration (Weeks)	Predecessors	Resource (units/week)
i	0	–	0
ii	2	1	1
iii	5	1	2
iv	3	1	1
v	2	1	1
vi	6	2	2
vii	6	4	3
viii	6	4	1
ix	4	3	1
x	2	4,5	0
xi	7	5,7	3
xii	3	2,8	4
xiii	2	2,8,9	4
xiv	2	10,11,12,13	0

(35 marks)

Q2   **Figure Q2** represents the budget for COVIDNOW system development.

> The cost effort for software development for Malaysia COVIDNOW system is RM100000. Three project teams will work for 1 year for a total of 20000 hours. Based on Gantt Chart schedule, your team should be done with 35% of tasks. However, today, only 30% of tasks have been completed with half budget used.

Figure Q2

(a)   Calculate values for **Q2(i)-Q2(vi)** based on scenario in **Figure Q2** the following questions.

   (i)   Plan Value (PV)

(2 marks)

   (ii)   Earned Value (EV)

(2 marks)

   (iii)   Cost Variance (CV)

(2 marks)

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(iv)   Calculate Schedule Variance (SV)

(2 marks)

(v)   Calculate Cost Performance Index (CPI)

(2 marks)

(vi)   Calculate Schedule Performance Index (SPI)

(2 marks)

(b)   Give your conclusion based on results in **Q2(a).**

(2 marks)

Q3   **Figure Q3** shows the network diagram activity with resources required to complete the project. Based on **Figure Q3**, answer **Q3(a)-Q3(d)**.

Activity	Duration Days	Resources Required (week)
A	1	5
B	2	6
C	3	3
D	7	2
E	5	4
F	1	6
G	9	1

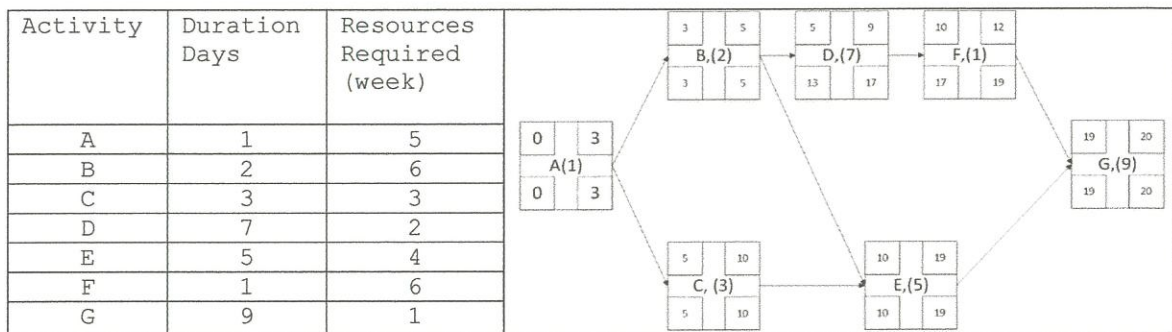**Figure Q3**

(a)   Identify the critical path.

(2 marks)

(b)   Draw a histogram with resource usage based on activities duration days.

(15 marks)

(c)   Based on your answer in **Q3(b)**, identify **TWO (2)** problems of resources usage.

(3 marks)

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(d) Draw a resource usage levelling to remove resource conflict. Justify your answer.

(12 marks)

Q4 **Figure Q4** represent the situation for software house company. Based on **Figure Q4**, answer **Q4(a)-Q4(c)**.

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Suppose you are a project manager of a software house company. Due
to the limited number of expertise in your company, you decided to
hire an outsource vendor for the current project. There are two
different vendors that offer different costs and schedules. Details
for each vendor are listed as follows.
   •   MITCH SDN BHD: Cost of development RM3000. You estimate to
       have 30% possibility to complete the tasks within 60days.
       The agreement contract penalty would be RM5000 per day for
       late task delivery.
   •   Remax SDN BHD: Cost of development RM2800. You estimate to
       have 20% possibility to complete the tasks within 45days.
       The agreement contract penalty would be RM5000 per day for
       late task delivery.
```
Figure Q5

(a) Define Expected Monetary Value (EMV) in Software Project Management.

(2 marks)

(b) Construct quantitative risks analysis based on EMV and decision tree.

(6 marks)

(c) Based on your answer in **Q5(b)**, which vendor is suitable to be selected?

(2 marks)

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Q5   Determine which decision is profitable for the company using Make or Buy concept for the scenario in **Figure Q5**.

> Lotus Malaysia is a company that has been involved in many retail projects. Currently, one project for Lotus Malaysia requires cost about RM500 to buy each machinery. However, the company also has extra capacity that can be used to produce the same. The annual fixed cost of the unused capacity is RM2,000,000. If Cerberus Berhad decided to make the product it would incur material cost of RM400 per unit, labour cost of RM250 per unit and variable overhead cost of RM200 per unit. The future demand is estimated as 5000 units.

Figure Q5

(8 marks)

- END OF QUESTIONS –

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