UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019

COURSE NAME : INDUSTRIAL MANAGEMENT

COURSE CODE : BPB 22103

PROGRAMME CODE : BPB

EXAMINATION DATE : JUNE/JULY 2019

DURATION : 3 HOURS

INSTRUCTION : ANSWER **ALL** QUESTIONS

Q1   (a)   Discuss **THREE (3)** strategies that can be used in developing a production plan with appropriate illustration.

(12 marks)

(b)   List **FOUR (4)** aggregate planning options.

(4 marks)

(c)   Based on each listed aggregate planning options in **Q1(b)**,
State **ONE (1)**,

(i)   Advantage
(ii)   Disadvantage.

(8 marks)

Q2   (a)   A company has received four orders from the International University to provide ICT accessories to them. The processing time and due date shown in the **Table Q2(a)**.

Table Q2(a) : Processing time and due date

Job	Processing Time	Due Date (Day)
A	24	38
B	13	22
C	32	61
D	9	47

(i)   Calculate the sequence according to Shortest Process Time (SPT) and First Come, First Serve (FCFS) technique.

(8 marks)

(ii)   Determine which is the best option for the job based on answers in **Q2 (a)(i)**.

(2 marks)

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(b) The following set of five jobs is to be processed through three work centers at furniture factory. The sequences are component fabrication, assembly operation and packaging. Processing time at each of the work centers is shown in the following **Table Q2(b)**.

Table Q2(b) : Processing time at each work centers

Jobs	Component Fabrication	Assembly Operation	Packaging
A	17	3	2
B	9	5	4
C	23	8	5
D	15	2	1
E	21	6	3

(i) Analyse these jobs through the three work stations using Johnson's rule.

(18 marks)

(ii) Determine the total length of time of this optimal solutions based on **Q2(b)(i)**.

(2 marks)

Q3 Saloon Centre operates seven days a week but facing fluctuating demand. The saloon's owner is interested to make sure distribution of worker per day is optimised. Her analysis of staffing distribution is shown in the **Table Q3**.

Table Q3 : Worker daily distribution for each day

Day	Number of worker needed
Monday	6
Tuesday	8
Wednesday	10
Thursday	7
Friday	12
Saturday	4
Sunday	2

Construct a schedule that covers all requirements while giving two consecutive days off for each worker.

(20 marks)

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Q4   A firm had bought 15 machines with the price of RM20,000 per unit excluded the maintenance cost. Recently, these machines often suffer damage and this result in increasing the cost of repair and maintenance. The maintenance cost for each machine is RM10 per unit, while the repair cost is RM30 per unit. **Table Q4** shows record that indicates this breakdown history on the machines.

Table Q4 : Breakdown history on the machines

Frequency of Preventive Maintenance	Probability of breakdown machine
1	0.1
2	0.2
3	0.3
4	0.4

Calculate :

(a)   The expected numbers of breakdown.

(8 marks)

(b)   The average number of damages per week.

(3 marks)

(c)   The machine repairing cost per week.

(6 marks)

(d)   The maintenance prevention cost per week.

(5 marks)

(e)   The total cost per week.

(2 marks)

(f)   Number of Preventive Maintenance performed.

(2 marks)

- END OF QUESTIONS -

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