

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN MALAYSIA**

JABATAN KEJURUTERAAN MEKANIKAL

PEPERIKSAAN AKHIR

SESI JUN 2018

DJJ6192: INDUSTRIAL MANAGEMENT

TARIKH : 10 NOVEMBER 2018

MASA : 2.30 PETANG - 4.30 PETANG (2 JAM)

Kertas ini mengandungi **SEMBILAN (9)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Formula

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** question

ARAHAN:

Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur. Jawab **SEMUA** soalan.

QUESTION 1**SOALAN 1**

CLO1
C1

- a) List **FIVE (5)** types of organization structure.
*Senaraikan **LIMA (5)** jenis struktur organisasi.*

[5 marks]

[5 markah]

CLO1
C2

- b) **Figure 1(b)** shows the schematic diagram of project organization structure. Identify **FIVE (5)** advantages of this structure

*Rajah 1(b) menunjukkan gambarajah skema struktur organisasi projek. Kenalpasti **LIMA (5)** kelebihan struktur ini.*

[5 marks]

[5 markah]

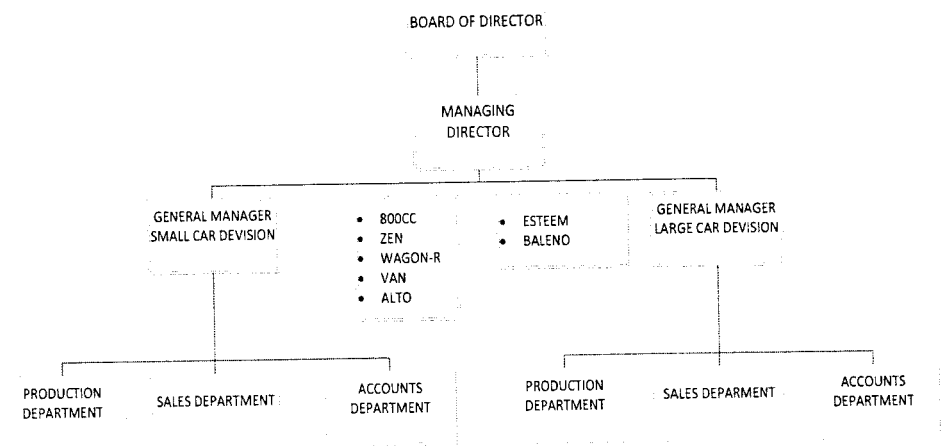


Figure 1(b) / Rajah 1(b)

CLO2
C3

- c) The **Table 1(c)** below is shoes line of work with time needed to produce product R. Given daily production rate is 540 minutes and daily production quantity is 60 units.

Jadual 1(c) di bawah adalah garis kerja kasut dengan masa yang diperlukan untuk menghasilkan produk R. Kadar pengeluaran harian adalah 540 minit dan kuantiti pengeluaran harian ialah 60 unit.

Table 1(c) / Jadual 1(c)

Work	Time (min)	Work before
A	3	-
B	6	A
C	7	A
D	5	A
E	2	A
F	4	B, C
G	5	C
H	5	D, E, F, G

- i. Draw the production line balancing

Lukis garis seimbang produksi

[5 marks]

[5 markah]

- ii. Calculate the production cycle time

Kira kitaran masa produksi

[3 marks]

[3 markah]

- iii. Calculate the minimum number of workstation for the production

Kirakan bilangan minimum stesen kerja produksi

[2 marks]

[2markah]

- iv. Schedule the group of workstation

Jadualkan kumpulan bagi stesen kerja

[5 marks]

[5 markah]

QUESTION 2

SOALAN 2

CLO2
C2

- a) The benefits of inventory are to create a smooth and uninterrupted production. Give **FIVE (5)** objectives of inventory control and management.

*Di antara kelebihan inventori adalah untuk menghasilkan kelancaran dan pengeluaran produksi tanpa gangguan. Berikan **LIMA (5)** objektif kawalan inventori dan pengurusan*

[5 marks]

[5 markah]

CLO2
C3

- b) Sketch a graph of annual cost against the order quantity in which consists of total cost curve, holding cost and setup cost lines.

Lakarkan graf kos tahunan melawan kuantiti pesanan yang di dalamnya terdapat garisan lengkungan jumlah kos, kos pegangan dan kos persediaan.

[5 marks]

[5 markah]

CLO2

C4

- c) Given product structure tree for "A", the lead time and demand information as shown in **Figure 2(c)**, investigate the material requirements planning (MRP) that defines the number of units for each component and when it will be needed.

*Diberikan struktur pokok produk "A" dan masa yang dibawa serta maklumat permintaan seperti dalam **Rajah 2(c)**, siasat keperluan bahan-bahan (MRP) yang menentukan bilangan unit setiap komponen dan pada waktu bila mereka diperlukan.*

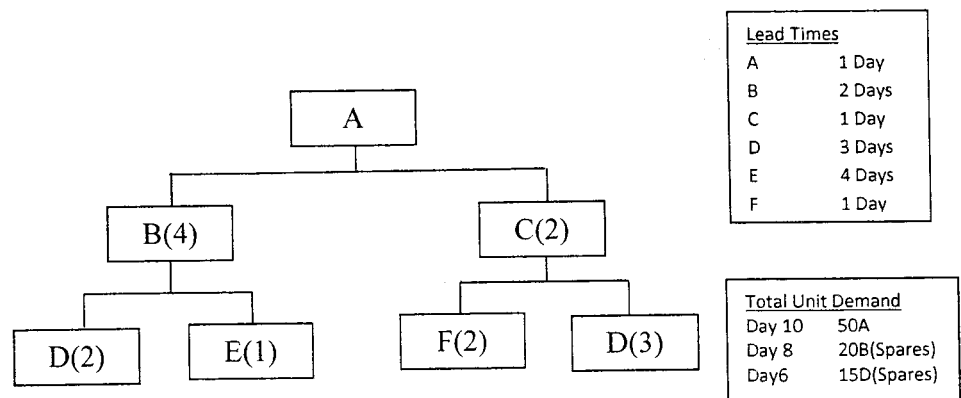


Figure 2(c) / Rajah 2(c)

[15 marks]

[15 markah]

QUESTION 3

SOALAN 3

CLO2
C2

- a) Identify
- FIVE (5)**
- factors that affecting scheduling

Kenalpasti LIMA (5) faktor yang mempengaruhi penjadualan

[5 marks]

[5 markah]

CLO 2
C3

- b)
- Table 3(b)**
- shows four jobs that must be performed in single production line. Every job must go through Job 1, Job 2, Job 3 and Job 4. By using Hungarian Method, calculate the suitable quantity of Lathe Machine for each job to optimize the production cost.

Jadual 3(b) menunjukkan empat kerja yang perlu dilaksanakan dalam satu barisan pengeluaran. Setiap tugas perlu melalui Kerja 1, Kerja 2, Kerja 3 dan Kerja 4. Dengan menggunakan Kaedah Hungarian, kirakan bilangan Mesin Larik yang sesuai bagi setiap kerja untuk mengoptimalkan kos pengeluaran

Table 3(b) / Jadual 3(b)

	Job 1	Job 2	Job 3	Job 4
Lathe 1	4	2	5	7
Lathe 2	8	3	10	8
Lathe 3	12	5	4	5
Lathe 4	6	3	7	14

[8 marks]

[8 markah]

CLO2
C4

- c) One product in BumbleBee's Workshop involves 5 tasks to be accomplished in the Work Center 1 and Work center 2 respectively. **Table 3(c)** shows the processing time for each work in hour.

*Satu produk di BumbleBee's Worksyop melibatkan 5 proses yang perlu diselesaikan di Pusat Kerja 1 dan Pusat Kerja 2 masing-masing. **Jadual 3(c)** menunjukkan masa pemprosesan untuk setiap kerja dalam jam.*

Table 3(c) / Jadual 3(c)

Job	Work Center 1 (Lathe)	Work Center 2 (Drill)
A	5	2
B	3	6
C	8	4
D	10	7
E	7	12

By using Johnson's Rule, determine:

Dengan menggunakan kaedah Johnson's Rule, tentukan:

- i. Optimum Work Sequence Chart

Carta Jujukan Kerja Optimum

[3 marks]

[3 markah]

- ii. Time-phased diagram

Gambarajah fasa-masa

[7 marks]

[7 markah]

- iii. Idle time for Work Center 1 and Work Center 2

Masa melahu untuk Pusat Kerja 1 dan Pusat Kerja 2

[2 marks]

[2 markah]

QUESTION 4

SOALAN 4

CLO1
C1

a) Define the following terms:

Takrifkan istilah berikut:

i. Quality management

Pengurusan kualiti

[3 marks]

[3 markah]

ii. ISO 9000

ISO 9000

[2 marks]

[2 markah]

CLO1
C2b) Identify **FIVE (5)** benefits of implementing TQM.*Kenalpasti **LIMA (5)** kelebihan melaksanakan TQM*

[10 marks]

[10 markah]

CLO1
C3

c) You have been appointed as a Human Recourse manager of newly established organization with more than one thousand employees of different categories. Relate briefly **FIVE (5)** scopes of Human Recourse Manager you would put in place and interpret each of them.

*Anda telah dilantik sebagai Pengurus sumber manusia bagi organisasi yang baru ditubuhkan dengan lebih daripada seribu orang bekerja dari pelbagai kategori yang berbeza. Hubungkaitkan dengan jelas **LIMA (5)** skop pengurusan Sumber manusia yang akan digunakan dan huraikan setiap skop tersebut.*

[10 marks]

[10 markah]

SOALAN TAMAT

IMPORTANT FORMULA :

1. Line Balancing:

$$\text{Cycle time} = \frac{\text{Production time}}{\text{Production volume}}$$

$$\text{Minimum no. of work station} = \frac{\text{Sum of task times}}{\text{Cycle time}}$$

$$\text{Efficiency, } \eta_n = \frac{\text{Sum of task times} \times 100\%}{\text{No. of workstations} \times \text{Cycle time}}$$

$$\text{Balance Delay} = 1 - \text{Assembly Line Efficiency}$$

2. EOQ Equations:

$$Q_{\text{OPT}} = \sqrt{\frac{2DS}{H}}$$

$$\text{Reorder Point, } R = d \cdot L$$

$$\text{No. of order, } N = \frac{\text{Demand}}{\text{Order Quantity}}$$

$$\text{Total Cost} = \frac{D}{Q}S + \frac{Q}{2}H$$

3. EPQ Equations:

$$\text{EPQ} = \sqrt{\frac{2DS}{H \left(1 - \frac{d}{p}\right)}}$$

$$I_{\text{MAX}} = Q \left(1 - \frac{d}{p}\right)$$

$$\text{TC}_{\text{EPQ}} = \left(\frac{D}{Q}S\right) + \left(\frac{I_{\text{MAX}}}{2}H\right)$$

4. Quantity Discount Model:

$$\text{Total Cost} = \frac{D}{Q}S + \frac{Q}{2}H + PD$$

5. Priority Rule:

$$\text{Average completion time} = \frac{\text{flow time}}{\text{no. of job}}$$

$$\text{Average number of job at the work center} = \frac{\text{flow time}}{\text{processing time}}$$

$$\text{Average job lateness} = \frac{\text{late time}}{\text{no. of job}}$$

$$\text{Critical ratio} = \frac{\text{due date}}{\text{processing time}}$$

$$\text{CR} = \frac{\text{time remaining}}{\text{works day remaining}}$$