INSTRUCTION:

This section consists of **FOUR (4)** Structured questions. Answer all questions.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan struktur. Jawab semua soalan.*

QUESTION 1

SOALAN 1

CLO1 C1 (a) Define **FOUR (4)** basic functions of management.

*Takrifkan **EMPAT (4)** fungsi asas pengurusan.*

[6 marks]

[*6 markah*]

CLO1 C2 (b) Explain **THREE (3)** methods to measure forecasting.

*Terangkan **TIGA (3)** kaedah menentukan ramalan.*

[6 marks]

[*6 markah*]

CLO1 C3 (c) **Table 1(c)** shows the demand of water pump which belongs to Mekar Bumi Sdn Bhd. Based on the records, calculate:

***Jadual 1(c)** menunjukkan permintaan bagi pam air kepunyaan Mekar Bumi Sdn Bhd. Dari data-data tersebut, kirakan:*

Table 1(c) / Jadual 1(c)

Year	Demand water pump (unit)	Weighted
2012	14	0.5
2013	15	0.3
2014	22	0.2
2015	24	0.4
2016	18	0.5
2017	20	0.3

i. Forecast demand for year 2018 by using 3-years moving average method.

Ramalan permintaan bagi tahun 2018 dengan menggunakan kaedah 3 tahun purata bergerak.

[3 marks]
[3 *markah*]

ii. Forecast demand for year 2018 by using 3- years weighted moving average method.

Ramalan permintaan bagi tahun 2018 dengan menggunakan kaedah 3 tahun pemberat purata bergerak.

[3 marks]
[3 *markah*]

iii. Using Mean Squared Error (MSE), which forecast method above is the best method.

Dengan menggunakan Mean Squared Error (MSE), nyatakan kaedah ramalan mana yang diatas lebih baik antara keduanya.

[7 mark]
[7 *markah*]

QUESTION 2

SOALAN 2

CLO1
C3

a) **Table 2(a)** below shows the information on the production of XY products in UniStyle Sdn Bhd.

Jadual 2(a) *di bawah menunjukkan maklumat tentang pengeluaran produk XY di UniStyle Sdn Bhd.*

Table 2(a) / Jadual 2(a)

Task	Processing time (day)	Due Date (day)
A	12	15
B	6	24
C	14	9
D	3	8
E	7	6

i. Prepare a complete schedule containing work sequences, flow times and delays for processing work according to First Come First Serve (FCFS) and Earliest Due Date (EDD).
Sediakan jadual lengkap yang mengandungi turutan kerja, masa alir dan kelewatan bagi kerja memproses mengikut FCFS dan EDD.

[5 marks]
[*5 markah*]

ii. Calculate the average time to complete the job.
Kirakan purata masa menyudahkan kerja.

[3 marks]
[3 *markah*]

iii. Calculate the average work delay time.
Kirakan purata masa kelewatan kerja.

[3 marks]
[3 *markah*]

iv. Calculate the average work in the system.
Kirakan purata kerja dalam system.

[3 marks]
[3 *markah*]

v. Based on answer above, which of the sequence will be more productive for company operations.
Berdasarkan jawapan di atas, urutan manakah yang lebih produktif untuk operasi syarikat.

[1 mark]
[1 *markah*]

CLO1 C2 (b) Capacity planning is the process of establishing the output rate that can be achieved at a facility. Explain the terms that related to capacity:
Perancangan kapasiti ialah proses untuk menetapkan kadar keluaran yang boleh dicapai di sesuatu tempat kerja atau kilang. Terangkan istilah yang berkaitan dengan kapasiti:

i. Design capacity.
Kapasiti reka bentuk.

[2 marks]
[2 *markah*]

ii. Effective capacity.
Kapasiti berkesan.

[2 marks]
[2 *markah*]

CLO1 C3 (c) Mr. Azman, the Production Manager at AZ Rich Mills, expect his operation to produce 1000 square feet of fabric for each ton of raw cotton. Each ton of raw cotton requires 5 hours to process. He believes that he can buy better quality raw cotton, which will enable him to produce 1200 square feet per ton of raw cotton with the same labour hours. Calculate:

Encik Azman adalah pengurus pengeluaran di AZ Rich Mill, menjangkakan kilang boleh menghasilkan 1000 kaki persegi kain bagi setiap tan kapas. Setiap tan kapas memerlukan 5 jam untuk diproses oleh pekerja. Beliau percaya dengan menggunakan kapas yang berkualiti tinggi akan menghasilkan 1200 kaki persegi dengan jumlah masa yang sama untuk diproses oleh pekerjanya tadi. Kirakan:

i. Current labour productivity.
Produktiviti semasa pekerja.

[3 marks]
[3 *markah*]

ii. New labour productivity after purchasing the higher quality raw cotton.
Produktiviti terbaru pekerja selepas membeli bahan kapas yang berkualiti tinggi.

[3 marks]
[*3 markah*]

QUESTION 3
SOALAN 3

CLO1 C2 (a) Explain **FOUR (4)** types of inventories.
*Terangkan **EMPAT (4)** jenis inventori.*

[8 marks]
[*8 markah*]

CLO1 C3 (b) The average demand of pumps for GoldenX Sdn Bhd product is 750 units per year. The ordering cost is RM 45 per order and the carrying (holding) cost is RM 9 per unit for a year. Products are normally received 5 days after placing the order. The average operation period is 250 days per year. Calculate:

Purata permintaan pam bagi produk GoldenX Sdn Bhd adalah 750 unit setiap tahun. Kos memesan adalah RM 45 setiap pesanan, dan kos menyimpan adalah RM 9. Produk biasanya akan diterima selepas 5 hari pesanan dibuat. Syarikat ini beroperasi selama 250-hari bekerja setahun. Kirakan:

i. Economic Order Quantity.
Kuantiti pesanan ekonomi (EOQ).

[2 marks]
[*2 markah*]

ii. Re-Order Point (ROP)
Titik Pesanan semula.

[2 marks]
[*2 markah*]

iii. Expected number of order per year.
Jangkaan bilangan /kekerapan pesanan tahunan.

[1 mark]
[1 *markah*]

iv. Expected time between order.
Jangkaan bilangan hari antara pesanan.

[1 mark]
[1 *markah*]

v. The total costs of holding and ordering.
Jumlah kos inventori.

[1 mark]
[1 *markah*]

CLO1
C4

(c) ATP Cahaya Hardware Sdn Bhd wants to classify their inventory using ABC analysis technique. **Table 3(c)** below shows the record inventories of 2021 sold by the company.

ATP Cahaya Hardware Sdn Bhd ingin mengklasifikasikan inventori mereka menggunakan teknik analisis ABC. ***Jadual 3(c)*** *di bawah menunjukkan rekod inventori 2021 yang telah dijual oleh syarikat.*

Table 3(c) / Jadual 3(c)

Item	Cost per unit (RM)	Annual Sold (unit)
Nail	0.50	21,000
S hook	0.50	10,000
Drill bit	1.50	16,000
Measuring tape	3.50	50,000
Wall plug	0.10	15,000
Bolt & nut	2.00	40,000
O Ring	0.03	80,000
Screw	0.25	15,000
Feurral	0.05	120,000
Sand paper	1.50	10,000

i. Classify of inventories as A = 80% , B = 15% and C = 5% of Ringgit Malaysia.
Kelaskan penggunaan inventori sebagai A= 80% , B = 15% and C = 5% Ringgit Malaysia.

[10 marks]
[*10 markah*]

QUESTION 4

SOALAN 4

CLO2 C2 (a) Explain **THREE (3)** benefits of Material Requirement Planning (MRP).
*Terangkan **TIGA (3)** manfaat rancangan keperluan bahan (MRP).*

[6 marks]
[*6 Markah*]

CLO2 C3 (b) RBA company has received orders for 100 units of product A at week 7. They have inventory records show in T**able 4(b)**. By using this record, construct:
*Syarikat RBA menerima tempahan terhadap Produk A ialah 100 unit pada minggu yang ke 7. **Jadual 4(b)** menunjukkan rekod inventori yang mereka ada. Dengan menggunakan rekod inventori, binakan:*

Table 4(b) / Jadual 4(b)

Item	Parent	Quantity for 1 parent	Lead Time (week)	Stock
A	-	1	1	-
B	A	1	1	5
C	A	2	2	10
D	A	1/2	1	5
E	C	1/2	1	20
F	C	1	1	5

i. Tree Structure for product A.
Gambarajah pokok bagi produk A.

[3 marks]
[*3 markah*]

ii. Time-phased structure for product A.
Struktur fasa masa bagi produk A.

[4 marks]
[*4 markah*]

CLO2
C4

(c) Based on Question 3 (b), you, as a production planner, are required to:
Berdasarkan Soalan 3 (b), anda sebagai seorang perancang jadual pengeluaran, dikehendaki untuk:

i. Determine the Bill of Material (BOM) for product A.
Tentukan Bill Material (BO M) bagi produk A.

[6 Marks]
[6 *Markah*]

ii. Determine the Material Requirement Planning (MRP).
Tentukan Rancangan Keperluan Bahan (MRP).

[6 marks]
[*6 markah*]

SOALAN TAMAT

MRP TABLE

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													

Item		Week												Lead Time
	Gross Requirements													
	On Hand													
	Nett Requirements													
	Scheduled Received													
	Planned Order Releases													