DIPLOMA IN BUSINESS ADMINISTRATION

LEVEL 6 YEAR II EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: NOVEMBER/DECEMBER 2025

SUBJECT: PRODUCTION AND OPERATIONS MANAGEMENT

TIME: THREE [3] HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE:

1. Write your Examination Number and National Registration Card Number on the answer booklet provided. Ensure to append your signature in the space provided on the answer booklet.
2. Write your SCRIPT SERIAL NUMBER on the examination register provided and the entry slip
3. There are Two (2) sections in this paper, Section A and Section B
4. Section A has multiple choice questions, answer all
5. Question two (2) in section B is compulsory
6. Answer any other Three (3) questions of your choice.
7. Each question carries Twenty (20) marks
8. Cell phones and programmable calculators are not allowed in the examination room.

DO NOT TURN THIS PAPER UNTIL YOU ARE TOLD TO DO SO

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SECTION A: MULTIPLE CHOICE QUESTIONS; ATTEMPT ALL QUESTIONS.

QUESTION 1

Write the letter of the correct answer in the answer booklet provided

1.1 Which type of production is most suitable for customised, one-off products? (2 marks)

a) Mass production
b) Batch production
c) Jobbing production
d) Flow production

1.2 Assuming the following jobs and their corresponding processing time and delivery days in days arrive at a workstation.

Job	A	B	C	D
Production Time	9	4	7	3
Delivery Time	7	6	2	9

Using the critical ratio rule, determine the sequence of operation. (2 marks)

a) A B C D
b) C A B D
c) D B A C
d) A C B D

1.3 Interpret the acronym PERT as applied in POM decision aids. (2 marks)

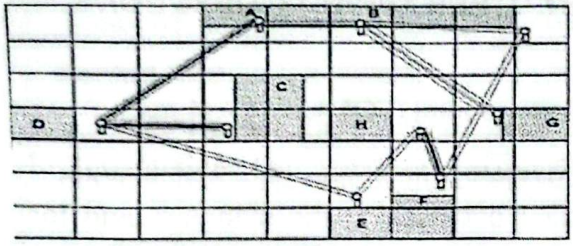
a) Production Evaluation and Resource Tracking
b) Program Evaluation and Review Technique
c) Product Efficiency and Resource Tool
d) Procurement Evaluation and Requisition Test

1.4 Which of the following is a key feature of Just in Time (JIT) production? (2 marks)

a) Maximum inventory holding
b) Production ahead of demand
c) Waste reduction by producing only when needed
d) Large batch sizes

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1.5. Identify the method study recording technique shown below. (2 marks)



a) Flow process diagram.
b) Two-handed process chart.
c) Travel Chart
d) String diagram

1.5 Which of the following is a reactive maintenance type? (2 marks)

a) Predictive
b) Preventive
c) Breakdown
d) Scheduled

1.6 When a buyer provides the equipment specifications and the engineer comply with all the specifications but because there were errors in the specifications provided, the equipment fails to work. According to the definition of quality as provided by Crosby, the right quality has been achieved by the Engineer. (2 marks)

True or False

1.7 Which of the following is NOT a responsibility of the purchasing department? (2 marks)

a) Supplier selection
b) Cost reduction through procurement
c) Product advertising
d) Inventory control

1.8 Which of the following best describes sequencing in production planning? (2 marks)

a) Selecting suppliers.
b) Determining order of operations.
c) Conducting market research.
d) Creating customer feedback loops.

1.9 The definition, 'Quality is Fitness for Purpose', can be classified as: (2 marks)

a) Customer-base
b) Service-base
c) Manufacturing-base
d) Value-based definition.

Total (20 marks)

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SECTION B: ANSWER QUESTION TWO (2) AND ANY OTHER THREE (3) QUESTIONS.

QUESTION 2

a) State **Four (4)** primary elements of Total Quality Management (TQM). (4 marks)

b) Mpumalanga limited manufactures knitted products. The company has random output rates and has decided to solve the problem by first establishing the standard time for knitting. Four elements, entangling, wrapping, disentangling and punch, were identified. The following were the results of a stopwatch reading in minutes;

#	ELEMENT	CYCLE (Minutes)			
		1	2	3	4
1	Entangling	3.85	3.95	3.8	3.8
2	Wrapping	5	5	4.9	4.9
3	Disentangling	2.8	2.7	2.5	2.5
4	Punch	6	6.1	6	6

Additional information;

- Element Punch is a machine element, the rest are manual elements.
- Performance rate for the manual elements is at 90%
- Total allowances are set at 4%

ii) Assuming that each product requires 50 cycles to be completed, Calculate the standard time for completing one product. (6 marks)

ii) Assuming that a client needs 500 units, considering the following assumptions: order received on 3rd January 2025, all months have 20 working days, workers work 8-hours per day - from Monday to Friday and production can only start on 4th January, 2025.

Determine whether the Organisation will meet the deadline of 11th January, 2025. (4 marks)

iii) Explain **three (3)** strategies that can be used to improve the production time. (6 marks)

- improved machine facility
- having team
- Coader forward Shedding over backward

Total (20 marks)

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QUESTION 3

a) Describe **Three (3)** elements of the planning Phase of the Production Planning and Control System. (6 marks)

b) Assume you are the operation manager for G-gates Breweries and the following data was made available to you by the operation supervisors:

Job	Processing time (days)	Due data (days
A	9	10
B	16	40
C	14	7
D	22	20
E	19	20

Using the shortest processing time priority sequencing rule,

i) Sequence the jobs (2 marks)

ii) Calculate the work-in-progress (2 marks)

iii) Calculate the job lateness (4 marks)

c) Describe **three (3)** strategies that could ensure that you meet deadlines in a case of failure to meet customer due date (6 marks)

Total (20 marks)

QUESTION 4

a) Explain **Three (3)** roles of the Human resource function in an Organisation. (6 marks)

b) Sharon, the proprietor of a clothing store, creates and sells a wide range of clothes. In a short time, her shop became well-known among the local ladies. However, when she began accepting online orders, operating the store became more difficult. Despite her best efforts, she could not deliver the products on time as she struggled to keep track of the demands. As an Operations Management specialist, you suggest that she tries using the material requirements planning system. Sharon did not understand the concept and as such requested that you illustrate the system operation. Assuming she provides you with the following data: lead time 2 weeks, inventory 260 units, lot batch size 100 units, forecasted customer demand in week 1, 3, 5, 7 and 8 are 150, 70, 175, 90 and 60 respectively. Illustrate the operation of the MRP over the 8-week period (14 marks)

Total (20 marks)

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QUESTION 5

Mr. Mulenga Chasaya, work for KGH Sweet manufacturer of Zambia as an Operations Manager and has been informed of the company's market expansion into the SADC region prompting his unit to increase production. From his analysis, he recommends that the company should implement a mass type of production system and should always keep a minimum safety stock of 10,000 units per month

a) Describe **Six (6)** characteristics of Mass production. (6 marks)

b) Explain **Three (3)** limitations of Mass production. (6 marks)

c) Given that an organization needs to implement Total Productive Maintenance (TPM).

Explain **Four (4)** strategies of TPM development. (8 marks)

Total (20 marks)

QUESTION 6

Assuming that an Organisation is considering improving the quality of work life (QWL) and implementing Just-In-Time (JIT) to stay competitive in the business environment

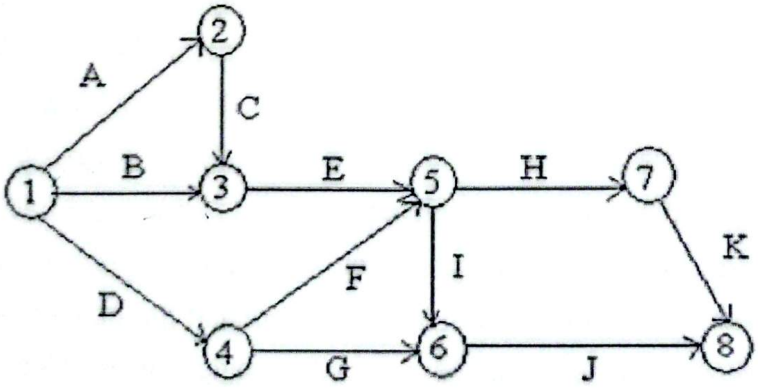
a) Outline **Five (5)** factors that influence the QWL in an Organization. (10 marks)

b) Explain **Five (5)** requirements for successful JIT implementation in an organization. (10 marks)

Total (20 marks)

QUESTION 7

Assuming that you have been given a task to contract a Supplier on a project involving the following network diagram, project activities and three-time estimates in weeks:



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Activity	Time Estimate (Weeks)		
	Optimistic	Pessimistic	Most Likely
A	4	8	5
B	5	10	7
C	8	12	11
D	2	7	3
E	4	10	7
F	6	15	9
G	8	16	12
H	5	9	6
I	3	7	5
J	5	11	8
K	6	13	9

a) Calculate the expected time for each activity. (11 marks)

b) Estimate the minimum delivery time under normal circumstances. (9 marks)

Total (20 marks)

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