



**FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT  
MAIN EXAM**

**DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT**

<b>PROGRAMME</b>	:	NATIONAL DIPLOMA OPERATIONS MANAGEMENT
<b>SUBJECT</b>	:	OPERATIONS MANAGEMENT 2B
<b>CODE</b>	:	OPM22B2
<b>DATE</b>	:	20 <sup>TH</sup> NOVEMBER 2019
<b>DURATION</b>	:	3 HOURS
<b>TIME</b>	:	12h30-15h30
<b>TOTAL MARKS</b>	:	100
<b>WEIGHTS</b>	:	50%
<b>EXAMINER</b>	:	MR EM BAKAMA
<b>(Internal) MODERATOR</b>	:	MR NELSON MADONSELA
<b>NUMBER OF PAGES</b>	:	4 pages (Including cover page)

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**INSTRUCTIONS TO CANDIDATES:**

- Answer ALL questions.
- This is a closed book assessment.
- Leave margins and spaces between the questions.
- Show all your calculations.
- Number your answers clearly.
- Unless otherwise indicated, express your answers correct to two (2) decimal places.
- Where appropriate, indicate the units of your answer. (e.g. Hour, R )
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

### **EVETECH PTY**

Since its founding in 2007, Evetech has become one of the nation's most awarded computer System Builder and has relationships with all the top computer component companies in the world including Intel, AMD, NVIDIA, MSI, Microsoft, and many more. At Evetech the company always aim to give more to the customer, bringing to them the latest technology before the competition, and regularly updating the company's product range to make sure that only the best components go into every custom-built PC. In addition to quality products, customer service is among the company's highest priorities. The philosophy is to extend indefinitely to the customers in providing for their every need. The company will never compromise their efforts to provide the "best overall value" for the customers.

From humble beginning as a small 2-man store that started in 2007 in the heart of Pretoria, the company had since grown exponentially to a booming online and in-store presence, winning numerous hardware awards of excellence for their custom machines from both PC Format and New Age Gaming (NAG) magazines. The company was the first one in South Africa to offer Overclocked PCs backed by full manufacturer warranty. Not only that, it also offers a full range of Gaming Laptops. Evetech is respected as an Intel Premier Provider - showing their commitment to providing the latest Intel technology and quality. The company is also a Microsoft Partner, which demonstrates its commitment to skills & training. With an estimated quarterly aggregate demand of 5000 units, Evetech holds no inventory. For the past five months, sales have been steady, and the company has placed itself in a so good financial position that an expansion is under consideration by the management team. All thanks to the marketing team led by Miss Catherine Lefaladi since the company opened its doors. The company has placed most of its resources in online advertisement since the business is done online on the company's website.

The operation process is quite simple: The Company holds no inventory, once a customer places an order for a specific computer, a confirmation of payment is first required. The company needs a maximum of five working days to process it. The operations department receives a notification via email with the customer's order details (Computer size, color, etc...), then a notification is sent back to the customer for confirmation purpose and the assembly process begins.

The components (Casing, motherboard, power supply, etc.) are collected from suppliers in Johannesburg north by the procurement department, then they are sent to the IT department where they will be assembled all together to get a computer. Finally, the product is ready for delivery, a notification is sent to the customer to confirm the collection time and delivery arrangements. Working with no stock on hand and by outsourcing most of the activities has recently placed the company in a difficult position on the long run as one of the suppliers could not always deliver the material on time. Hence the company has decided to make some components on its own.

1.	What information is necessary for the operations manager to make effective use of a dependent inventory demand model at Evetech pty?	(5)
2.	Explain the difference between a gross requirement plan and a net requirement plan	(10)
3.	Identify and explain the four special considerations that should be considered for a good capacity decision at Evetech pty.	(8)
4.	If Evetech pty wants to match capacity to demand what would be the five tactics they could use?	(10)
5.	Mention and explain the criteria for a correct scheduling technique.	(8)
6.	Differentiate between economies of scale and diseconomies of scale, use a graph to support your answer. Which of the two scales applies to Evetech pty? Justify your answer.	(9)

**SECTION B: SCHEDULING****50 MARKS**

1.	The following set of seven jobs (A, B, C, D, E, F and G) are to be processed through two work centers at Malangu's furniture workshop. The sequencing is first cutting, then painting. The processing time at the cutting department will require the following hours: fifteen, seven, four, seven, ten, four and seven as per the respective seven jobs. Likewise, the processing time at the painting department will also require the following hours: three, nine, ten, six, nine, five and eight as per the respective.	<b>[20]</b>
	a. What is the optimal sequence for these jobs to be scheduled?	(2)
	b. Chart these jobs through the two work centers	(14)
	c. What is the idle time in the painting department, given the optimal solution?	(4)
2.	<p>Thabo Finance Corporation, headquartered in Cape Town, wants to assign three recently hired college graduates, Jones, Smith, and Wilson, to regional offices. However, the firm also has an opening in Cape Town and would send one of the three there if it were more economical than a move to Johannesburg, Durban, or Port Elisabeth.</p> <p>It will cost R800 to relocate Jones to Johannesburg, R1100 to relocate him to Durban, R1200 to relocate him to Port Elisabeth and R1000 to send him to Cape Town. R500 will be needed to relocate Smith to Johannesburg, R1600 to relocate him to Durban, R1300 to relocate him Port Elisabeth and R800 send him to Cape Town.</p> <p>Finally, R500 will be needed to move Wilson to Johannesburg, R1000 to send him to Durban, R2300 to send him to Port Elisabeth and R1500 to send him to Cape Town.</p> <p>Considering the costs above, what would be the optimal assignment of personnel to offices?</p>	<b>[30]</b>

**END OF ASSESSMENT!**