UNIVERSITY OF SWAZILAND

FACULTY OF COMMERCE

DEPARTMENT OF BUSINESS ADMINISTRATION

MAIN EXAMINATION

MAY 2018

TITLE OF THE PAPER : OPERATIONS MANAGEMENT 11

DEGREE : BACHELOR OF COMMERCE

COURSE : BA 439 AND BA 507 (IDE)

TIME ALLOWED : THREE (3 HOURS)

Instructions:

1. THIS PAPER CONSISTS OF SECTION A AND SECTION B)
2. SECTION A IS CASE STUDY AND IT IS COMPULSORY QUESTION
3. ANSWER ANY TWO QUESTIONS FROM SECTION B

Note: You are reminded that in assessing your work, account will be given of accuracy of language and the general quality of expression, together with layout and presentation of your final answer.

THIS PAPER MUST NOT BE OPENED UNTIL THE INVIGILATOR HAS GRANTED THE PERMISSION

SECTION A – COMPULSORY

Royal Swaziland Sugar Company (RSSC) is reputable company global as it is certified with ISO 9000. The company manufactures sugar from different farmers and its own farms. The company is using JIT to process the sugar cane from the fields. In the past the company has been using the traditional system than the Japanese model JIT.

Question 1.

a. Discuss six factors that make difference between JIT (Just in time) and Traditional approach for manufacturing planning and control RSSC production process.   **16 marks**

b. In order to change to lean system, explain six transition to JIT system RSSC could had embarked on. **12 marks**

c. Discuss the any 12 elements of JIT systems that RSSC should been applying. **22 marks**

Total Marks (50)

SECTION: ANSWER ANY TWO QUESTIONS IN THIS SECTION.

Question 2

i. Manager is attempting to put together an aggregate plan for the coming nine months. She has a forecast of expected demand for the planning horizon. The plan must deal with highly seasonal demand is relatively high in periods 3 and 4 and again in period 8, as can be seen from the following forecasts:

Period	1	2	3	4	5	6	7	8	9	Total
Forecast	190	230	260	280	210	170	160	260	180	1,940

The department now has 20 full-time employees, each of whom can produce 10 units per period output per period at a cost of E56 per unit period, and backlog cost is E10 per unit per period. The manager is considering a plan that would involve hiring two people to start working period 1, one on a temporary basis who would work only through period 5. This would cost E500 in addition to unit production costs.

    a. What is the rationale for this plan? **5 marks**

    b. Determine the total cost of the plan, including production, inventory and back-order costs.**15 marks**

    c. Prepare a schedule from the following situation. The forecast for each period is 70 units. The starting inventory zero. The MPS rule is to schedule production if the projected inventory on hand is negative. The production lot size is 100 units. The following table shows committed orders.**(10 Marks)**

Period	Customer orders
1	80
2	50
3	30
4	10

Total 25 marks

Question 3

Control charts for means and ranges. Processing new accounts at a bank is intended to average 10 minutes each. Five samples of four observations each have been taken. Use the sample data to construct or determine upper and lower control limits for both a mean chart and range chart.

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
	10.2	10.3	9.7	9.9	9.8
	9.9	9.8	9.9	10.3	10.2
	9.8	9.9	9.9	10.1	10.3
	10.1	10.4	10.1	10.5	9.7
TOTALS	40.0	40.4	39.6	40.8	40

a. Determine the mean and range for each sample **(10 marks)**
b. Compute the average mean and average range **(6 marks)**
c. Obtain factors A2,D4 and D3 for n =4:A2 = 0.73, D4 = 2.28, D3= 0**(5 marks)**
d. Verify that points are within the limits. (if they were not , the process would be investigated to correct the assignable causes of the variation. **4 marks.**

Total: 25 marks

Question 4

Eighty units of the end of the end item E are needed at the beginning of week 6. Three cases (30 units per case) of J have been ordered and one case is scheduled to arrive in week 3, one week 4, and one in week 5. *Note:*J must be ordered by the case , and B must be produced in the multiples of 120 units. There are 60 units of B and 20 units of J now on hand. Lead times are two weeks each for E and B, and one week for J.

E
├── B(2)   J(3)
│   ├── J(4)   F(2)
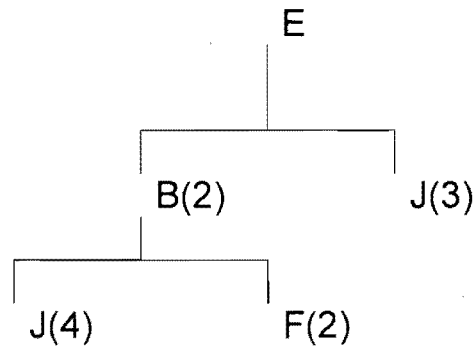
a. Prepare a material requirements plan for component 1
b. Suppose that in week 4 the quantity of E needed is changed from 80 to 7. The planned –order releases through week 3 have all been executed. How many Bs and Js will be on hand in week 6?

Total: 25 marks