

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular), November-December 2015

B. Tech in Mechanical Engineering, Semester V

Roll No.....

COURSE CODE: ME-505:Production Planning & Control

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type questions (10 questions @ 1 mark)	10
1.	Standardization of products is down to (a)eliminate unnecessary varieties in design (b)simplify manufacturing process (c) make interchangeable process (d)reduce material cost.	
2	A SIMO chart should be used with (a)Process chart (b)Flow diagram (c)Man machine operation charts (d)therbligs	
3.	To avoid excessive multiplication of facilities, the layout preferred is (a)Product layout (b)Group layout (c)Static layout (d)Process layout	
4.	Which one of the following charts gives simultaneously, information about the progress of work and machine loading? (a)Process chart (b)Man load chart (c)Man machine chart (d)Gantt chart	
5.	Receiving a required inventory item at the exact time needed. a. JIT b. ABC c. MRP d. VED	
6	Which one of the following is required for the preparation of the load chart machine? (a)Process chart (b)Sequencing of jobs on the machine (c)Route sheet of jobs (d) Schedule of jobs for the machines.	
7	Which of the following layouts is best suited for mass production? (a)Process layout (b)product layout (c)fixed position layout (d)none of these	
8.	State need for product planning	
9.	Define ROL.	
10.	Explain the term safety stock.	

Q.2	Short answer type questions (4 questions @ 2.5 marks) (a) Explain MRP II. (b) What are dependent demand items and independent items? (c) Differentiate between relaxation allowance and contingency allowance (d) Write short note VED analysis.	10
Q.3A	Define BEP with diagram also derive the expression for BEP.	05
Q.3B	How is the concept behind ABC classification useful for managing a manger time? Explain	05
Q.4A	Why is time study preferred over other methods in establishing a time standard for long cycle operations?	05
Q.4B	Discuss the product and process layout in detail.	05
Q.5A	Distinguish between Job Shop production and mass production.	05
Q.5B	Differentiate between JIT and MRP	05
Q.6A	Derive the expression for Economic Order Quantity when stock Replenishment is Instantaneous. With diagram.	05
Q.6B	Elaborate the term 3s philosophy.	05
	OR	
Q.6B	With diagram discuss Kanban production information system.	05
Q.7A	The following information on production inventory system of a manufacturing company is given below. Determine (1) Optimal lot size (2) Manufacturing time and time between set ups Demand per annum: 6000 units Unit cost : Rs 40 Setup cost: Rs 500 Production rate: 3600 units Holding cost: Rs8/unit/annum Shortage cost/unit: Rs 20 /unit/annum.	05
Q.7B	To make the PPC truly integrative, what prerequisites are necessary?	05
	OR	
Q.7B	Does ERP Implementation require organizational preparation? Discuss	05
Q.8A	Draw and explain Man Machine chart. And briefly explain Gantt chart	6+4
Q.9A	A company has 8 large machines which receive preventive maintenance. The maintenance team is decided into 2 crews A and B. Crew a takes the machine power and replaces parts as per given maintenance schedule. The second crew resets the machine and puts back into operation. At all times the no passing rule	10

is considered to be in effect. the servicing time for each machine is given below

Machine	a	b	c	d	e	f	g	h
Crew A	5	4	22	16	15	11	9	4
Crew B	6	10	12	8	20	7	2	21

Determine the optimal sequence of scheduling the factory maintenance crews to minimize their idle times and represent it on Gantt chart.

Q.9B⁺ Elaborate MPS system. Complete the material requirement plan of an item X shown below. The item has an independent demand and a safety stock of 40 is maintained. 5+5

Order quantity =70	week											
Lead time=4weeks Safety stock =40	1	2	3	4	5	6	7	8	9	10	11	12
Projected requirement	20	20	25	20	20	25	20	20	30	25	25	25
Receipts On hand at the end of period(65) planned order released.		70										

OR

Q.9B Explain various factors of effecting routine procedure. 10