

S - 399

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**B.E. (Mechanical) (Part - IV) (Semester - VIII) Examination, May -  
2015**

**INDUSTRIAL ENGINEERING**

**Sub. Code : 49418**

Day and Date : Thursday, 07 - 05 - 2015

Total Marks : 100

Time : 2.30 p.m. to 5.30 p.m.

- Instructions :
- 1) Attempt any three questions from each section.
  - 2) Figures to the right indicates full marks.
  - 3) Draw sketches wherever required.
  - 4) Assume suitable data, if required & mention clearly the same.

**SECTION - I**

- Q1)** a) What are functions of industrial engineering. [6]  
b) Explain "plant capacity" and methods of enhancing the same. [6]  
c) Explain various production systems. [6]

- Q2)** a) Describe various inputs and outputs of MRP. [6]  
b) Company uses 2000 units per month purchase price is Rs. 4/- per unit. Procurement cost is Rs. 100/- per order & cost of carrying is 10% of inventory cost. Lead time is 10 days and working days are 300 in year. Safety stock is 200 units.

Calculate i) Economic order Quantity.

ii) Number of orders.

iii) Reorder point

iv) Minimum and maximum stock

v) Inventory cost. [10]

**P.T.O.**

Q3) a) What are objectives of plant layout. [8]

b) From following relation between population and sale of laptops, estimate laptop demand for 50 million population. [8]

Population million	4	8	17	25	28	38
Demand $\times 1000$	30	38	70	82	95	125

Q4) a) Explain with sketches different types of conveyers and their applications. [8]

b) From following data, draw network, indicating critical path, project duration. Also calculate float in tabular form. [8]

Activity	Predecessors	Duration weeks.
1-2	-	5
2-4	1-2	3
1-3	-	3
3-5	1-3	3
3-6	1-3	2
5-8	3-5	2
6-7	3-6	6
7-8	6-7	3
8-9	5-8 & 7-8	4
4-9	2-4	2

### SECTION - II

Q5) a) Which are various tools and techniques to improve Productivity. [8]

b) What are steps involved in value analysis. [8]

- Q6) a) Describe method of drawing string diagram indicating it's purpose.[8]  
 b) What are principles of motion economy. [8]
- Q7) a) Explain importance of anthropometrical data in human engineering.[8]  
 b) A continuous stop watch study was conducted on job consisting of three elements stop watch reading (in hundredth of minute) is given below. If allowances are 15%, calculate standard time & production for 8 hour shift. [8]

Element	Time Cycle				Rating
	1	2	3	4	
1	11	77	142	224	100
2	26	93	174	239	90
3	67	133	213	277	110

- Q8) a) What are objectives of job evaluation. [6]  
 b) What is purpose of incentive. Explain characteristic of good incentive system. [6]  
 c) Total number of observations taken during study was 20,000 in which machines was idle 4000 times. Calculate limit of accuracy. Also if desired accuracy is  $\pm 5\%$  comment on number of observations. [6]

