Seat No. | SC402

B.E. (Mechanical) (Semester - VIII) Examination, April - 2016
INDUSTRIAL ENGINEERING
Sub. Code : 49418

Day and Date : Wednesday, 20 - 04 - 2016   **Total Marks : 100**

Time : 3.00 p.m. to 6.00 p.m.

Instructions :
1) Solve any three questions from section - I and any three questions from section - II.
2) All questions are to be written in the same answer book.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary and state it clearly.

SECTION - I

Q1) a) State the tools and techniques of plant layout and explain any one. [8]

b) Explain various functions of PPC. [8]

Q2) a) Explain line balancing and machine selection with respect to process planning. [8]

b) From the following correlation, establish forecast for 60 lakhs students. [8]

No. of students (lakhs)	15	22	25	36	42
Sales of books (hundreds)	65	80	96	130	185

Q3) a) Consumption of keys is 2000 per month. Each key cost Rs. 5/-. For placing order it costs Rs. 50/- and to stock keys costing is 10% of cost of key. Factory works for 300 days in year. Procurement time is 5 days and safety stock is 300 keys. [10]

Find
i) Economic order quantity,
ii) Number of orders,
iii) Minimum and maximum stock,
iv) Reorder point,
v) Total cost including material.

b) Explain make or buy decision technique. [6]

P.T.O.

Q4) a) Select proper material handling system for transporting coal from receiving station of furnace of steam power plant with justification. [8]

b) From the following data draw network, determine critical path, project duration and floats of all activities. [10]

Activity	1-2	1-3	1-4	3-5	4-5	5-6	2-6	5-7	7-8	6-8	8-9
Duration	8	5	13	12	6	7	6	9	2	8	6

SECTION - II

Q5) a) What is excess work content and explain various causes of excess work content. [8]

b) What is value and how the value can be subdivided? [8]

Q6) a) Explain method study symbols and draw a flow process chart using these symbols. [8]

b) What is micromotion study? Explain use of therbligs and SIMO chart in micromotion study. [8]

Q7) a) From the following cumulative stop watch measurement data find ou standard time and output for 8 hr. shift considering total allowance o 15%. Also calculate efficiency for actual output of 280. Eliminate erroneous readings. [9

Element	Cycle in min.				P.R.
	1	2	3	4	
1	0.45	1.82	3.37	5.00	80
2	0.80	2.18	3.75	5.80	100
3	1.32	2.75	4.30	6.35	120
4	1.52	2.97	4.54	7.00	130

b) State the applications of ergonomics and what is ergometer and its type [8

Q8) a) What are possible methods of job evaluation, explain any one.   [8]

b) Work sampling study shows total number of observations 6000 in which idle were 400 times. Performance rating is 90%. Total number of part produced 1000. Allowances 15%. Study time duration was 5000 minutes

Calculate

i) Standard time.

ii) Estimate accuracy at 95% level of confidence.

iii) If desired accuracy is 5% comment on result.

[9

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