SL-1080

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Seat No.	

B.E. (Mechanical) (Part - II) (Semester - VIII) (Revised) Examination, May - 2017

INDUSTRIAL ENGINEERING (Elective - III)

Sub. Code : 68511

Day and Date : Wednesday, 03 - 05 - 2017 **Total Marks : 100**

Time : 2.00 p.m. to 5.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data, if necessary.**

Q1) Attempt any four:

a) Describe briefly various activities of industrial engineering. **[4]**

b) Discuss the applications of industrial engineering in manufacturing sector. **[4]**

c) Define productivity? How it differs from efficiency and effectiveness? **[4]**

d) What are the factors affecting the productivity of a production systems? **[4]**

e) An Automobile manufacturing company producing 10,000 units of flywheel for a month by employing 100 workers in a 8 hour shift. The company gets an additional order to supply 1500 units of flywheel. The management has decided to employ additional workers. What will be the productivity levels when the number of additional workers employed are **[4]**

i) 8

ii) 12

Q2) Attempt any four:

a) State principles of motion economy. **[4]**

b) Describe micro-motion study. Give examples for its applications. **[4]**

c) State application of cyclegraph and chronocycle graph. **[4]**

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d) Briefly explain different types of control used in man-machine system. [4]

e) State some important environmental factors affecting productivity and efficiency of workers. [4]

Q3) Write short notes on any three:

a) Objectives of method study. [6]

b) Difference between work study and work measurement. [6]

c) Flow process chart and its types. [6]

d) Multiple activity chart. [6]

Q4) Attempt any two:

a) Explain the various allowances used in determination of standard time. [8]

b) The actual time for various elements in minutes for a study conducted in a machining operation is shown in the following table.

Elements	Cycle time (in minutes)				Performance rating in %
	1	2	3	4	
1	1.8	1.9	1.7	1.8	110
2	3.5	3.6	3.7	3.5	100
3	2.5	2.6	2.7	2.8	105
4	6.1	6.2	6.0	6.2	90
5	4.2	4.1	4.3	4.3	115

Personal allowance is allowed for 50 minutes in a shift of 8 hours, other allowances as 10%. Estimate the standard time of operations and production per 8 hours of shift. [8]

c) Compare various methods of 'rating' in time study. [8]

Q5) Attempt any four:

a) What are the advantages of work sampling over time study? **[4]**

b) Discuss the steps involved in value analysis. **[4]**

c) Describe various non-quantitative methods of job evaluation. **[4]**

d) Suggest the factors to be considered for selection of site for petrochemical refineries. **[4]**

e) Which type of layout do you recommend for a manufacturing company producing impeller of a pumps? Give reasons. **[4]**

Q6) Write short notes on any three:

a) Material handling system for molten metal in foundry. **[6]**

b) Techniques used for layout planning. **[6]**

c) Difference between Value Analysis & Value engineering. **[6]**

d) Various methods of merit rating. **[6]**