

Total No. of Questions : 8]

SEAT No. :

P2296

[Total No. of Pages : 2

[5869] - 386

S.E. (Robotics and Automation)

INDUSTRIAL ENGINEERING AND MANAGEMENT

(2019 Pattern) (Semester - IV) (211508)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume suitable data if necessary.

- Q1) a) Describe the characteristics of successful entrepreneur. [8]
b) Describe various types of entrepreneur. [9]

OR

- Q2) a) Describe the skills required for an entrepreneur. [8]
b) Describe the factors which motivates entrepreneurship. [9]

- Q3) a) Define Industrial Engineering. Describe the role of Industrial engineer. [8]
b) Define Productivity. Total and Partial Productivity. [9]

The following data is available for a company. The output is Rs. 100000.
Calculate Partial productivity considering the input resources and total productivity

Input Resources	Rs.
Labour	20,000
Material	40,000
Capital	25,000
Energy	5,000
Other expenses	7,500

OR

- Q4) a) Define Industrial Engineering. Describe various tools and techniques of Industrial Engineering. [8]
b) Define Basic work content. Describe the factors which affects the basic work content (i.e. excess work content). [9]

P.T.O.

- Q5) a)** Define Method study. Describe various steps of method study. State the objectives of method study. [9]
- b)** Describe Flow process chart with suitable illustration and appropriate symbols. [9]

OR

- Q6) a)** Describe Micro motion study. Describe various therbligs used in Micro motion study. [9]
- b)** Describe Two Handed process chart for the activities carried out by a photo-copy (Xerox) machine operator with appropriate symbols. [9]

- Q7) a)** Define Time study. Describe various steps of time study. [9]
- b)** The following data is available for a cycle using stop watch time study. [9]
Determine
- Normal time for a given cycle
 - Standard time (Assuming 15% Allowance)

Element No.	Time Recorded (minutes)				Rating (%)
	Cycle 1	Cycle 2	Cycle 3	Cycle 4	
1	1	1.1	1.2	0.9	110
2	1.5	1.4	1.5	1.6	Machine element
3	3	3.1	2.9	3.1	120
4	2	1.9	2	2	95
5	2.5	2.5	2.4	2.6	100
6	1.4	1.6	1.5	1.4	Machine element
7	2	1.9	2	2.1	100

OR

- Q8) a)** Describe various types of rating system used in time study. [9]
- b)** The following data is collected from work sampling study. [9]
Determine
- Normal time
 - Standard time (Assuming 15% Allowance)

Duration of the study(Hrs.)	48
Total number of units produced during study	160
Total number of observations	750
Number of observations of productive work	600
Number of observations of machine controlled work	400
Average performance rating	90
Total allowances (%)	15

