

Total No. of Questions : 8]

SEAT No. :

PB3703

[6261]-111

[Total No. of Pages : 2

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 indicate full marks.
- 4) Assume suitable data if necessary.

- Q1)** a) Describe the elements of entrepreneurial eco system. **[5]**
b) Following data is available for XYZ company: **[12]**
Variable cost per Unit = Rs.16
Selling Price per unit = Rs. 34
Total units sold = 34000
Fixed cost= Rs.25000
Calculate:
i) PV ratio
ii) BEP in units
iii) BEP in sales
iv) Total Profit
v) Margin of Safety

OR

- Q2)** a) Describe the support organizations which helps an entrepreneurship (start ups) **[5]**
b) Following data is available for XYZ company: **[12]**
Variable cost per Unit= Rs.8
Selling Price per unit = Rs. 14
Total units sold = 50000
Fixed cost= Rs.12000
Calculate:
i) PV ratio
ii) BEP in units
iii) BEP in sales
iv) Total Profit
v) Margin of Safety

P.T.O.

- Q3) a)** Describe the following tools and techniques of Industrial Engineering [8]
- i) Work study
 - ii) Micro motion study
 - iii) Value analysis
 - iv) Plant layout

- b) Define Basic work content. Describe the factors which affects the basic work content (i.e. excess work content) [9]

OR

- Q4) a)** Describe Taylor Piece Wage System and Merrick Piece Wage System with suitable illustration. State the advantages and limitations of these systems. [8]

- b) Define Job evaluation and Job specification. What are the different methods of Job evaluation? [9]

- Q5) a)** Define Method study. Explain the different factors to be considered while selecting the job for method study. [9]

- b) Describe SIMO chart with suitable illustration and appropriate symbols. [9]

OR

- Q6) a)** Describe principles of motion economy related to workplace design with neat sketches. [9]

- b) Describe Multiple activity chart with suitable illustration & appropriate symbols. [9]

- Q7) a)** Describe MTM with suitable illustration. [8]

- b) Describe the following types of Rating [10]

- i) Westinghouse system
- ii) Synthetic Rating

OR

- Q8) a)** Describe the process to carry out work sampling study. State how the standard time is calculated using work sampling study. [9]

- b) Describe Maynard Operation Sequence Technique with suitable illustration. [9]

