

Total No. of Questions : 8]

SEAT No. :

P-9182

[Total No. of Pages : 3

[6179]-311

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 Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 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 factors impacting emergence of entrepreneurship. [5]

b) Following data is available for ABC company : [12]

Selling Price per unit = Rs. 20

Variable cost per Unit= Rs.12

Fixed cost= Rs.25000

Total units sold = 34000

Calculate :

- | | |
|---------------------|------------------|
| i) PV ratio | ii) BEP in units |
| iii) BEP in sales | iv) Total Profit |
| v) Margin of Safety | |

OR

Q2) a) Describe the funding organizations which promotes start ups. [5]

b) Explain the following terms related to Break Even Analysis. [12]

- | | |
|-------------------|----------------------|
| i) Contribution | ii) PV ratio |
| iii) BEP in units | iv) BEP in sales |
| v) Total Profit | vi) Margin of Safety |

P.T.O.

Q3) a) Define Basic work content. [8]

Describe the factors which affects the basic work content (i.e. excess work content)

b) Describe Taylor Piece Wage System and Merrick Piece Wage System with suitable illustration. State the advantages and limitations of these systems. [9]

OR

Q4) a) Describe Halsey plan and Rowan plan of wage and incentive system with their characteristics, advantages and limitations. [8]

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

Q5) a) Describe the economic and technical factors to be considered while selecting the job for method study. [9]

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

OR

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

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

Q7) a) Describe Method Time Measurement with suitable illustration. [6]

b) Describe the following types of Rating : [12]

i) Westinghouse system

ii) Synthetic Rating

iii) Objective rating

OR

Q8) a) Describe the process to carry out work sampling study. State how the standard time is calculated using work sampling study. [10]

b) The following data is collected from work sampling study. [8]

Determine :

i) Normal time

ii) Standard time

Duration of the study(Hrs)	1200
Total number of units produced during study	6000
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 (%)	13
