

Total No. of Questions : 4]

SEAT No. :

P5206

[Total No. of Pages : 2

[6188]-159

B.E. (Mechanical Engineering) (Insem)

INDUSTRIAL ENGINEERING

(2019 Pattern) (Semester - VII) (Elective - III) (402044 D)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4.
- 2) Figures to the right indicate full marks.
- 3) Use of electronic calculator is allowed.
- 4) Assume suitable data if necessary.

Q1) a) Summarize different productivity improvement methods. Elaborate “Kaizen” system in brief with its benefits. [8]

b) A ABC Company produces 1600 kg of Spanners by consuming 2200 kg mix of raw material for a particular period. For the next period, the output is 3400 kg by consuming 4350 kg of the raw material and for the third period, the output is increased to 3600 kg by consuming 4450 kg of raw material. Comment on increase or decrease of productivity for second & third period. [7]

OR

Q2) a) Explain different types of Productivity. Also explain factors affecting the Productivity. [7]

b) Write a short note on [8]

i) 5 “S”

ii) Kanban

Q3) a) Define method study. What are its objectives? Explain steps involved in method study. [7]

P.T.O.

- b) The observed times and performance ratings for the five elements are given. Calculate standard time assuming personal and rest allowances as 10% and contingency allowances as 4% of basic time. [8]

Element	Observed time (Min)	Performance rating
1	2.0	90
2	3.0	90
3	2.5	80
4	4.0	85
5	3.9	85

OR

- Q4) a) Write a short notes on [8]

- i) Two handed process chart
- ii) String diagram

- b) The work study engineer carried out the work sampling study. [7]

The following observations were made for a machine shop

The time duration of study = 120 hrs

Total number of observations = 7000

Number of working activities = 1200

Ratio between manual to a machine elements 2 : 1

Average rating factor 120%

Total no. of jobs produced during study = 800 Units

Rest and personal time for the job = 12%

