

Total No. of Questions : 8]

SEAT No. :

P44

[Total No. of Pages : 3

[5871]-544

B.E. (Mechanical/Atuomobile)

INDUSTRIAL ENGINEERING

(2015 Pattern) (Semester - II) (Elective - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve 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) *Use of programmable calculator is not permitted.*
- 5) *Assume suitable data, if necessary.*

- Q1)** a) Explain principle of management & List out objective and application of industrial engineering. [6]
b) Differentiate between value engineering and value analysis. [4]

OR

- Q2)** a) Explain work study and method study in detail. [6]
b) Write short note on : [4]
i) MOST
ii) PMTS

- Q3)** a) Explain MRP-I & MRP-II & also differentiate it with three points. [6]
b) The historical data on the sale of Washing Machine for the last 12 years is given below. By the method of three yearly moving average establish the trend values and forecast demand for 13th year. If actual demand for 13th year is 520 nos. What shall be the forecast for 14th year? [9]

Year	1	2	3	4	5	6	7	8	9	10	11	12
Sales No.	332	344	328	336	370	408	420	432	428	450	498	240

OR

- Q4)** a) Explain the following terms in brief: [6]
i) Batch Production
ii) Make To Stock (MTS)
iii) ERP

P.T.O.

- b) The historical data on the sale of coolers of a company for the year 2011 to 2017 is given below. Using the regression analysis establish the trend values and extrapolate for the year 2018 ignoring the effect of seasonal and random fluctuations. What is the forecast for the year 2018. [9]

Year	2011	2012	2013	2014	2015	2016	2017
Sales	3286	4751	5867	4580	5020	8444	11072

- Q5) a)** Explain the following terms in brief [6]

- Plant Layout
- Craft, Blocplan, Corelap
- Industrial containers

- b) A company spend Rs. 34000/- on its purchasing activity and Rs. 67200/- for maintenance of inventory of Rs.420000/- annually. Around 850 orders are placed every year to replenish stocks of the various items. One of the item whose annual consumption is 9600 nos. costing Rs.30/- each is brought by the company based on staggered deliveries. How frequently should the company receive staggered deliveries and in what quantities? What is the corresponding annual total cost for this item? [9]

OR

- Q6) a)** What are the different factors affecting the plant location planning & principles of Material Handling. [6]

- b) A company buys an item in lot of 500 units which is a three months requirement. The cost per unit is Rs. 90 and the ordering cost is Rs. 180 per batch order. The inventory carrying cost is estimated at 20% of the average inventory investment. What is the annual total cost of existing inventory policy? How much money can be saved from economic order quantity purchase? [9]

- Q7) a)** What do you understand by Industrial safety? [5]
- b)** An industry manufacturing small capacity motors has the cost structure as follows : [9]
- i) Material Cost: Rs. 50
 - ii) Labour Cost: Rs. 80
 - iii) Variable Overhead: 75 % of labour cost
 - iv) Fixed Overhead: Rs. 2,40,000/annum
 - v) Sales Price: Rs.230 / motor
 - vi) Determine the number of motors to be manufactured to break-even?
- Number of motors to be sold to make a profit of Rs.1,00,000 /-
- Number of motors to be sold to break even if price is reduced by Rs. 15/- motors.
- c)** Explain Payback & KRA [6]

OR

- Q8) a)** Explain Debit and Credit notes? [5]
- b)** The fixed cost for the year 1979-80 is Rs. 5,00,000 variable cost per unit is Rs. 25. The estimated sales for the period are valued Rs. 15,00, 000. Each unit sales at Rs.150. Determine : [9]
- i) Break Even Point
 - ii) Rs. 12,00,000 will be the likely turnover for the next budget period, calculate the estimated contribution and profit.
 - iii) If a profit target of Rs. 6,50,000 has been budgeted, compute the turnover required.
- c)** Explain the following term in brief : [6]
- i) Supply Chain management
 - ii) Inventory
 - iii) Manpower Planning

