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SEAT No. :

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B.E.(Mechanical Engineering)

INDUSTRIAL ENGINEERING

(2012 Course)(Elective-III)(End Sem) (Semester-II) (402049C)

Time :2½Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answers should be written in one answer book.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) Explain the Productivity Models any two in Industrial Engineering. **[6]**

OR

Q2) Write short note on Span of Control. Factors determining span of control. **[6]**

Q3) Explain the Performance rating and factors affecting the performance rating.**[7]**

OR

Q4) Explain Two handed process Chart with suitable example. **[7]**

Q5) Define standard time of operations. List its variour uses. **[7]**

OR

Q6) What is Allowance? Explain any two types of allowances. **[7]**

Q7) a) Define production control. What are different techniques of production control. **[8]**

b) Star wars Co. ltd. Uses simple exponential smoothing with smoothing constant $\alpha = 0.2$ to forecast the demand. The forecast for the first week of march was 400 units& the actual demand turns out to be 450 units.**[8]**

i) Estimate the demand for the second week of March.

ii) If the actual demand for the second week of March is 400 units.Forecast the demand up to April second week. Assume that the demand for subsequent weeks are 465, 434, 420, 498, 462, 470 units.

OR

P.T.O.

Q8) a) The following data relates the cost of production and sales prices. **[8]**

	1986	1987	1988	1989	1990	1991	1992	1993	1994
Costs	203	216	223	239	248	253	279	301	311
Prices	225	242	250	271	275	277	255	318	329
Establish the coefficient of correlation between cost.									

b) Write short note on MRP & MRP-II **[8]**

Q9) a) A company is setting an assembly line to produce 192 units per eight hour shift. The information regarding work elements in terms of times & immediate predecessors are given. **[9]**

Work	A	B	C	D	E	F	G	H	I	J
Element										
Time(Sec)	40	80	30	25	20	15	120	145	130	115
Immediate Predecessors	None	A	D,E,F	B	B	B	A	G	H	C,I

i) What is the desired cycle time?

ii) What is the theoretical number of stations?

iii) Use largest work element time rule to work out a solution on a precedence diagram

iv) What are the efficiency and balance delay of the solution obtained?

b) Write a short note on(any two) **[8]**

i) Travel Chart

ii) ABC analysis

iii) Line or Product layout

OR

Q10)a) What is Inventory control & the objectives of Inventory control. **[8]**

b) A pharmacy company has a demand for 10,00,000 bottles. Each empty bottles costs the company Rs.1. Empty bottles are supplied by M/s Rupa glass Ltd. The recorder level system of stock replenishment is followed. Ordering Rs.12.5 order and Inventory carry cost is 25 percent of cost per bottle. The demand is constant throughout the year. The lead time is 15 days. **[9]**

Determine.

i) EOQ

ii) Lead time Consumption

iii) Reorder level

iv) Average inventory

Q11) a) The fixed costs for the year 1979-80 are Rs.5,00,000 variable cost per unit is Rs.25. The estimated sales for the period are valued at Rs.15,00,000. Each unit sells at Rs.150. Determine: **[9]**

i) Break even Point

ii) Rs.12,00,000 will be the likely sales 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 turn over required.

b) Define cost and give the basis of classification of cost. **[8]**

OR

Q12) a) Write a short note on Net Present Value(NPV)& Internal Rate of Return(IRR). **[9]**

b) Explain the Process of Manpower planning and Advantages. **[8]**