B.E, (ME) Part-Ill 6th Semester Examination, 2010

Industrial Engineering and Management

(ME-603)

Time : 3 **hours** **Full Marks** : 70

Use separate answerscript for each half.
Answer SIX questions, taking THREE from each half.
The questions are of equal value.

FIRST HALF

1. "First plan your work, then work your plan". Expand this counsel given to the department of planning and control, describing fully the function of routing, scheduling, dispatching and follow up. State the principles of sound production control system.

2. State and explain the objective of work study. Discuss in detail with defination and suitable illustration "Man and Machine Chart. "Critical examination is a motive force to develop a new method". Justify.

3. a) "What is element? Why the work content is divided into elements, state the general rules to be followed while breaking the job into element.

   b) Prepare flow process chart for cleaning an automobile carburretor.

4. a) What is standard time? Describe briefly the steps involved in arriving at standard time beginning with observed time.

   b) An observer has taken few observations of an elements of a job as shown below and now he wants to know as to how much reading should be taken for a 95% confidence level and ±5% accuracy.
   Individual reading in 0.01 min x or
   5, 8, 6, 5, 5, 6, 6.

5. a) Describe the factors to be considered in material handling problem. How will you classify material handling device? Give one example of each type.

   b) Describe briefly the requirements of a good incentive plane.

SECOND HALF

6. Indicate the following statements are true or false with brief explanation.

   i) Although such qualitative factors as community attitude can not be measured directly, they are still included numerically in a quantitative site selection model.

   ii) People, materials, and machines are brought to the product produced in a fixed position layout.

   111) Break-even volume = $\frac{\text{fixed cost}}{\text{contribution}}$.

   iv) One rupee received a year from now is worth more than one rupee received today because of the time value of money.

   v) P-Chart and C-Chart are control charts for variables,

   vi) ISO stands for International Organisation for Standardization.

7. a) A manufacturer of farm equipment is considering three locations (A, B, C) for a new plant. Cost studies show that fixed cost per fear at the sites are Rs.4,80,000, Rs.5.40,000 and Rs.5,04,000 respectively where as variable costs are Rs. 100 per unit, Rs. 90 per unit and Rs. 95 per unit respectively. If the plant is designed to have an effective system capacity of 2500 units per year and is expected to operate at 80% efficiency, what is the most economic location?

   b) The fixed costs of a company are Rs. 3,50,000. The net sales amount to Rs. 6,00,000 annually. The direct costs are 35% of sales in rupees. Determine the following:

      (i) The "Break-even point" in terms of sales in rupees.

      (ii) The sales required to earn a profit Rs. 80,000.

8. a) What are the different factors which are responsible to replace the equipment although it may be running?

   b) What do you understand by entrepreneurship?
   Explain its need under the present employment and economic conditions in India.

9. a) State seven Quality Control Tools. Define Quality and Quality control,

   b) Write short notes on Quality Circle and Statistical Quality Control.

10. a) A small factory is manufacturing spindle of nominal diameter of 25 mm. Sample readings of diameter give the following data.

Sub-group No.	Sample readings in mm above and below nominal diameter				
1	+0.01	+0.03	+0.02	-0.02	+0.01
2	-0.01	+0.03	+0.02	+0.04	-0.04
3	+0.03	+0.01	+0.04	+0.02	-0.02
4	-0.03	-0.01	+0.02	+0.01	+0.04
5	+0.05	+0.04	-0.02	-0.04	+0.03

Given : $A_2 = 0.58$, $D_3 = 0$ and $D_4 = 2.11$. Draw X-R chart.

b) Interprete the state of control for the process.