

# C.U.SHAH UNIVERSITY

## Winter Examination-2015

Subject Name: Industrial Engineering

Subject Code: 4TE04IEN1

Branch: Mechanical Engineering

Semester: 4<sup>th</sup>

Date:

Time:

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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Q-1

Attempt the following questions:

14

- a) At 'break even point': (a) Constant expenses = Profits (b) Total sales = variable expenses (c) Variable expenses - Profits = Total sales (d) None of the above.
- b) Total sales less cost of manufacturing gives: (a) Net (b) Gross profit (c) Distributable profit (d) Taxable profit.
- c) In motion and time study which of the following is used in product analysis: (a) Process chart (b) Work place layout (c) Man operation chart (d) Multi-man process chart (e) All the above.
- d) While selecting site for a regional plant, which factory services (is) are to be looked into: (a) Adequacy of supply of power (b) Water supply (c) Sewage disposal system (d) Availability of manpower (e) All the above.
- e) The advantage of process layout is: (a) Less duplication of equipment (b) Greater flexibility of production (c) Better control of complicated or precision processes (d) Easier to handle breakdown of equipment (e) All the above.
- f) In time and motion study, the symbol 'X' represent: (a) Crossing (b) Opposite directional movements (c) Rejections (d) Completion of operation (e) All the above.
- g) Bin cards are used in: (a) Machine loading (b) Fixing targets (c) Quality control (d) Stores.
- h) The chart used to review the overall sequence of an operation by focusing either the movement of operators or materials is called: (a) SIMO chart (b) NEMA chart (c) Flow process chart (d) Gantt chart.
- i) CPM is a technique based on: (a) event (b) event and activity (c) neither event nor activity (d) activity.
- j) The basic tool in work study is: (a) Process chart (b) Planning chart (c) Bar chart (d) Stop watch.
- k) Real wages represent: (a) The purchase power of money wages (b) The total wages claimed including perquisites (c) The gross wages earned by an employee (d) The net take home wages.
- l) This of the following is not an incentive plan: (a) Halsey plan (b) Taylor, 100%



incentive plan (c) Gantt plan (d) Rowan plan (e) Standard plan.

- m) This of the following is a disciplinary action: (a) Promotion (b) Transfer (c) Suspension (d) Training.
- n) Exit interviews: (a) Are interviews held outside the factory premises (b) Are interviews of the persons working in plant, conducted outside the factory premises, to know about any grievances (c) Are interviews held during lockout or strike period (d) Are interviews held with employees intending to leave an organization.

Attempt any four questions from Q-2 to Q-8:

- Q-2 a) What is site selection? How this decision is taken? 07  
b) A management sets a target of completing 72 jobs for each worker. The workers are promised to pay incentive according to Halsey 50-50 plan. The hourly wage rate is Rs 1.00. A worker however could complete the whole task in 6 hours only. Calculate the total earnings and hourly wage rate of a worker. 07
- Q-3 a) How will you determine the areas that need method study application in industry? 07  
b) What is the difference between an operation process chart and an outline process chart? 07
- Q-4 a) What is merit rating? Explain different merit rating plans. 07  
b) Explain Consumers risk and Producers risk. 07
- Q-5 a) Explain Payment of wages act, 1936. 10  
b) Explain Ergonomics and its applications. 04
- Q-6 a) Explain line of balance. 07  
b) What is a flow pattern? Explain different types. 07
- Q-7 a) Explain different sources of industrial finance. 07  
b) What is innovation? How it supports entrepreneurship? 07
- Q-8 a) Discuss the phases of production planning and control. 07  
b) Compute the  $C_{pk}$  measure of process capability for the following machine and interpret the findings. What value would you have obtained with the  $C_p$  measure? Machine Data:  $USL = 80$ ;  $LSL = 50$ ; Process  $\sigma = 5$ ; Process  $\mu = 60$ . 07

