C.U.SHAH UNIVERSITY
Summer Examination-2016

Subject Name: Industrial Engineering

Subject Code: 4TE04IEN1   Branch: B.Tech(Mechanical)

Semester: 4   Date: 16/05/2016   Time: 2:30 To 5:30   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.

Q-1   Attempt the following questions: 14
   i)   In a break even chart, abscissa represents: (a) Constant expenses (b) Total expenses (c) Profits (d) Amount in rupee.
   ii)   The advantage of product layout is: (a) Lower total materials handling cost (b) Lower total production time (c) Less work-in-process (d) All of the above.
   iii) In time and motion study, the symbol 'O' represents: (a) Quantity inspection (b) Quality inspection (c) Operation (d) Temporary storage.
   iv)   Which of the following is unavoidable delay: (a) Waiting for raw material (b) Non-availability of power (c) Tool breakage (d) Non-availability of inspection gauge.
   v)   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.
   vi)   Safety guards on machines should be: (a) Always in position (b) Used if they do not reduce the production (c) Put in position of desired by the operator (d) Used sometimes (e) Never used.
   vii) A product layout is generally suggested for: (a) Jobbing work (b) Batch production (c) Efficient, machine utilization criteria (d) Continuous production.
   viii) A process layout is generally suggested for: (a) Jobbing work (b) Batch production (c) Planned production (d) Discontinuous production.
   ix)   To obtain solution of material problem so that the cost of handling will be minimum is: (a) Simplex method (b) Queuing theory (c) Transport method (d) Value engineering.
   x)   The basic tool in work study is: (a) Process chart (b) Planning chart (c) Bar chart (d) Stop watch.
   xi)   The quality of a part does not depend upon: (a) how cheap the part is (b) how well the part performs its function (c) how reliable the performance of the pan is (d) how far the performance can be maintained.

   xii) Which of the following is indirect cost?: (a) Cost of raw material (b) cost of machining (c) Power consumption in fabrication (d) Training for job (e) None of the

above.

xiii) This of the following is a disciplinary action: (a) Promotion (b) Transfer (c) Suspension (d) Training.

ivx) Systematic appraisal of each job in the organization to determine its comparative value is known: (a) Standardization (b) Regularization (c) Job evaluation.

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

Q-2	a)	How does government policy affect on site selection?	07
	b)	How does forecasting differs from prediction?	07
Q-3	a)	How is assignment techniques used for plant layout? Explain with example.	07
	b)	Explain line of balance.	07
Q-4	a)	List different tools and techniques used for plant layout. Describe string diagram.	07
	b)	There are two industries manufacturing two types of plugs. The standard time per piece is 1.5 minutes. The output of the two industries is 300 and 200 respectively per shift of 8 hours.	07

    1) What is the productivity of each per shift of 8 hours?

    2) What is the production of each per week (6 days) on the basis of double shift?

Q-5	a)	Explain Ergonomics with neat sketch and list its applications.	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-6	a)	How will you overcome "the resistance to change" from the workers in a Method study project?	07
	b)	Explain Payment of wages act, 1936.	07
Q-7	a)	Describe different sources of industrial finance.	07
	b)	Explain Workmen compensation act 1923.	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