B.E.(with Credits)-Regular-Semester 2012-Mechanical Engineering Sem VII

ME - Industrial Engineering

P. Pages : 2 **GUG/W/16/6623**

Time : Three Hours * 4 6 9 5 * Max. Marks : 80

Notes : 1. All questions carry equal marks. Answer Q. 1 or 2, Q. 3 or 4, Q. 5 or 6, Q. 7 or 8, Q. 9 or 10.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.
4. Use of non programmable calculator & Drawing instruments, is permitted.

1. a) Distinguish between value analysis and value engineering. Explain the various steps of value analysis. **8**

b) What is the production planning and control ? Describe its various functions. **8**

OR

2. a) What is 'forecasting' ? State its importance and need. **5**

b) What is production ? Explain its various types. **5**

c) The following information gives the sales of the company for ten months : **6**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct.
Sales ('000)	800	1150	930	1080	900	1230	1400	1630	1210	1520

If the smoothing factor of 0.5 is used, forecast the demand for November.

3. a) How can the productivity be defined in different ways ? Describe various techniques of productivity improvement. **8**

b) What is work study ? State its importance and advantages. **8**

OR

4. a) What do you mean by work content ? What are its constituents ? Describe the reasons for excess work content. **8**

b) Explain : **8**
i) Selection of the job for method study.
ii) Measures of productivity.

5. a) What is time study ? Explain briefly the techniques of work measurement. **8**

b) Why is it required to break the job into elements ? Explain various types of elements. **8**

OR

6. a) What is performance rating ? Describe the Westing House method of performance rating. **5**

b) What are the principles of motion economy ? Explain. **5**

c) The following data refers to a sampling study of production of one component - **6**

i) Duration of data collection 5 days @ 8 hrs per day.
ii) No. of operators = 12
iii) Allowances given for the process = 12%
iv) Production quantity in 5 days = 8000 components.
v) Sampling data collected

Days	1	2	3	4	5
No. of observation	240	230	180	210	250
Occurrence of Activity	190	200	160	170	210

Calculate standard time of production of the component if average performance rating of the operator is 115% and the entire operation is manual.

7. a) What is plant layout ? Describe objectives and principles of plant layout. What are its advantages ? **8**

b) Explain : **8**

i) Types of production
ii) Functional layout

OR

8. a) State the symptoms of bad layout and mention the factors influencing plant layout. **4**

b) What are the factors to be considered for designing factory building ? Describe different types of factory buildings along with their advantages and limitations. **6**

c) Describe various principles of material handling. State the symptoms of bad material handling. **6**

9. a) What is 'Reliability' ? Describe its elements. **5**

b) Explain Bath Tub curve and its phases. **5**

c) Describe the different methods of reliability improvement. **6**

OR

10. a) Define maintenance. What are its objectives and state its importance. What are the requirements of good maintenance. **8**

b) Explain : **8**

i) Condition based maintenance
ii) Redundancy for reliability improvement.

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