

**B.Tech. - VIEP - MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**December, 2016**

**BIME-020 : INDUSTRIAL ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Attempt any five questions. All questions carry equal marks. Use of scientific calculator is permitted.*

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1. (a) Define Productivity. What are the different indicators for measuring it ?

(b) What is Industrial Engineering ? What are its objectives ? Discuss the historical development of industrial engineering department.

7+7

2. What is method study ? List down various tools of method study. Give the situations where those tools are useful. Draw a sample flow process chart.

14

3. (a) Define work measurement. What are the different techniques of work measurement? Explain.
- (b) A job has been subdivided into 4 elements. The time for each element and respective ratings are given below :

Element No.	Observed Time (Minutes)	Rating Factor (%)
1	0.6	100
2	1.0	80
3	1.2	130
4	1.5	90

Calculate the normal time and standard time for each element and for the job, if allowance is 5%.

7+7

4. What is product design? What are the requirements of a good product design? Discuss the various steps of a new product development. 14
5. (a) What do you understand by the term Ergonomics? What are the objectives of an ergonomic study?
- (b) What is a sampling plan? Explain the concept of sampling plan. What are its merits and demerits? 7+7

6. Explain the concepts of (a) Value Analysis, and (b) Value Engineering. Describe the FAST diagram in Value Engineering. What are its advantages? 14

7. Write short notes on any *two* of the following: 2×7=14

(a) Inspection Techniques

(b) Control Charts

(c) Product Life Cycle

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