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**SUBJECT CODE NO:- E-118**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**B.E.(Mech) Examination Nov/Dec 2017**  
**Elective-II: Industrial Engineering**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.

- N.B
- i) Solve any three questions from each section.
  - ii) Figures to the right indicate full marks.
  - iii) Assume suitable data wherever necessary and state it clearly.

Section A

- Q.1 (a) Define industrial Engineering. How does industrial engineering help to increase the productivity of an organization? 07  
(b) "Productivity is a means for increasing the welfare of the nation." Justify the statement. 06
- Q.2 (a) Explain basic work content and excess work content. Mention the tools to reduce the excess work content. 09  
(b) Write a short note on work study and the management. 04
- Q.3 (a) Construct a two handed process chart for an operator for assembly of nut and bolt. 09  
(b) What are therbligs? Give any four therbligs with symbols. 04
- Q.4 (a) Critical examination is a motive force to develop a new method". Justify. 07  
(b) State the principles of motion economy as related to work place layout 06
- Q.5 (a) State the general rules to be followed while breaking the job into elements 05  
(b) What is work sampling? Where work sampling can be useful in the area of production? 09  
State steps in work sampling study.

Section B

- Q.6 (a) Describe factor comparison method of job evaluation with its merits & demerits. 07  
(b) Define merit rating. State the characteristics. 06
- Q.7 (a) List down and explain the various steps in conducting a stop watch time study 07  
(b) Write a short note on Predetermined motion time study (PMTS). 06
- Q.8 (a) Explain the characteristics and various aspects of man-machine system. 07  
(b) Define JIT production. State the pre-requisites to achieve JIT production. 06

- Q.9 (a) Explain Kaizen Umbrella for quality improvement. 04  
(b) Describe Push and Pull system of manufacturing. Explain its merits and demerits. 09
- Q.10. (a) Describe the aspects of setup activities also explain internal and external setup activities. 07  
(b) Describe Toyota production system. Also mention basic assumptions of Toyota production system. 07