

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-223
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (Mechanical)
Elective-II Industrial Engineering
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Solve any three questions from each section.
 - 2) Figure to the right indicates full marks.
 - 3) Assume suitable data if required & State it clearly.

SECTION – A

- Q.1
- a) Define productivity and production. Also discuss its relationship with each other. 06
 - b) Explain dynamics of productivity change and how it brings about chain reaction throughout the society. 07
- Q.2
- a) What constitutes excess work content? What are the techniques to reduces excess work content. 07
 - b) Discuss the relationship between work study and the workers. 06
- Q.3
- a) Critical examination forms the basis for methods improvements explain. 07
 - b) What are therbligs? Give any five therbligs with symbols. 06
- Q.4
- a) Construct a man type flow process chart for: “writing a letter”. 07
 - b) Explain method study procedure. 06
- Q.5 Write short notes on the following: (any two) 14
- i) Principles of motion economy related to design of tools and equipment.
 - ii) Characteristics and aspects of man – machine system.
 - iii) Human anthropometry and its use in work place layout.

SECTION – B

- Q.6
- a) List down the various steps in conducting a stop watch time study. 06
 - b) Outline the general procedure for a work sampling study to determine the extent of delays and personal time. 07

- Q.7 a) A work study was conducted in machine shop. Following data has been recorded: 09
 Total no. of observations = 2000,
 No activity = 500, Ration between manual to machine = 3:1
 Average performance rating = 85%
 Total number of Pieces Produced = 120
 Duration of the study = 60 hrs.
 Calculate standard time/ piece assuming 15% relaxation allowance.
- b) Explain predetermined motion time study. 05
- Q.8 a) Explain the westing house method of performance rating. 07
 b) Describe various methods of job evaluation giving their advantages and limitations. 06
- Q.9 a) Discuss kaizen umbrella for quality improvement. 06
 b) Explain Kaizen related to 07
 (i) TQC
 (ii) Innovation
- Q.10 Write short note on the following (any two): 14
 i) Toyota production system.
 ii) Push and Pull system of manufacturing
 iii) Single minute exchange of dies