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SUBJECT CODE NO: H-223
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (Mechanical)
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
- 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. How would you measure productivity? Explain. | 06 |
| | b) 'Productivity is a means for increasing the welfare of the nation'. Justify the statement. | 07 |
| Q.2 | a) Explain work – study procedure. | 07 |
| | b) Describe the concept of basic work content and excess work content. Enlist the reasons for excess work content. | 06 |
| Q.3 | a) How is the job selected for method study? | 07 |
| | b) What are primary and secondary questions in critical examination? How they are useful? | 06 |
| Q.4 | a) Define two handed process chart and construct it for the following task: Assembly of nut and bolt. | 09 |
| | b) Explain various method study symbols. | 04 |
| Q.5 | Write short note on the following (<u>any two</u>) | 14 |
| | a) Principles of motion economy related to use of the human body. | |
| | b) Design of information displays. | |
| | c) Workplace design aspects. | |

SECTION – B

Q.6 a) The following table shows a time study data:

07

Sr. No.	Element	Cycle time			Performance rating
		1	2	3	
1	Get two cases	0.5	0.4	0.5	1.05
2	Put two parts into cases	1.0	1.5	1.3	1.15
3	Clamp part in position	2.3	2.4	2.7	0.95

Take relaxation allowance as 15% and find the standard time.

b) Explain synthetic data technique for work measurement.

06

Q.7 a) What is performance rating? Why it is required to rate the worker? What are different rating methods?

08

b) Explain various types of elements with example.

05

Q.8 a) Why it is necessary to give allowances? What are different types of allowances?

05

b) What is job evaluation?

03

c) What is merit rating & how it helps the industries?

05

Q.9 a) What are the implications of QC for kaizen?

06

b) Explain the working of Kanban system?

07

Q.10 Write short note on the following (any two)

14

- i) Seven wastes (JIT – TPS concept).
- ii) Internal & external setup in SMED
- iii) Maynard operation sequence Technique (MOST)