

“Please check whether you have got the right question paper.”

**N.B**

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

**SECTION-A**

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|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Q.1 | a) Define productivity. How would you measure productivity? Explain with suitable example’<br>b) Explain the concept of work content. What constitutes excess work content? What are the techniques of reduce the work content. | 06<br>07 |
| Q.2 | a) State the benefits of increasing productivity to<br>i) Management ii) Employers iii) Society.<br>b) Explain the produce for method study.                                                                                    | 06<br>07 |
| Q.3 | a) Outline the appropriate process chart for the following process. “writing a letter and posting it”<br>b) Discuss in details with definition and suitable illustration “man and machine chart”                                | 07<br>06 |
| Q.4 | a) Critical examination forms the basis for methods improvement. Explain.<br>b) Why the work content is divided into elements? What are the different types of elements?                                                        | 06<br>07 |
| Q.5 | Write short note on ( <u>Any two</u> )<br>a) Job analysis, job description and job specification.<br>b) Merit rating methods<br>c) Various allowances considered while building the standard time                               | 14       |

**SECTION –B**

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| Q.6 | a) Outline the general procedure for a work sampling study to determine the extent of delays and personal time.<br>b) Explain the westing house method of performance rating.                                                                                                         | 08<br>05       |
| Q.7 | a) Define predetermined motion time analysis (PMTS). Also explain factors to be considered while using PM TS.<br>b) Describe the following related to man-machine system<br>i) Design of visual display ii) Design of controls<br>c) Define anthropometry and explain its importance. | 06<br>04<br>03 |
| Q.8 | a) What are the advantages of pull production over push production in trying to establish a lean production system? Is push always better?<br>b) List and explain five techniques for reducing setup time.<br>c) Explain the working of kanban system.                                | 05<br>04<br>04 |

Q.9	a)	Explain how converting setup activities from inertial to external can improve the performance of a production system.	07
	b)	Explain the following related to kaizen	06
		i) TQC ii) PDCA cycle iii) Measurement	
Q.10		Write short note on the following.	
	a)	Aspects of setup activities in SMED	04
	b)	Toyota production system	05
	c)	Kaizen umbrella for quality improvement.	05