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# GUJARAT TECHNOLOGICAL UNIVERSITY
**BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020**

**Subject Code:2171502**                                   **Date:21/01/2021**

**Subject Name:Work System Design**

**Time:10:30 AM TO 12:30 PM**                      **Total Marks: 56**

**Instructions:**
1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | Define work study. | **03** |
| | **(b)** | State field of applications of WORK study. | **04** |
| | **(c)** | Explain the difference between flow process chart and two handed process charts | **07** |
| | | | |
| **Q.2** | **(a)** | What are 'Therbligs'? | **03** |
| | **(b)** | Give objectives and limitations of operation process chart | **04** |
| | **(c)** | What 'Care' the management has to take before a new method is to be implemented? | **07** |
| | | | |
| **Q.3** | **(a)** | State the objectives of work measurement in industry | **03** |
| | **(b)** | What is meant by 'Rating' ? Who is rated ? What for ? | **04** |
| | **(c)** | 'Method design and work measurement process start simultaneously" Criticize the statement. | **07** |
| | | | |
| **Q.4** | **(a)** | What do you understand by term 'critical examination'? | **03** |
| | **(b)** | Explain use of films in method analysis. | **04** |
| | **(c)** | Discuss the principles of motion economy. | **07** |
| | | | |
| **Q.5** | **(a)** | Explain procedure to carry out critical examination | **03** |
| | **(b)** | Discuss the effects of working condition on productivity | **04** |
| | **(c)** | Explain classification of movements and draw sketches showing normal and maximum working area. | **07** |
| | | | |
| **Q.6** | **(a)** | State the applications of SIMO chart. | **03** |
| | **(b)** | Define qualified worker. | **04** |
| | **(c)** | Discuss the concept of standard time. Explain clearly the steps involved in arriving at standard time. | **07** |
| | | | |
| **Q.7** | **(a)** | What is the purpose of man-machine chart ? | **03** |
| | **(b)** | Discuss various types of allowances. | **04** |
| | **(c)** | The total observed time for an operation is 3.00 min. If the rating is 120 % , find normal time. If total allowances allowed are 10 % for that job, determine the standard time. | **07** |
| | | | |
| **Q.8** | **(a)** | How would ergonomics help to analyze man – machine system? | **03** |
| | **(b)** | State the purpose of analytical estimating | **04** |

**(c)** How can work sampling be used to study production in machine shop? Explain with the help of suitable example **07**

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