

Seat No: _____

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech Summer 2017 - 18 Examination

Semester: 2
Subject Code: 03218151
Subject Name: Work System Design

Date: 18/05/2018
Time: 02:00 pm to 04:30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1** A) List the level of productivity measurements and discuss how productivity measurement is done at National, Industrial and Enterprise level. (05)
- B) Describe SIMO chart in details. (05)
- C) The observed time is recorded to be 25 minutes for a job done by a worker whose rating is 90%. Following allowances are recommended by the management: (05)
- i) Personal needs allowance - 5% of Basic time
 - ii) Basic fatigue allowance - 2% of Basic time
 - iii) Contingency work allowance - 1% of Basic time
 - iv) Contingency delay allowance - 2% of Basic time
- Determine basic time, different allowances and standard time for the job.

- Q.2 Answer the following questions.** (Attempt any three) (Each five mark) (15)
- A) Explain productivity measures with its advantages and limitations.
- B) What is anthropometry? How anthropometric data is used in design?
- C) Write down the factors considered while designing tools and equipments in order to reduce human effort.
- D) Discuss principles of motion economy.

- Q.3** A) Explain the procedural steps of Time Study. What are different factors affecting performance rating. (07)
- B) What are therbligs? Explain their importance. Give the name, explanation, abbreviation and symbols of each 18 therbligs. (08)

OR

- B) Differentiate between illuminance and luminance. Write lightening recommendations in industrial context. (08)

- Q.4** A) Describe various factors need to be considered for motion economy analysis where the human body is more comfortable. (07)

OR

- A) Classify Productivity Measurement Models and explain any one type of model in brief. (07)
- B) Select one manufacturing process in an industry and make its operation process chart and flow process chart. (08)