BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2024)

CLASS: B.TECH **SEMESTER : VI**
BRANCH: PRODUCTION AND INDUSTRIAL ENGG **SESSION : SP/2024**

SUBJECT: PE345 WORK SYSTEM DESIGN

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Explain the Role of Production and Industrial Engineers in work system design.	[2]	01	02
Q.1(b)	Explore the work of Frederick W. Taylor in detail by indicating each milestone.	[3]	01	02
Q.2(a)	Elaborate on the Productivity Improvement Techniques for the work system design.	[2]	01	03
Q.2(b)	Construct the two-hand process chart for cutting glass tubes. Assume all parameters suitably for example.	[3]	01	06
Q.3(a)	Explain all types of elements for time study.	[2]	02	02
Q.3(b)	Demonstrate the SIMO Chart, in brief, with all salient features.	[3]	02	03
Q.4(a)	Explain the MODAPTS in brief.	[2]	02	02
Q.4(b)	In a work sampling study of a worker, the information available are as follows: total time of study: 30 hour, number of items produced: 320, total number of observations: 1000, number of observations when worker is found working: 850 and average performance rating: 105%. Company policy is to give allowance of 10% of total time on the job. Calculate the standard time (in minute per item, up to one decimal place) for manufacturing the item.	[3]	02	03
Q.5(a)	Explain the category of Allowances in brief.	[2]	02	02
Q.5(b)	An Element is observed to be carried out in 0.8 minutes. Given pace rating is 110% and the secondary adjustment by 20%, find the time on any Fair day. If 0.2 minutes per element is given as allowance, what is the standard time taken for 20 repeated actions?	[3]	02	03

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