

S.B. Roll No.....

INDUSTRIAL ENGINEERING
5TH Exam/Prod./Auto./0355/5507/5502/May'16

Duration: 3 Hrs.

M.Marks=75

SECTION A

Q 1: Fill in the blanks:

15x1=15

- a) Method study and Work Measurement are called
- b) Production is converting Into.....
- c) Productivity Index =
- d) Δ Symbol in work study implies
- e) String diagram is used for
- f) Therbligs were suggested by
- g) Motion picture camera is used for recording
- h) Relaxation allowance is given for
- i) Standard time= + Allowances.
- j) is an reward monetary/non-monetary given to a worker for his hard work.
- k) Chronocycle graph does not indicate of movements.
- l) Man-machine chart is a type of
- m) Ergonomics implies fitting the to the
- n) The basic tool in the work study is
- o) In straight piece payment, a worker is paid straight for the

SECTION B

Attempt any FIVE questions

5x6=30

- i. What do you understand by Productivity? In what units can it be expressed?
- ii. Define work study and explain the need of work study in an enterprise.
- iii. What are the objectives of Method study?
- iv. Enumerate the principles of motion economy pertaining to work place layout.
- v. What are the various allowances considered in Time study?
- vi. What is meant by non-financial incentive? Name few non-financial incentive schemes.

SECTION C

Attempt any THREE questions

3x10=30

- i. What are Standard time, Basic time, Observed time and Rating factor? Write a relation between these quantities and allowances.
- ii. Describe the various methods of wage payments.
- iii. What are Therbligs? Give their importance. Mention their names, explanation, abbreviation/ symbols of each of the therbligs.
- iv. Write notes on any **TWO** of the following:
 - a) Halsey system of incentive
 - b) Use of Time standards
 - c) Role of Ergonomics on human performance
 - d) SIMO Charts