



C14-M-403

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BOARD DIPLOMA EXAMINATION, (C-14)  
OCT/NOV—2016  
DME—FOURTH SEMESTER EXAMINATION  
INDUSTRIAL ENGINEERING

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.  
(4) SQC tables are permitted.

1. Define the terms production and productivity.
2. Write any three objectives of method study.
3. Define normal rating and standard rating.
4. List out any three work measurement techniques.
5. Define minimum wage.
6. List out any six financial incentive plans.

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7. List out any <sup>\*</sup> three objectives of job evaluation.
8. Define the term job description.
9. Define the terms sample inspection and key operation inspection.
10. Explain single sampling plan.

**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Draw a SIMO chart for nut and bolt assembly.
12. Explain multiple activity chart with a simple example.
- \* 13. Explain the advantages and disadvantages of stop watch method for time study.
14. (a) List out the applications of PMTS.  
  
(b) Compute the total wages of the worker per hour in the factory based on following information with respect to 50-50 Halsey premium plan :  
Time rate = ₹ 10/hr, Time allowed = 100 hr, Time taken = 80 hr .

15. Explain bedaux premium plan. List out the advantages and limitations.
16. Explain the step-by-step procedure of factor comparison method.
17. In production process, a lot of 250 products has been manufactured in a day. Five samples have been collected at random in a day as SQC measure. Each sample size is 5. Five samples *A*, *B*, *C*, *D* and *E* have been shown in the table below for a particular dimension of the product :

<i>A</i>	43, 42, 42, 44, 43
<i>B</i>	54, 40, 39, 39, 46
<i>C</i>	40, 40, 41, 42, 43
<i>D</i>	43, 42, 40, 40, 46
<i>E</i>	40, 41, 43, 46, 43

Calculate the control limit and plot  $\bar{X}$  Bar and  $R$  Charts. Take  $A_2$  for control limits of  $\bar{X}$  Bar as 0.577, and  $D_4$  and  $D_3$  for control limits of  $R$  as 2.11 and zero respectively.

18. Explain operation characteristic curve with a neat sketch.

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