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C14–M–403

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2017

DME—FOURTH SEMESTER EXAMINATION

INDUSTRIAL ENGINEERING

Time : 3 hours] [*Total Marks* : 80

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) Printed SQC tables are permitted.

1. What are the objectives of method study?

2. Explain briefly about cyclegraph.

3. What is standard time? Give the basic constituents of standard time with diagram.

4. State the applications of PMTS.

5. List out four techniques of job evaluation.

6. Define the merit rating.

7. What is meant by wage? Write different types of wages.

8. List out different non-financial incentives for an industrial worker.

9. Distinguish between quality control and inspection.

10. Find mean and standard deviation from the following data :

x	5	7	10	12	15	18	20
f	5	10	15	20	14	11	6

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. *(a)* What is an operation process chart? Draw an operation process chart for repairing punctured wheel of a car.

(b) Explain the construction of a flow diagram.

12. What are therbligs? Explain their importance. Give the name, symbol, abbreviation and colour of each therblig.

13. What are the methods used for performance rating? Explain them in detail.

14. *(a)* State the advantages and limitations of work sampling over-time study.

(b) There are 5 workers producing electrical switches. The standard daily rate is ₹ 8 per worker and the standard output is 40 switches. Calculate their daily earnings by Emerson's efficiency plan, if they produce 24, 32, 36, 40 and 48 switches respectively.

15. Describe the procedure for conducting the job evaluation in detail.

16. Explain Halsey premium plan and Rowan premium plan. Discuss merits and demerits of each system.

17. The values of sample means and range for 10 samples of size 5 each is given below. Draw charts for the means and ranges. Comment on the state of control of the process :

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	42	49	38	44	45	37	51	46	43	48
Range	6	5	5	7	6	5	8	6	4	6

For n 5, take A_2 0 58, D_3 0, D_4 2 11.

18. Draw operating characteristic curve, indicate various parameters on it and explain them.

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