Reg.No.										

प्रज्ञानं ब्रह्म

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

IV SEMESTER B.S. DEGREE EXAMINATION – MAY 2016

SUBJECT: INTRODUCTION TO INDUSTRIAL ENGINEERING (IE 241)

20TH MAY, 2016

Time: 3 Hours **Max. Marks: 100**

- ✓ **Answer ANY FIVE full Questions.**
- ✓ **Neat sketches should accompany wherever necessary.**
- ✓ **All Main Questions carry same marks (20 Marks)**

1A. Explain the duties of an Industrial System Engineer?

1 B. Explain the risks of acceptance sampling.

1 C. What is the standard time for a task? Provide a definition. Identify any three basic methods to determine time standards.

[6+6+8= 20 marks]

2A. Explain the Functions of Production Planning and Control Department.

2B. Explain Man-machine chart with an example.

2C What is the need for LLP? What is feasibility polygon?

[6+6+8= 20 marks]

3A. Describe the following types of production systems so as to clearly bring out their differences: (a) Job shop production (b) Batch production (c) Cellular manufacturing.

3B. Define production planning and control. List various phases of PPC.

3C. During the base year in a small steel mill, 328,000 tons of steel were produced using 283,000 labor hours. In the next year, the output was 341,000 tons using 267,000 labor hours. Calculate (a) the labour productivity ratio for the base year, (b) the labour productivity ratio for the second year, and (c) the productivity index for the second year.

[8+6+6= 20 marks]

4A. Explain the use of p-charts and c-charts. When would you use one rather than the other? Give examples of measurements for both p-charts and c-charts.

4B. Explain the terms: control limits, tolerance limits and specification limits.

4C. A company produces dials for a machine. These dials are supposed to have a constant diameter. To check on the production process, the first 4 dials are selected every half hour for 12 hours giving a total of 96 observations. It was found that $\overline{\overline{X}}$ = 51.12mm and $\overline{r}$ = 0.46 mm. Find the upper and lower control limits.

[6+6+8= 20 marks]

5A. Distinguish between a flow shop and a job shop.

5B. What is a Time Standard? Explain the functions of Time Standards

5C. 20 samples were obtained from the fabric being produced by a weaving machine. The number of defects per 100 metres of cloth for the samples is given below:

15	13	14	12	17	14	13	16	16	15
12	13	13	12	15	14	14	17	16	15

(i) Determine the Control Chart limits for the machine;
(ii) On a particular day, when the machine is operating under controlled conditions, 10 samples were drawn and the defects per 100 metres of cloth are as follows:

11 18 27 12 13 8 2 15 19 20

What conclusions would you draw from these observations?

. [6+6+8= 20 marks]

6A. Explain SIMO chart and Activity Relationship Chart with one example for each.
6B. Explain the factors of Productivity Improvements?
6C. What is meant by performance rating? List the various allowances to be considered while calculating the standard time of job.

[6+6+8= 20 marks]

7A. What is an outline process chart? Explain the five symbols used in Flow process chart with suitable example.
7B. Write a short note on Material and Labour factors in the plant layout and explain their significance.
7C. Explain the characteristics of a Job shop layout and its merits.

[6+8+6= 20 marks]

8A. Explain the factors to be considered for selecting a job for method study. Justify them.
8 B Define a model of a system and Differentiate between discrete systems Vs Continuous systems.
8C. Describe the benefits of Production Control. Why Production Planning and Control (PPC) is relevant in operation.

[6+8+6= 20 marks]