17609

21819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any THREE of the following:** **12**

(i) State the importance of productivity in any organisation.

(ii) Compare a job production with mass production.

(iii) Explain the procedure of measurement of productivity? Discuss any two techniques.

(iv) Enlist the various functions of PPC.

b) **Attempt any ONE of the following:** **6**

(i) Explain any six factors on which selection of material handling device depends.

(ii) Explain the concept of line balancing. State its importance and objectives.

Marks

2. Attempt any TWO of the following: **16**

a) What are the factors influencing the selection of a site for a new industry/plant? Explain.

b) State the importance of operation sheet. How will it help you to improve process planning?

c) List down eight important steps for planning a process for a product from raw material to finished product in an industry.

3. Attempt any FOUR of the following: **16**

a) State symptoms of good plant layout and bad plant layout.

b) Define process planning and state its functions.

c) State the importance of inspection. Also explain floor inspection.

d) Explain in brief product and process type layout.

e) Define method study. State its objectives.

f) Differentiate between jigs and fixtures (any four points)

4. a) Attempt any THREE of the following: **12**

(i) Explain 3-2-1 principle of locations with suitable example and neat diagram.

(ii) Explain "JIT" system of production. State its merits.

(iii) Write the classification of sensors used in robotics.

(iv) Explain the concept of ERP.

b) Attempt any ONE of the following: **6**

(i) State the significance of time study. What are the different time study equipments used to perform time study?

(ii) How '5s' can be used as a waste management technique?

Marks

5. Attempt any FOUR of the following: **16**

a) State atleast eight principles of jigs/fixture design.

b) Why power devices are used in clamping? What are the disadvantages in hand clamping?

c) State the characteristics of lean manufacturing (any eight).

d) Explain the robot anatomy and structure with sketch.

e) Describe any two joints types used in robotics arms and wrist.

f) What are grippers? Explain vacuume actuated gripper in brief.

6. Attempt any TWO of the following: **16**

a) Explain the GANTT CHART used in PPC production planning and control. State its advantages and disadvantages.

b) Explain the different recording techniques used in method study. Also outline flow process chart for checking diameter of 50 mm of shaft.

c) What are actuators? Explain mechanical and hydraulic actuators type with advantages and disadvantages.