

17609

11920

3 Hours / 100 Marks

Seat No.

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- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) 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) Define productivity and explain the methods of improving productivity.
 - (ii) State the types of production system. Enlist four features of batch production system.
 - (iii) Define dispatching and enlist four functions of dispatching department.
 - (iv) Explain any one method of measurement of productivity.

- b) Attempt any ONE of the following: **6**
 - (i) Define plant layout. Explain in detail 'Process layout' with neat sketch.
 - (ii) Explain various functions of PPC. in detail.

P.T.O.

- 2. Attempt any TWO of the following:** **16**
- a) Explain the principles considered for selection of material handling equipment.
 - b) State and explain various factors affecting process planning.
 - c) Define route sheet. Explain a route sheet in detail. Also state significance of it.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain product layout with a neat sketch.
 - b) List four material handling devices and also write one application of each.
 - c) Differentiate in between Jig and fixture.
 - d) Explain in detail 5 'S'.
 - e) Define method study and explain any four objectives of it.
 - f) State and explain how the different operations can be combined?
- 4. a) Attempt any THREE of the following:** **12**
- (i) State the necessity of modern trends in manufacturing (any four points).
 - (ii) Give the classifications of sensors used in robots.
 - (iii) List advantages and disadvantages of Lean manufacturing.
 - (iv) Explain the concept of KAIZEN.
- b) Attempt any ONE of the following:** **6**
- (i) Explain 3-2-1 principle of location with neat sketch.
 - (ii) Construct a two handed process chart for an activity of replacing old refill from the ball pen with summary.

- 5. Attempt any FOUR of the following:** **16**
- a) Explain string diagram with a neat sketch.
 - b) List the types of locators and explain any one with a neat sketch.
 - c) Explain cylindrical configuration with neat sketch.
 - d) State the necessity of grippers. Explain vacuume actuated grippers in brief.
 - e) Enlist types of joints used in robotic arm and draw sketch of any two.
 - f) Enlist general principles of jig and fixture design.
- 6. Attempt any TWO of the following:** **16**
- a) Draw the symbols and write color code of any eight therblings.
 - b) Explain the GANTT Chart used in PPC. Enlist advantages and disadvantages of it.
 - c) List the different actuators. Explain any two types of actuators with advantages and disadvantages.
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