

17609

15116

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (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) What are the various tools of productivity? How productivity can be increased?
- (ii) List down the different types of production system in industry and give practical example of each type of production system.
- (iii) State the benefits of productivity to management and workers.
- (iv) Explain the factors affecting process planning.

P.T.O.

b) Attempt any ONE of the following:

6

- (i) Give the considerations for designing a plant layout.
- (ii) Define scheduling. What are various steps taken to control the production schedule?

2. Attempt any TWO of the following:

16

- a) Explain the different types of Automated Guided Vehicle (AGV) system and also state its functions and applications.
- b) Prepare operation process sheet and sequence of operation for the Ring Nut shown in Figure No. 1. Assume suitable cutting parameters and raw material $\phi 50 \times 10$ mm blank of carbon steel. Ref. Fig. No. 1.

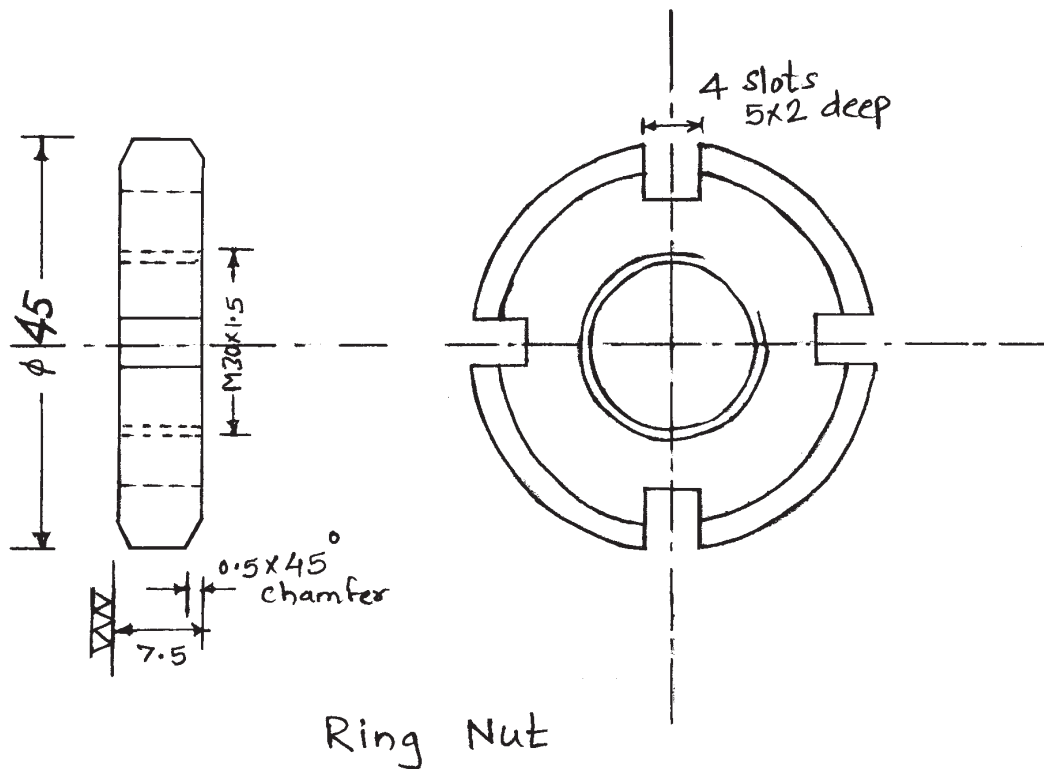


Fig. No. 1

- c) Explain various 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) What are the salient features of Industrial Policy as regards to backward areas?
 - b) Explain the need and importance of material handling devices in an Industry.
 - c) State the various stages at which inspection should be planned?
 - d) Explain the following terms in context of work study.
 - (i) Therblings
 - (ii) MTM (Method time measurement)
 - e) List down various types of clamping devices used in design of jigs. Explain any one with sketch.
 - f) Explain the principle of working of Hydraulic Actuator and state its advantages.
- 4. a) Attempt any THREE of the following: 12**
- (i) What are the different types of fixtures? Explain any one with sketch.
 - (ii) Explain the importance of '5S' ("Five S") concept.
 - (iii) Explain the concept of JIT and how does it help the manufacturing system to improve productivity?
 - (iv) Give classification of robot sensor.
- b) Attempt any ONE of the following: 6**
- (i) If a worker takes 15 minutes as a standard time for a job in which total allowance is 20% of normal time. If the rating of worker is 100% find the actual time required by the worker.
 - (ii) Explain with suitable sketch 3-2-1 principle of location used in jigs and fixtures.

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

- a) State the functions of production planning.
- b) What is ejector? Explain role and necessity of ejector in the design of jigs and fixtures.
- c) State advantages and disadvantages of ERP system.
- d) Explain pull type manufacturing system.
- e) Explain degree of freedom in Robots.
- f) Explain the basic components of Robots.

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

- a) Explain the GANTT CHART used in production planning and control. State its advantages and disadvantages.
 - b) Explain in brief the allowances to be considered while estimating the standard time.
 - c) Explain various Robot configurations with neat sketch.
-