Sem VI / Process Engg. & Tooling. / PROD / 12-05-15

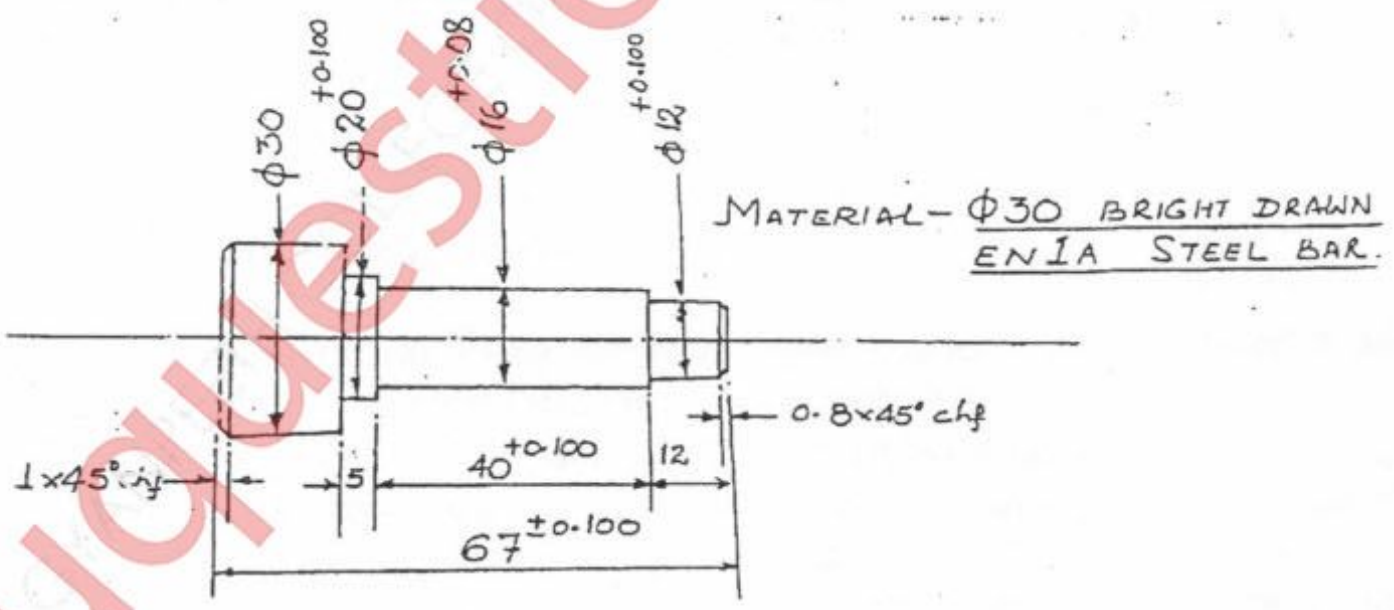
QP Code : 5025

(3 Hours) **[Total Marks : 80**

N. B. : (1) Question No. **1** is **compulsory**. Attempt any **three** from the remaining.
(2) Assume suitable data, if required.
(3) Use of tables, process sheet, index sheet; all provided by college is permitted.

1. Answer any **four** :– **20**
   (a) Process engineer need not be involved initially in the design of new product development - Say true or false and Justify
   (b) What are specifications?
   (c) Convert the given dimensions into equal bi-lateral tolerances
   (i) $60^{+0.3}_{-0.5}$ (ii) $40^{+0.3}_{-0.0}$
   (d) How are the critical areas on the work piece generally identified?
   (e) Why are symbols used in process picture?

2. (a) The part shown below is to be produced on TRAUB Automat (V=70m/min).
   (i) Draw the tool layout **4**
   (ii) Prepare the tabulated results **4**
   (iii) Calculate output per hour and piece rate **3**
   (iv) Draw the set of cams **5**



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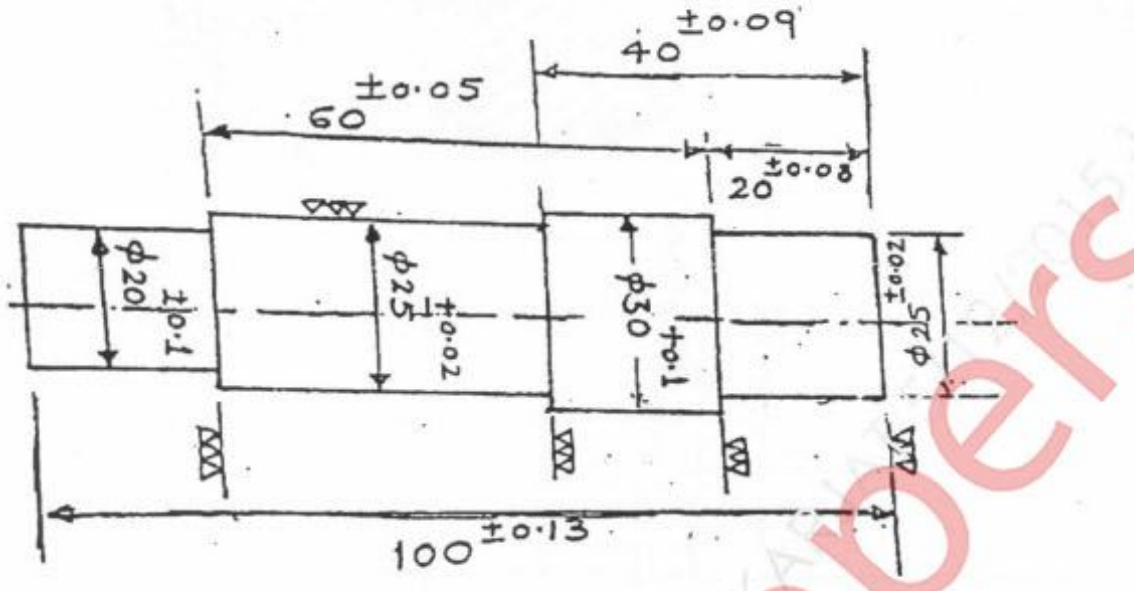
(b) What factors are considered while developing a product? **4**

3. (a) What are the various approaches or instruments required for process planning? **4**

(b) Prepare the tolerance chart for the given component material is m.s. **16**



4. (a) Discuss part print analysis for the component Ball Pillar shown in **Fig 1** (Refer page 3) **15**

(b) Differentiate between process critical area and product critical area **5**

5. (a) What is work piece control? Enlist various theories and techniques used by the process engineer to maintain work piece control **10**

(b) Explain any **two** **10**

(i) Secondary operation

(ii) Transfer line machining

(iii) Carbide inserts and Tool holder .

6. The component Ball Pillar shown in figure 1 is to be manufactured at an annual rate of 1,00,000 Qty/ year. (Refer page 3)

(a) Develop the basic component drawing with appropriate machining allowance and achievable tolerance in basic process you have selected. **4**

(b) In standard format prepare detailed process sheet. The process sheet should indicate operation number, machine, operation description, machining parameters. **16**

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Figure 1

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