

[Time: 3 Hours]

[ Marks: 80]

Please check whether you have got the right question paper.

- N.B:
1. Question no.1 is compulsory
  2. Attempt any 3 out of remaining 5
  3. Assume suitable data wherever necessary.

- Q.1 Answer Any Four:** 20
- Define ECN? Who can release it? Who is the recipient of it?
  - Differentiate between Basic process and principle process.
  - Convert the given dimensions into equal bi-lateral tolerances.
    - $65.0^{+0.2}_{-0.4}$
    - $20.0^{+0.1}_{-0.0}$
  - How are the critical areas on the work piece generally identified?
  - What are the causes of work piece variation?
- Q.2** 16
- The part guide pin (Material En 1A, Dia 30mm Bright Bar) in Fig 1 is to be produced on TRAUB Automat (Take  $V=75\text{m/min}$ )
    - Draw the tool layouts
    - Prepare the tabulated results
    - Calculate output per hour and piece rate
    - Draw the set of cams
  - “Process engineer should not be an expert in a particular area” – Justify true or false with reason. 04
- Q.3** 06
- Explain variant type CAPP system?
  - Prepare the tolerance chart for the component shown in fig 2. 14
- Q.4** 16
- Discuss part print analysis for the component Ball Pillar (Fig no. 3) 16
  - Differentiate between process critical area and product critical area. 04
- Q.5** 20
- Write a short note on:
- Geometric control
  - Special tooling and Commercial tooling
  - Critical operation
  - Transfer line machining
  - ERP

Q.6 The component Ball Pillar is to be manufactured at an annual rate of 1, 00,000 Qty/year.  
(Fig no. 3)

- a) Develop the basic component drawing with appropriate machining allowance and achievable tolerance in basic process you have selected. 03
- b) In standard format prepare detailed process sheet. The process sheet should indicate operation number, machine, operation description, machining parameters. 14
- c) Draw the process picture for any one major operation. 03

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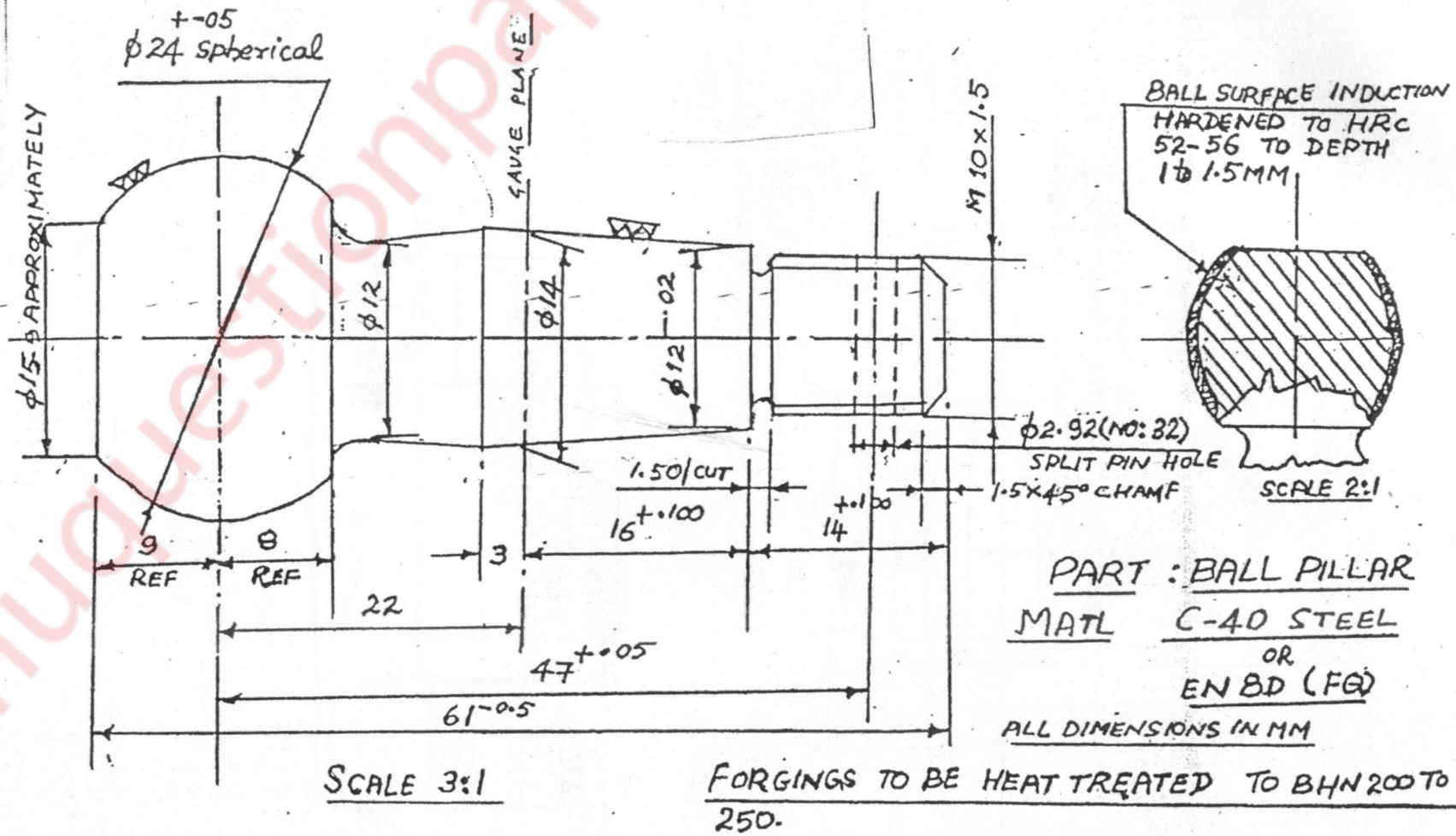


Fig. 3