

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (OLD) EXAMINATION – WINTER 2017

**Subject Code:133405**
**Date:29/11/2017**
**Subject Name: Manufacturing and Assembly Drawing**
**Time: 10:30 AM to 01:00 PM**
**Total Marks: 70**
**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

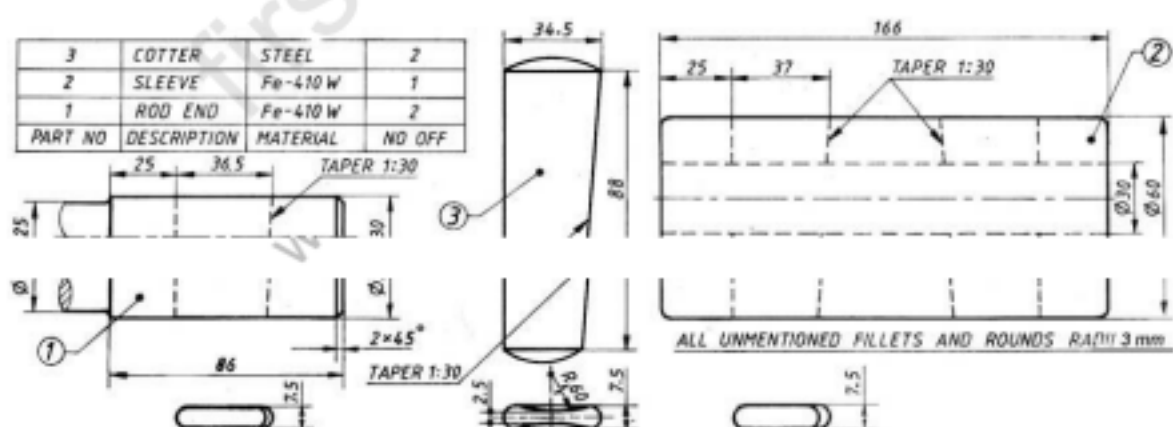
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|------------|------------|---|-----------|
| <b>Q.1</b> | <b>(a)</b> | Define Tolerance, Unilateral Tolerance, and Bilateral Tolerance with suitable sketches.   | <b>07</b> |
|            | <b>(b)</b> | What is a production drawing? Why production drawings must be prepared as per standard.   | <b>07</b> |
| <b>Q.2</b> | <b>(a)</b> | Name the different types of Rivet Heads. What is the function of a cover plate in riveted joints?   | <b>07</b> |
|            | <b>(b)</b> | Differentiate between lap joint and butt joint, Chain riveting and zigzag riveting.   | <b>07</b> |
| <b>OR</b>  |            |   |           |
|            | <b>(b)</b> | Explain about Hole basis system with the help of a suitable example.  | <b>07</b> |
| <b>Q.3</b> | <b>(a)</b> | Draw the conventions for following machine elements:<br>i) Ratchet and pinion.                      ii) Holes on a linear pitch.<br>iii) Helical Torsion Spring.                iv) Disc spring stacked in parallel.                      | <b>07</b> |
|            | <b>(b)</b> | Draw to 1:1 scale, the top view and sectional front view of a single riveted butt joint with double cover plates. The thickness of plates is 9 mm. Show at least three rivets in each row. Indicate all dimensions. Use snap head rivets. | <b>07</b> |
| <b>OR</b>  |            |   |           |
| <b>Q.3</b> | <b>(a)</b> | Define the following:<br><br>i) Basic Size, ii) Actual Size, iii) Tolerance, iv) Deviation.   | <b>07</b> |
|            | <b>(b)</b> | Define fit. Classify fits. Briefly explain about them.  | <b>07</b> |
| <b>Q.4</b> |            | Fig.1 shows the detail drawing of the different parts of a Cotter Joint with Sleeve. Assemble all the parts and draw the front view in Section.   | <b>14</b> |

**Q.4** Details of a flanged coupling (Unprotected type) are shown in Fig. 2. Draw to 1:1 scale the front view with top half in section, showing all the parts assembled, with one of the shaft being projected by a distance of 5 mm into the bore of the other flange. **14**

**Q.5** Fig. 3 shows the assembly drawing of a petrol engine connecting rod. Prepare working drawings of CAP & Bearing Brass. **14**

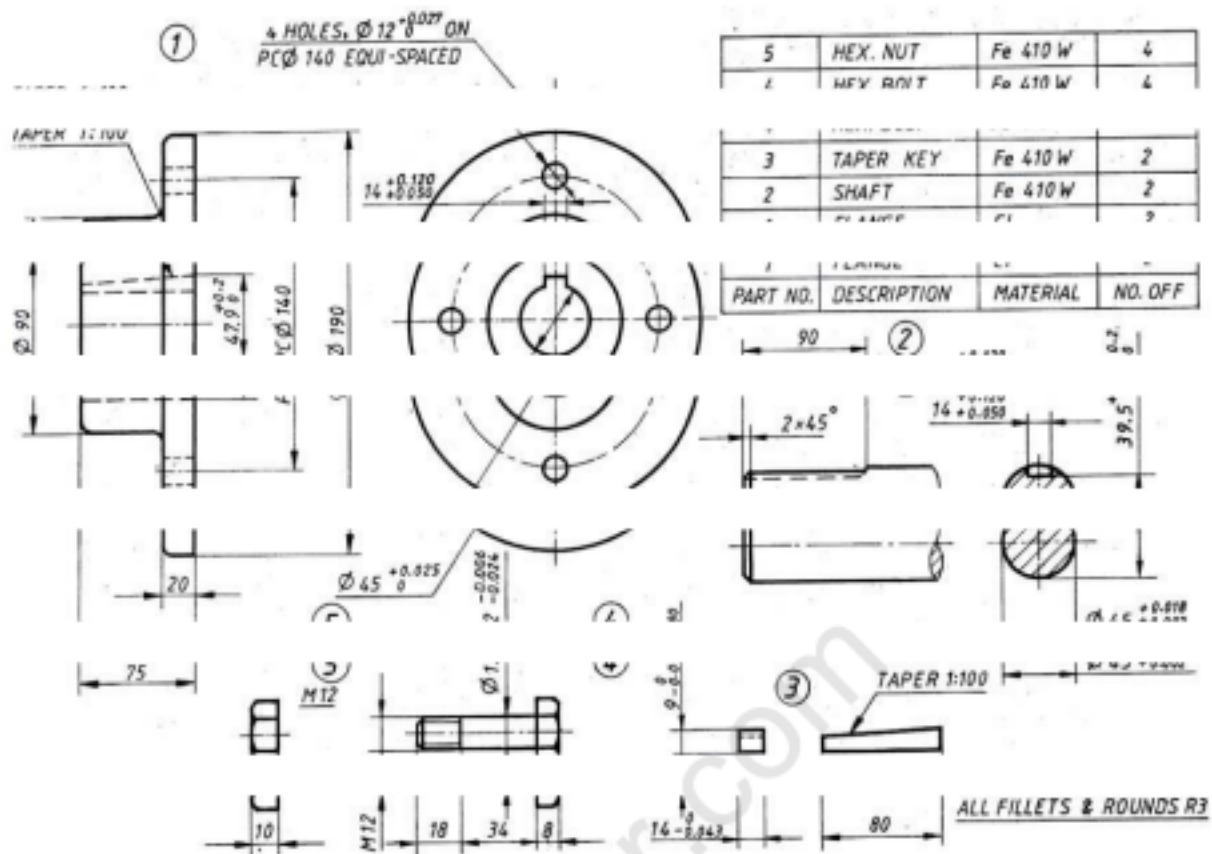
OR

**Q.5** Draw the assembly drawing of a two plate injection mould (Two cavity) for a cup (PP material) of outside diameter 40 mm, total height of 20 mm and wall thickness 1.5 mm. Mention the BOM. **14**

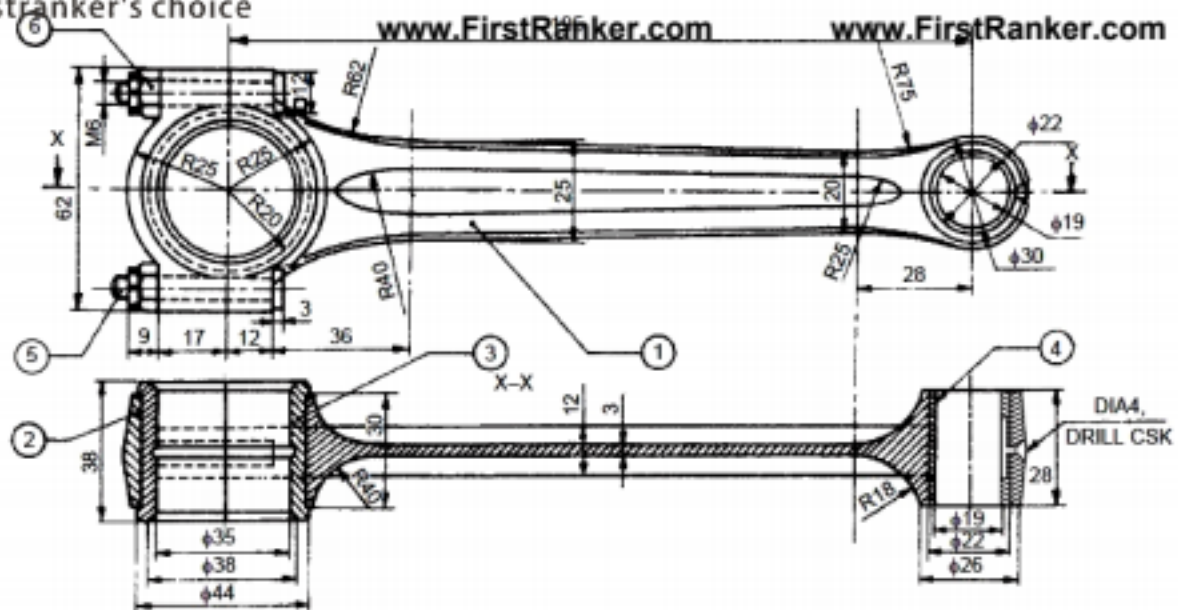


Details of Cotter Joint with Sleeve

Fig. 1



All Dimensions in mm  
Details of Flanged Coupling — Unprotected Type  
Fig. 2



Parts list

Part No.	Name	Matl.	Qty.
1	Rod	FS	1
2	Cap	FS	1
3	Bearing brass	GM	2
4	Bearing bush	P Bronze	1
5	Bolt	MCS	2
6	Nut	MCS	2

**Fig. 3** Petrol engine connecting rod

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