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BIME-003

B.Tech. MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

June, 2014

BIME-003 : MACHINE DRAWING

Time : 3 Hours *Maximum Marks : 70*

Note : *Attempt **any five** questions. All questions carry **equal** marks. Assume suitably missing data if any.*

1. (a) Describe the different types of sectional views. Explain each one of them by a suitable example. **6**

(b) Develop the half sectional view of the upright hollow circular cone of height 1 cm with 3 cm and 4 cm internal and external diameter respectively. **8**

2. (a) What is meant by cotter and when it is used ? With a neat sketch define the purpose of using a gib along with a cotter in a cotter joint. **7**

(b) Sketch the following thread profiles for a nominal diameter of 25 mm and pitch 3 mm and give their applications : **7**

(i) BSW thread (ii) ACME thread

(iii) Buttress thread (iv) Worm thread

3. (a) Describe the ways in which a riveted joint may fail. What steps are taken to prevent failures ? Illustrate your answer with necessary sketches. **6**

(b) Sketch the sectional view from the front and view from side of a muff coupling. **8**

4. (a) Name different types of pulleys ? What is meant by fast and loose pulleys ? Explain its working principle. 6

(b) A gear has 30 teeth of involute profile, pitch circle diameter of 180 mm and pressure angle of 20°. Draw the profile of four complete teeth for the gear. Also, draw the profile by approximate construction method. 8

5. (a) With suitable examples explain the following : 6

(i) Scaling an object

(ii) Rotation of an object

(b) Explain in brief : 8

(i) Wire frame modelling

(ii) Surface modelling

(iii) Solid modelling

6. The details of a cross head of a steam engine are shown in figure (1). Assemble the parts and draw. 14

(a) Half sectional view from the front, showing top view half in section and

(b) The view from the left.

The Particulars of parts are shown in table 1.

No.	Name of Parts	Material	Qty.
1.	Body	CI	1
2.	Rod end	MS	1
3.	Cover Plate	MS	1
4.	Brasses	Brass	1
5.	Bolt	-	2
6.	Nut	-	2
7.	Lock nut	-	2

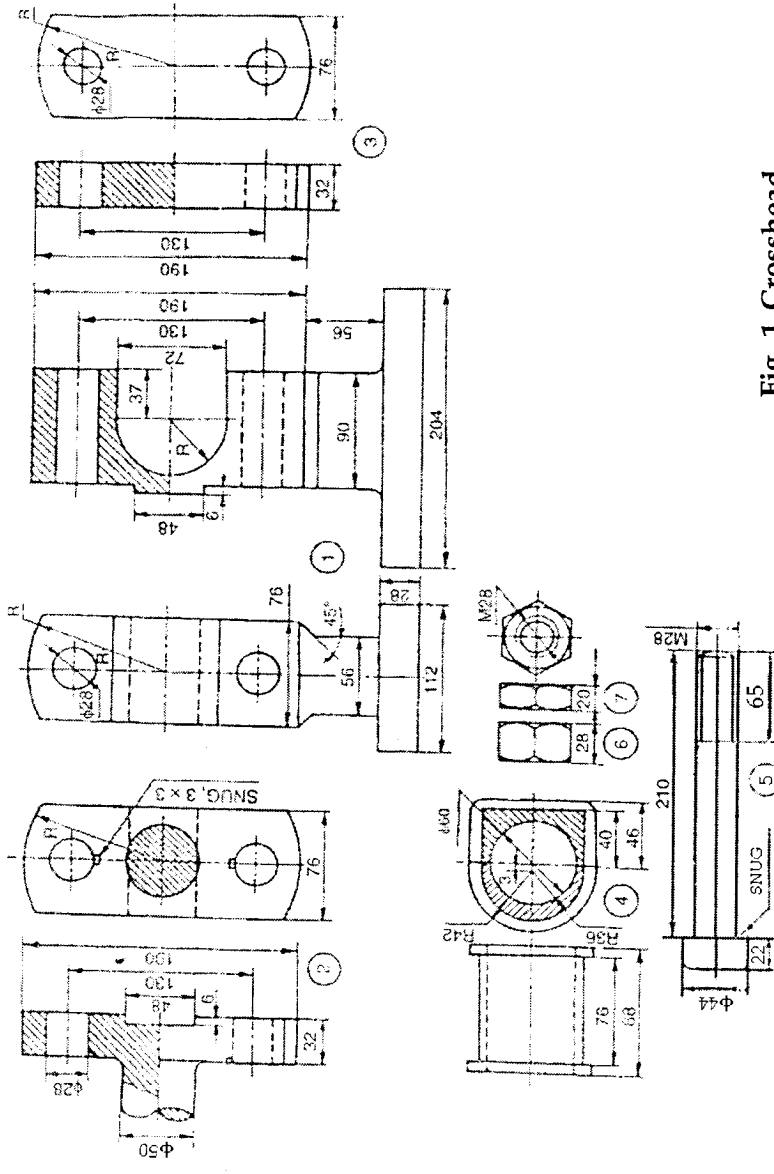

Fig. 1 Crosshead

7. Write short notes on **any two** of the following : 7+7

(a) Locking arrangements of nuts

(b) Forms of screw threads

(c) Rigid coupling Vs Flexible coupling

(d) Boiler joint