

II B.Tech II Semester (R09) Regular April/May 2012 Examinations
MACHINE DRAWING
(Mechatronics)

Time: 4 hours**Max Marks: 70**

Section - I**(Answer any two questions, 2x4=8 M)**

1. Sketch the conventional representation of the following
(a) Straight knurling (b) Diamond knurling.
2. Sketch the conventional representation of any four materials.
3. Draw the top view and front view of a square nut (with two faces visible) for a bolt of 24 mm diameter.

Section - II**(Answer any two questions, 2x10=20 M)**

4. Draw the sectional front view and top view of a double riveted. Lap joint (zigzag type). Take the diameter of rivet= 24 mm.
5. Sketch the necessary views of a foot-step bearing for supporting a shaft of diameter 50 mm. Give all important dimensions.
6. Draw the following keys fitted on a 24 mm diameter shaft.
(a) Flat saddle key. (b) Wood ruff key.

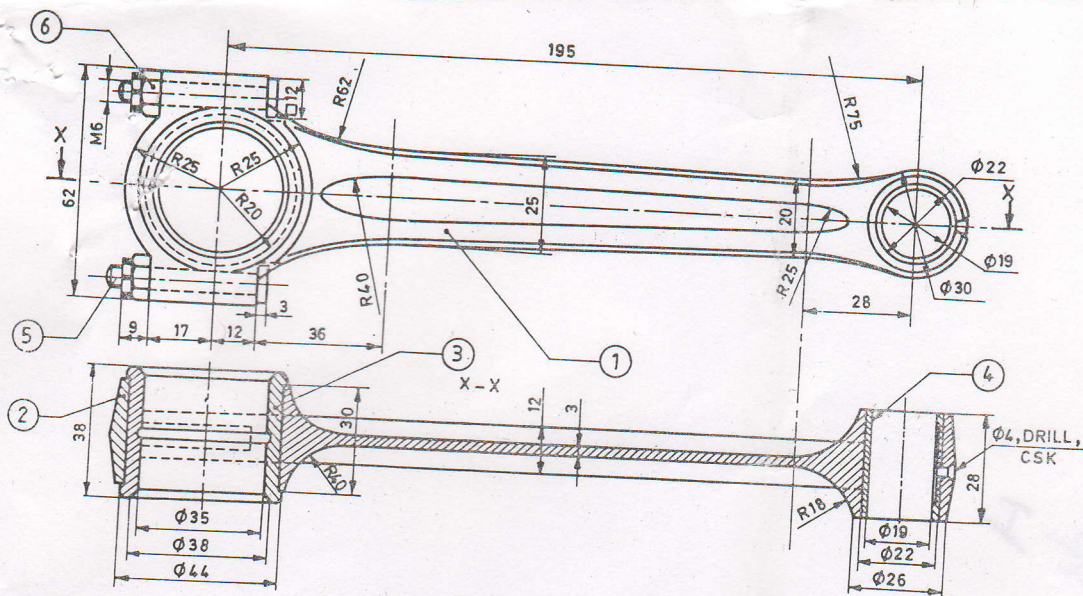
Section - III**(Compulsory question, 1x42= 42 M)**

7. Fig. shows the details of a connecting rod for petrol engine. Assemble the parts and draw the following views.
(a) Front view.
(b) Top view-Full in section.

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Parts list

Part No.	Name	Material	Quantity
1	Rod	FS	1
2	Cap	FS	1
3	Bearing brass	GM	2
4	Bearing bush	PBronze	1
5	Bolt	MCS	2
6	Nut	MCS	2

██████████ Petrol engine connecting rod

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Section- I**(Answer any two questions, 2x4=8 M)**

1. Sketch neatly, with the help of suitable sketches the methods of dimensioning.
(a) Circles (b) Arcs (c) Angles.
2. Sketch the Whitworth thread profile.
3. Sketch the conventional representation of the following
(a) External thread (b) Internal thread.

Section - II**(Answer any two questions, 2x10=20 M)**

4. Draw the top view and sectional front view of a single riveted double cover butt joint. Take the diameter of the rivet: 24 mm.
5. Draw the following view of a solid journal bearing
(a) Front view- right half in section.
(b) Top view.
6. Draw the front view, top view and side view of a square headed bolt of 24 mm diameter and 96 mm long with a hexagonal nut and washer.

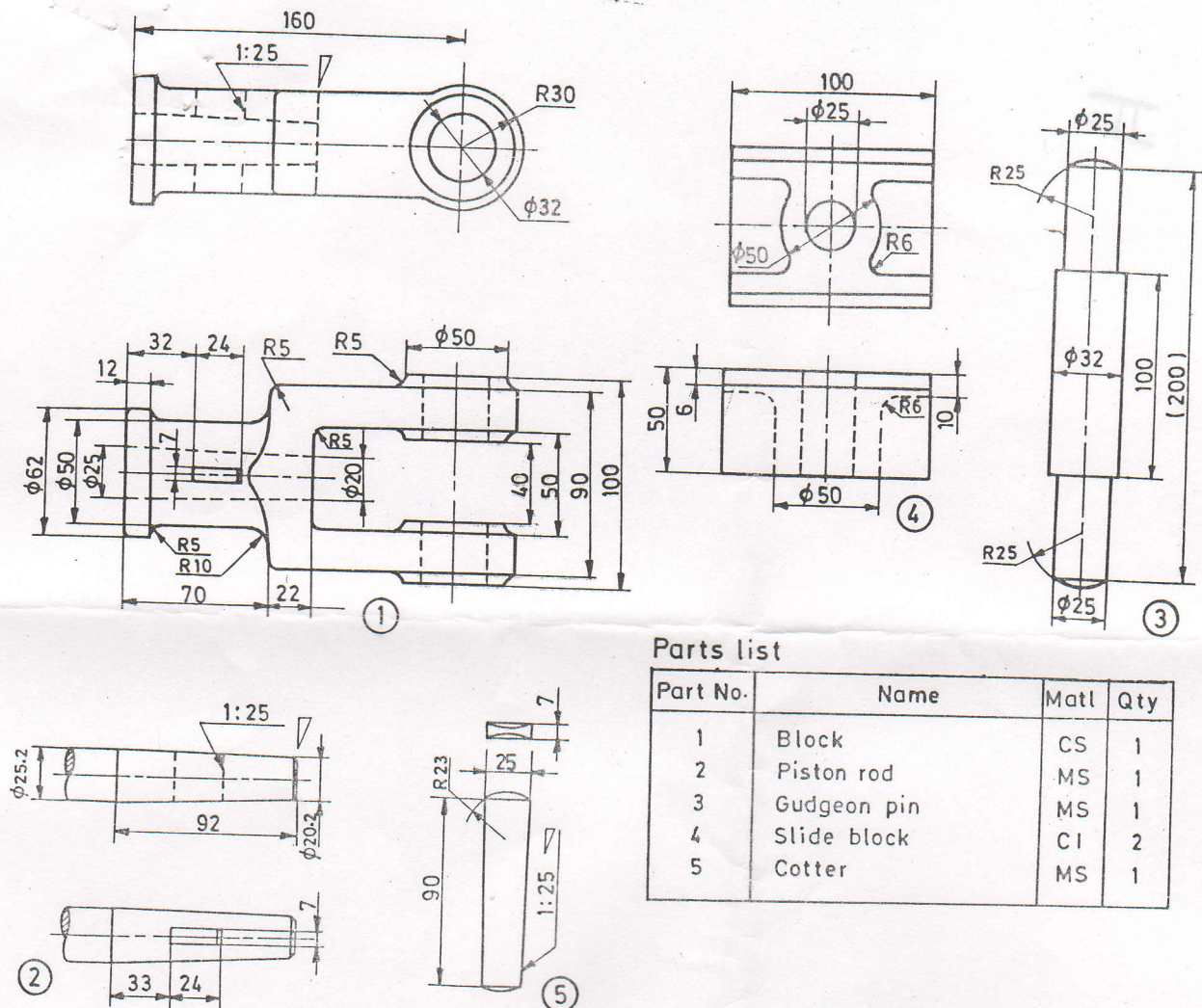
Section - III**(Compulsory question, 1x42= 42 M)**

7. Fig shows the details of a steam engine cross head. Assemble the parts and draw
 - (i) Half sectional view from the front with bottom half in section.
 - (ii) View from above.

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Parts list

Part No.	Name	Matl	Qty
1	Block	CS	1
2	Piston rod	MS	1
3	Gudgeon pin	MS	1
4	Slide block	CI	2
5	Cotter	MS	1

Steam engine crosshead

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Section- I
(Answer any two questions, 2x4=8 M)

1. Prepare a specimen title block for use in class room by engineering students.
2. Sketch the buttress thread profile.
3. Sketch the conventional representation of any four materials.

Section - II
(Answer any two questions, 2x10=20 M)

4. Draw the sectional front view and top view of a double riveted double strap butt joint (chain type). Take thickness of main plates= 8 mm cover plates 5 mm, diameter of rivet = 12 mm and pitch = 36 mm.
5. Draw the front view, top view and side view of a hexagonal bolt 24 mm diameter and 96 mm long with a hexagonal nut and washer.
6. Draw the following views of a spigot and socket joint.
 - (a) Full sectional view.
 - (b) Side view.

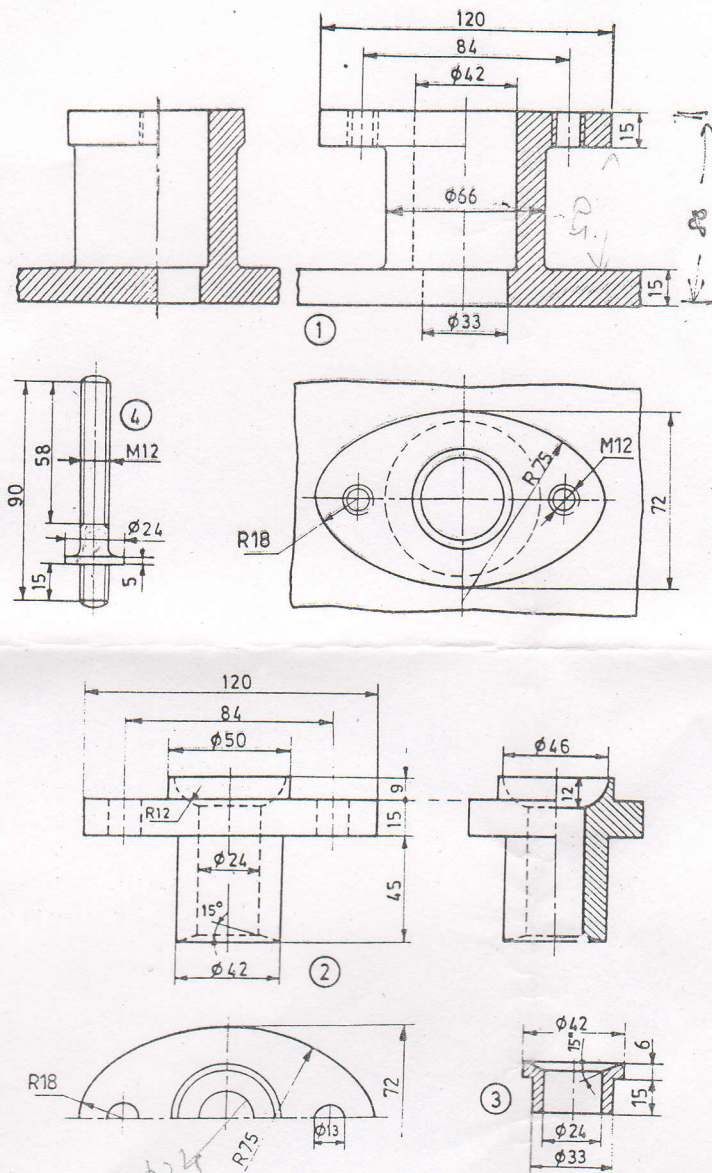
Section - III
(Compulsory question, 1x42= 42 M)

7. Assemble all the parts of the stuffing box for a vertical steam engine and draw
 - (i) Half sectional view from the front, with left half in section.
 - (ii) View from the above.

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Parts list

Part No.	Name	Matl	Qty
1	Body	CI	1
2	Gland	Brass	1
3	Bush	Brass	1
4	Stud	MS	2
5	Nut, M12	MS	2

* Stuffing box

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Section- I
(Answer any two questions, 2x4=8 M)

1. Sketch the ACME thread profile.
2. Sketch the conventional representation of the following
(a) Straight knurling (b) Splined shaft.
3. Sketch the front view and side view of a eye bolt of diameter =25 mm.

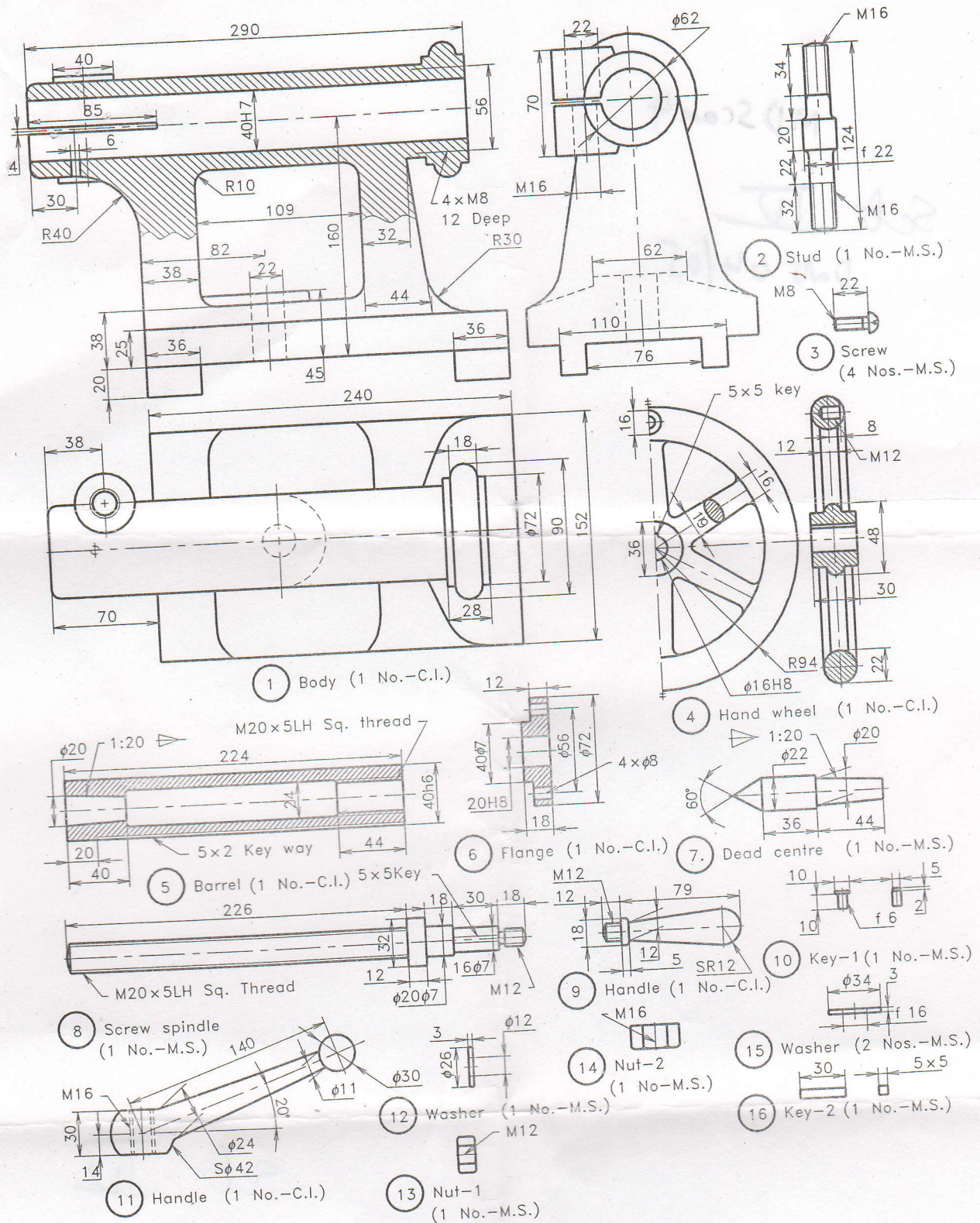
Section - II
(Answer any two questions, 2x10=20 M)

4. Draw the top view and sectional front view of a double riveted double strap zigzag butt joint. Take the thickness of main plates= 10 mm. Assuming pitch of rivet as three times the rivet diameter.
5. Draw the following views of a cotter joint.
(a) Front view-upper half in section.
(b) Top view.
6. Draw the following views of a bushed journal bearing.
(a) Front view- right half in section.
(b) Top view.

Section - III
(Compulsory question, 1x42= 42 M)

7. Fig. shows the details of lathe tail stock. Assemble the parts and draw the following views.
(a) Sectional view from the front.
(b) View from the left.

Figure in Page 2



Lathe tailstock (parts).