B. Tech Degree III Semester Examination in Marine Engineering, November 2009

MRE 306 MACHINE DRAWING

Time: 4 Hours | Maximum Marks: 100

I. Figure 1 shows the isometric view of a stub axle. Draw, full size, at least two orthographic views. (20)

OR

II. Draw two views of each of the following muff coupling showing tolerances whenever required.

(i) Box muff coupling for 50 ϕ shaft

(ii) Half lap muff coupling for 40 ϕ shaft

(iii) Split muff coupling for 50 ϕ shaft.

Give the part list for each of the muff couplings. (20)

III. (a) A small shaping machine is to be installed on cement concrete foundation. Make neat sketches showing three alternate types of foundation bolts which could be used. One should be of a type, which will allow the machine to be moved to a new site, without the need for new bolts. (15)

(b) Draw neat sketches in good proportions to indicate clearly at least three different ways in which hexagonal nuts may be securely locked. (15)

OR

IV. (a) Make neat sketches to show:

(i) The basic metric thread form for a bolt, indicating the pitch, depth and thread angle.

(ii) One conventional representation of an external screw thread. (7)

(b) Sketch, approximately to scale and in good proportions, a sectional view showing a 12mm dia, stud 72mm long, screwed 24mm into an iron casting. What suitable material is used for the stud. (8)

(c) A half sectional pictorial view of a Gland is shown in figure 2. Draw its half sectional front view, side view looking from the left hand side and top view. (15)

V. Figure 3 shows the details of a Blow-off Cock. Draw the following assembled views:

(i) Front view, right half in section

(ii) Right side view

(iii) Top view, outside (50)

OR

VI. Assemble all parts of the big end of the marine engine connecting rod shown in figure 4 and draw its

(i) Half sectional front view, upper half in section

(ii) Right side view

(iii) Top view (50)

(Turn Over)

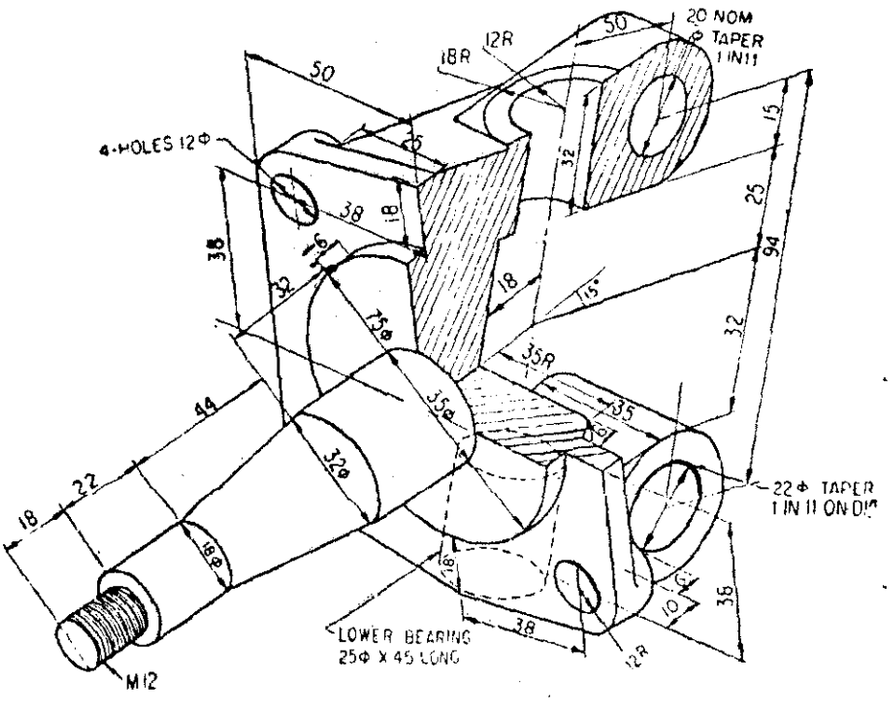

Fig: 1

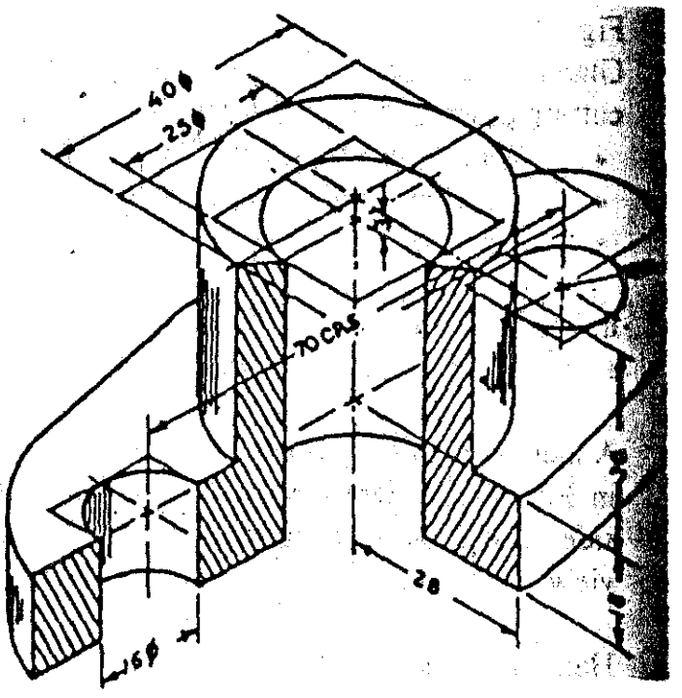

Fig: 2

(Contd...3)

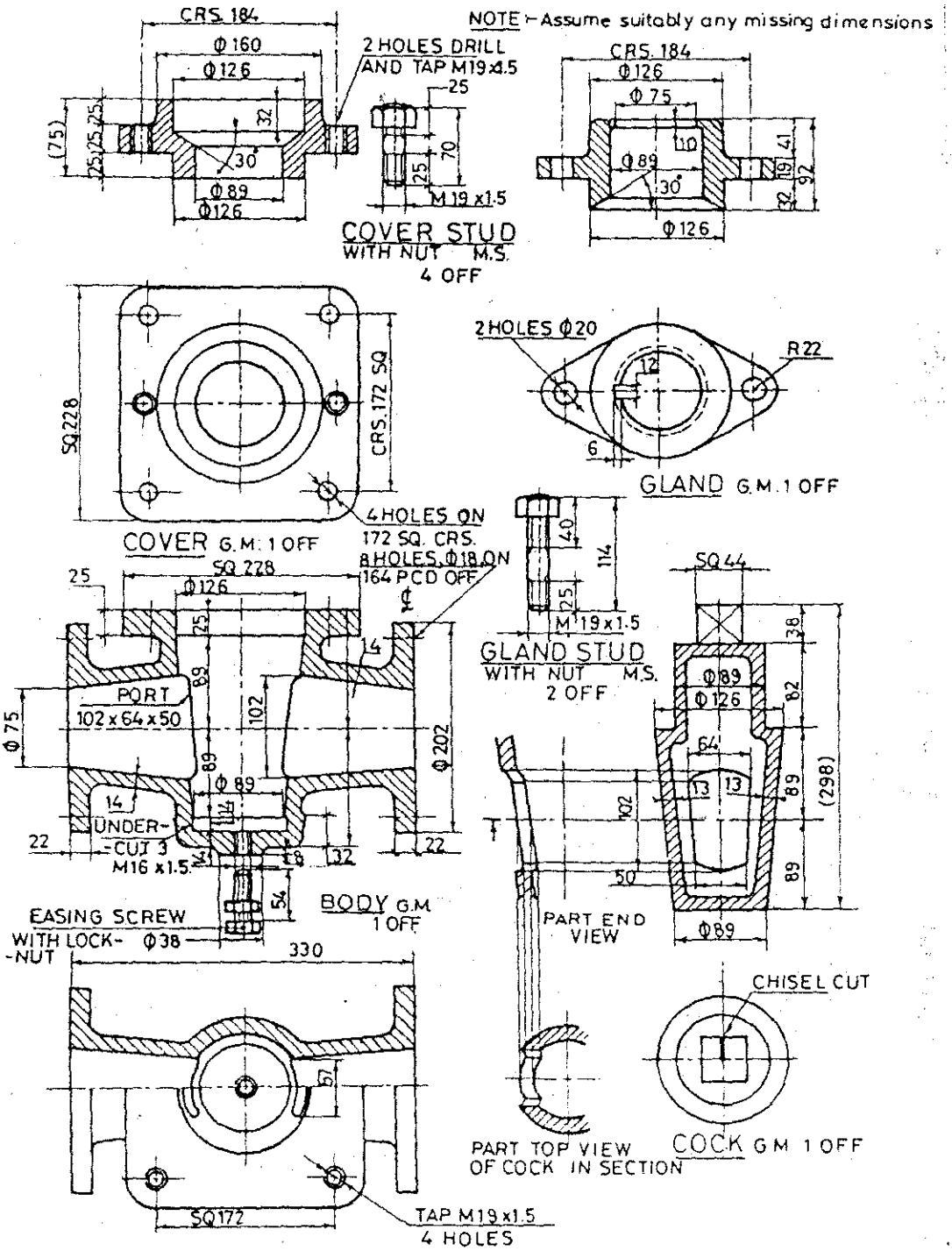
NOTE :- Assume suitably any missing dimensions
CRS. 184
Φ160
Φ126
2 HOLES DRILL AND TAP M19x1.5
25
70
M19 x1.5
COVER STUD WITH NUT M.S. 4 OFF
CRS. 184
Φ126
Φ75
Φ89
Φ126
SQ228
CRS.172 SQ
4 HOLES ON 172 SQ. CRS.
COVER G.M. 1 OFF
2 HOLES Φ20
R22
GLAND G.M. 1 OFF
8 HOLES, Φ18 ON 164 PCD OFF
SQ 228
Φ126
PORT 102 x 64 x 50
Φ75
Φ89
Φ202
UNDER-CUT 3 M16 x1.5
BODY G.M 1 OFF
EASING SCREW WITH LOCK-NUT
Φ38
330
SQ172
TAP M19 x1.5 4 HOLES
GLAND STUD WITH NUT M.S. 2 OFF
SQ44
Φ89
Φ126
PART END VIEW
Φ89
CHISEL CUT
PART TOP VIEW OF COCK IN SECTION
COCK G M 1 OFF

Fig: 3

(Contd...4)

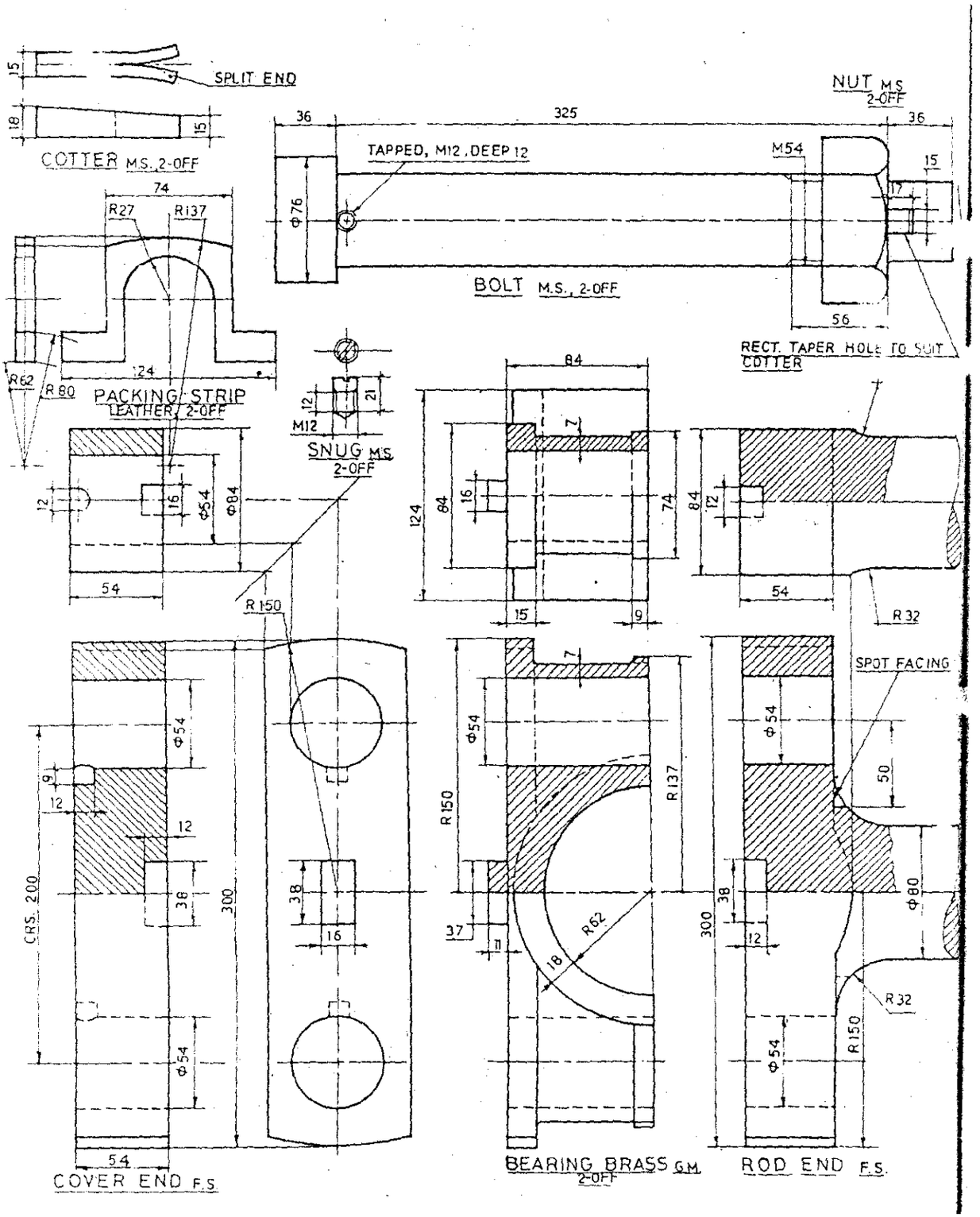
SPLIT END
COTTER M.S. 2-OFF
NUT M.S. 2-OFF
TAPPED, M12, DEEP 12
BOLT M.S., 2-OFF
RECT. TAPER HOLE TO SUIT COTTER
PACKING STRIP LEATHER, 2-OFF
SNUG M.S. 2-OFF
SPOT FACING
COVER END F.S.
BEARING BRASS G.M. 2-OFF
ROD END F.S.

Fig: 4

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