higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T510**(E)**(A1)T

AUGUST EXAMINATION

NATIONAL CERTIFICATE

ENGINEERING DRAWING N2

(8090272)

1 August 2014 (Y-Paper)
13:00–17:00

REQUIREMENTS: ONE A2 drawing sheet

Drawing instruments and calculators may be used.

This question paper consists of 9 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
ENGINEERING DRAWING N2
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Marks will be deducted for untidy work.
5. ALL drawings must be done neatly using drawing instruments.
6. ALL drawings must conform to the latest SANS 10111 Codes of Practice.
7. ALL work you do not want to be marked must be clearly crossed out.
8. Write neatly and clearly and ONLY in pencil.

QUESTION 1: WELDING COMPUTER-AIDED DRAUGHTING FASTENERS AND FITTINGS

1.1 Give FOUR advantages of using computer-aided draughting programs. (4)

1.2 Draw an isometric freehand view of a two-way T-end box and insert a title beneath the view. (5)

1.3 Name FOUR types of storage devices used for computer-aided draughting. (4)

1.4 Name THREE welding processes. (3)

[16]

QUESTION 2: SCREW THREADS

FIGURE 1 shows a machined spindle.

Draw the given view to scale 1 : 1. Provide the 90 mm shank length with a single-start external right-hand square screw thread with a pitch of 15 mm.

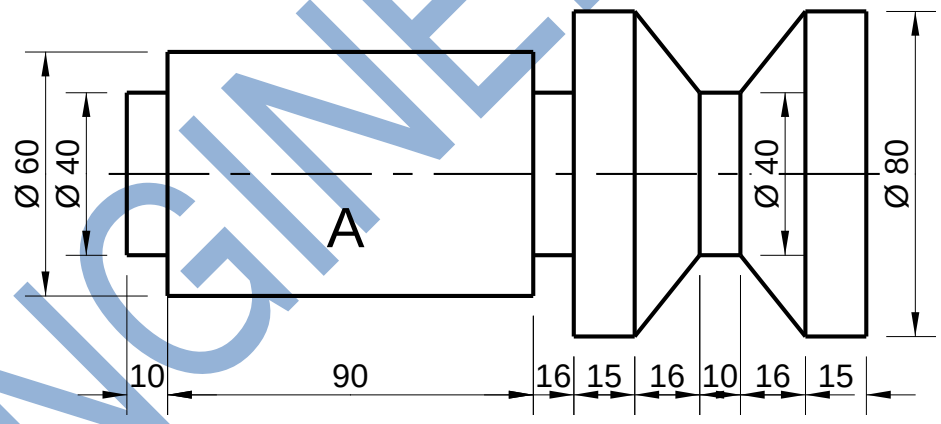

FIGURE 1

[12]

QUESTION 3: FIRST-ANGLE ORTHOGRAPHIC PROJECTION

FIGURE 2 shows a half-sectional front view and an outside left view of a pulley and mounting assembly. The TWO M30 hexagonal securing nuts have been omitted.

Draw, to scale 1 : 2 and in first-angle orthographic projection, the following views:

3.1 A full-sectional front view with the two M30 hexagonal securing nuts in position. (13)

3.2 An outside left view with the M30 hexagonal securing nut in position, no hidden detail is required. (5)

3.3 Show EIGHT dimensions on the left view. (4)

3.4 Print the following title and scale centrally beneath the layout:

PULLEY ASSEMBLY
SCALE 1 : 2 (2)

3.5 Draw the symbol for first-angle orthographic projection beneath the layout. (1)

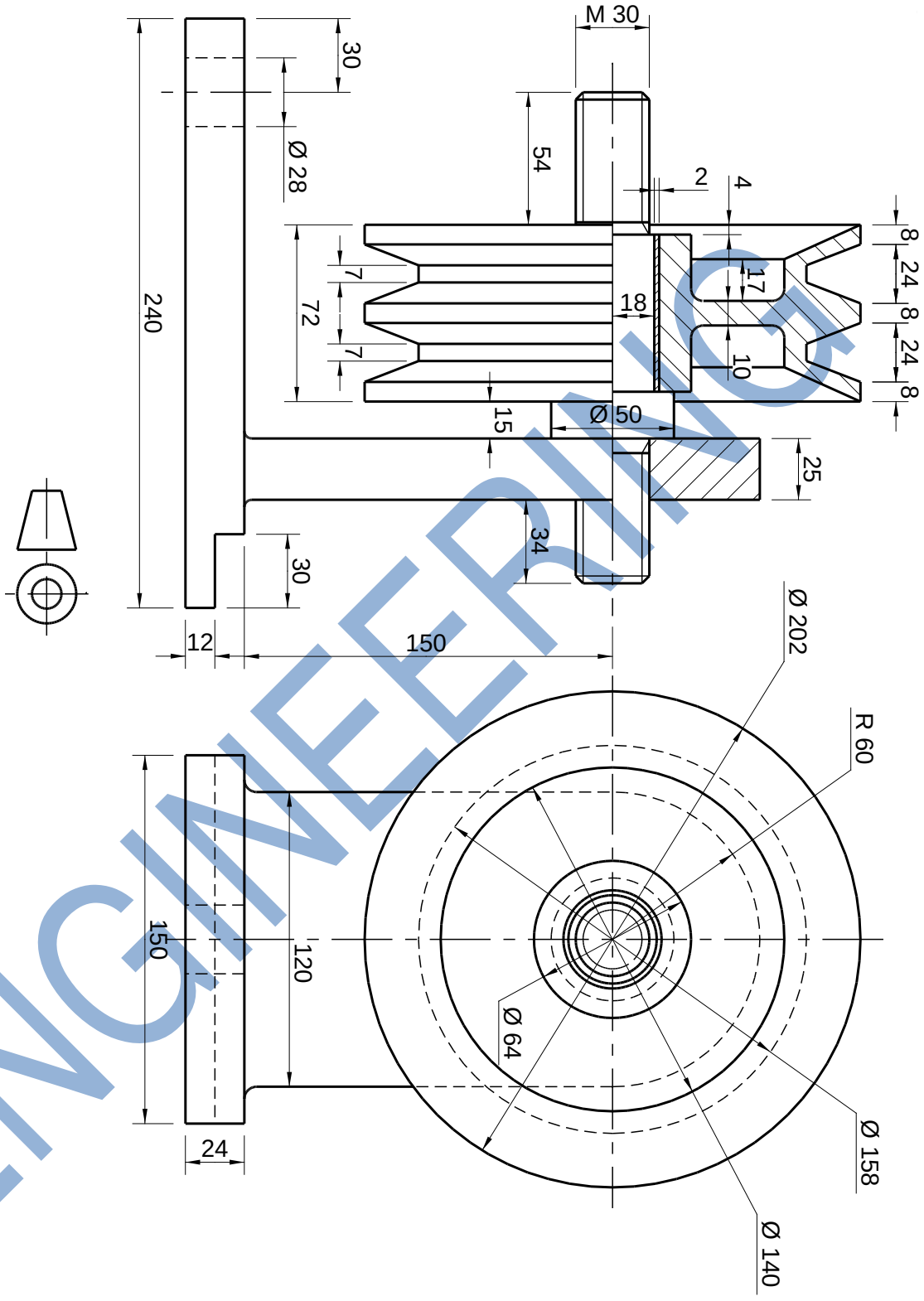

FIGURE 2

[25]

QUESTION 4: ISOMETRIC

FIGURE 3 shows two views of a workpiece in first-angle orthographic projection.

Do not redraw the given views but draw, to scale 1 : 1, an isometric view of the work-piece.

Point A must be the lowest point.

No hidden detail is required.

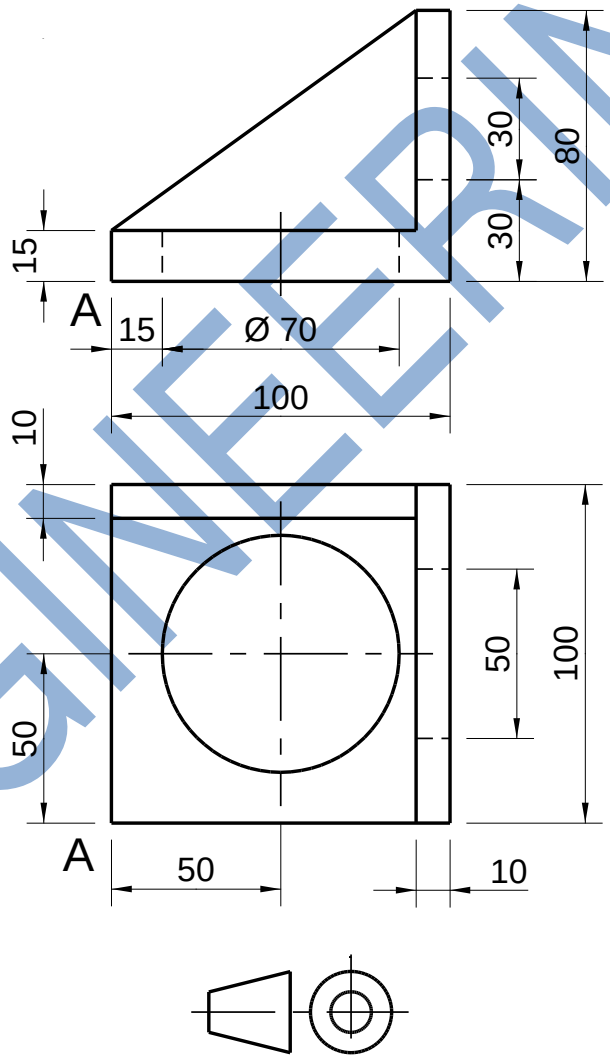

FIGURE 3

[10]

QUESTION 5: INTERPENETRATION

FIGURE 4 shows two views of a hexagonal pipe and a triangular pipe that intersect at right angles.

Redraw the TWO views in first-angle orthographic projection to scale 1 : 1 and show the following:

5.1 The interpenetration curve on the front view

5.2 Show all the construction lines on the drawing.

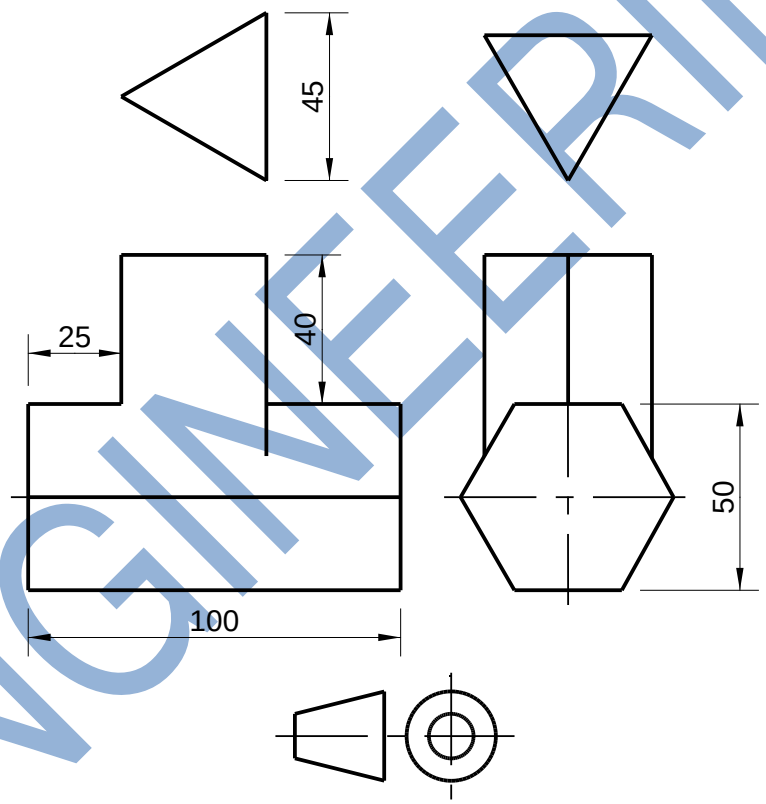

FIGURE 4

[10]

QUESTION 6: THIRD-ANGLE ORTHOGRAPHIC PROJECTION AND MACHINING SYMBOLS

FIGURE 5 shows an outside front and right view of a carrier.

Draw, to scale 1 : 1 and in third-angle orthographic projection, the following views of the carrier:

6.1 A full sectional front view on cutting plane A–A (9)

6.2 A sectional right view on cutting plane B–B (9)

6.3 An outside top view. Show hidden detail on this view. (6)

6.4 Add the title and scale beneath the layout. (2)

6.5 Insert the third-angle orthographic projection symbol in a space beneath the layout (1)

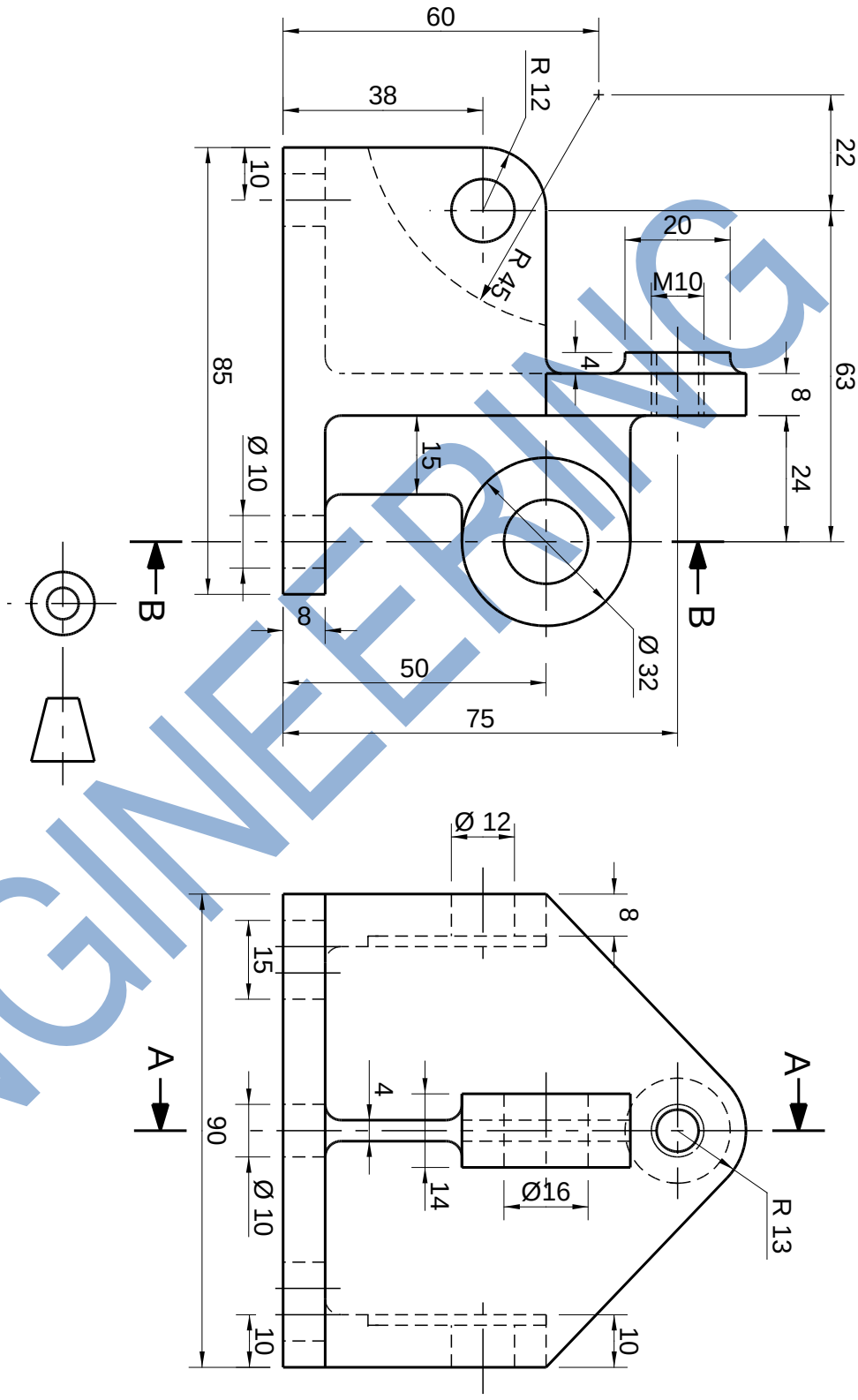

FIGURE 5

[27]

TOTAL: 100