higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ENGINEERING TECHNOLOGY
NQF LEVEL 2

12 November 2024

This marking guideline consists of 5 pages.

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QUESTION 1

1.1
1.1.1 B
1.1.2 C
1.1.3 A
1.1.4 B
1.1.5 C
1.1.6 A/C
1.1.7 A
1.1.8 C

(8 × 1) (8)

1.2 A − Allen key✓ – Tighten or loosen bolts with a hexagon-shaped slot head✓
B − Vice grip✓ – Used to hold pipes or square shaped objects✓
C − Tin snip✓ − Used to cut thin sheet metal✓
D − Ball peen hammer✓ − used to strike objects, e.g., chisels✓
E − Flat spanner open end spanner✓ − used to tighten and loosen bolts and nuts✓
F − Hacksaw✓ − used for cutting metal pipes, metal plates, metal rods, brackets, etc.✓ (6 × 2) (12)

[20]

QUESTION 2

2.1

POWER TOOL	USE/FUNCTION
Pencil grinder	Grinding delicate work-pieces
Air compressor	Generating air pressure (compressed air) for various purposes
Pneumatic angle grinder	Grinding objects that cannot fit on to a bench grinder
Pneumatic drill	To drill holes of accurate size/rimming , counter sinking and counter boring

(Any other TWO relevant tools with their uses/functions) (4)

2.2 2.2.1 A – Bench grinder (1)

2.2.2 The grinding wheel is being dressed,✓ for the purpose of restoring and correcting the wheel, dressing removes clogs (small pieces of metal) from the surface of the wheel✓ (3)

2.2.3
- Always wear safety goggles to protect one's eyes
- Ensure that the tool rest is not more than 2 mm away from the wheel
- When grinding do not force the object onto the wheel

(Any 2 × 1) (2)

2.2.4 Huntington wheel dresser (1)

2.3 2.3.1 Portable drilling machine (1)

2.3.2
- Do not carry the machine by its cord
- Use the correct drill for the job
- Use eye protection
- Do not add to much pressure when drilling
- Drill at the correct speed
- Use the correct drill bits size
- Before using the drilling machine, check for any damage
- Do not carry the machine with one finger on the on/off switch
- Do not use the machine if any part is damaged or defective
- If the drilling machine does not sound normal, switch it off immediately (Any 2 × 1) (2)

2.3.3
- Spanner
- Socket spanner
- Flat spanner
- Ring spanner
- Combination spanner (Any ONE) (1)

2.3.4
- Check the electrical plug for damage and whether the cable connection is in order
- Check whether the casing/body(casing) shows any cracks
- Clean/blow out dust from the machine
- The drilling machine should be stored properly
- Roll the cord correctly (Any 3 × 1) (3)

2.4
- Ensure that the air supply is clean.
- Check for air leaks.
- Ensure that the air pressure is set correctly.
- Keep the intake filter clean.
- Check the rubber hoses and fittings for damage or leaks. (Any 2 × 1) (2)

[20]

QUESTION 3

3.1 3.1.1 To measure and transfer outside dimensions
3.1.2 To measure and for drawing lines
3.1.3 Used for alignment, e.g., pulleys
3.1.4 Used to check the size of small gaps/used to set the size of small gaps
3.1.5 Used to compare threads on a bolt to the teeth cut on the gauge (5 × 1) (5)

3.2 A − Square head – Used to check if a work piece is square (90°)
B − Protractor head – Used to draw or measure angles
C − Centre head – Used to find the centre of round objects
D − Ruler – The heads are attached to the ruler/used to draw lines/used for measuring (4 × 2) (8)

3.3 Engineers Square (2)
[15]

QUESTION 4

4.1 6,52 mm (3)

4.2 4.2.1 Telescopic gauge (1)

4.2.2 The telescopic gauge is used to take the size of work piece. Use the correct size of telescopic gauge, slowly release the lock, allow the plungers to lightly come into contact with the work piece and lock the telescopic gauge; remove the telescopic gauge. (3)

4.2.3 The measurement from the telescopic gauge is transferred to a micro meter. The micro meter is adjusted until it comes into contact with the plungers of the telescopic gauge and the reading is taken from the micro meter. (3)
[10]

QUESTION 5

5.1 W = m x g

= 68 × 9,81✓

= 667,08 N✓✓ (3)

5.2 5.2.1 Metres or m
5.2.2 Kilograms or kg
5.2.3 Ampere or A

(3 × 1) (3)

5.3 °F = (1,8 × °C) +32✓
= (1,8 × 10) + 32✓✓
= 50 °F✓ (4)
[10]

QUESTION 6

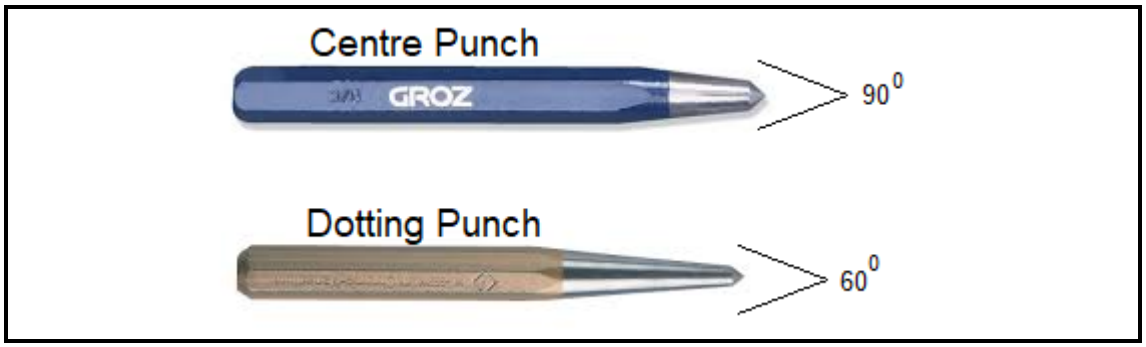
6.1 6.1.1 A − Angle plate
B − Clamp
C − Vernier height gauge

6.1.2 The work man is marking off a work-piece✓ using a Vernier height gauge.✓ The work piece is secured to the angle plate using a machine clamp and packing.✓

(2 × 3) (6)

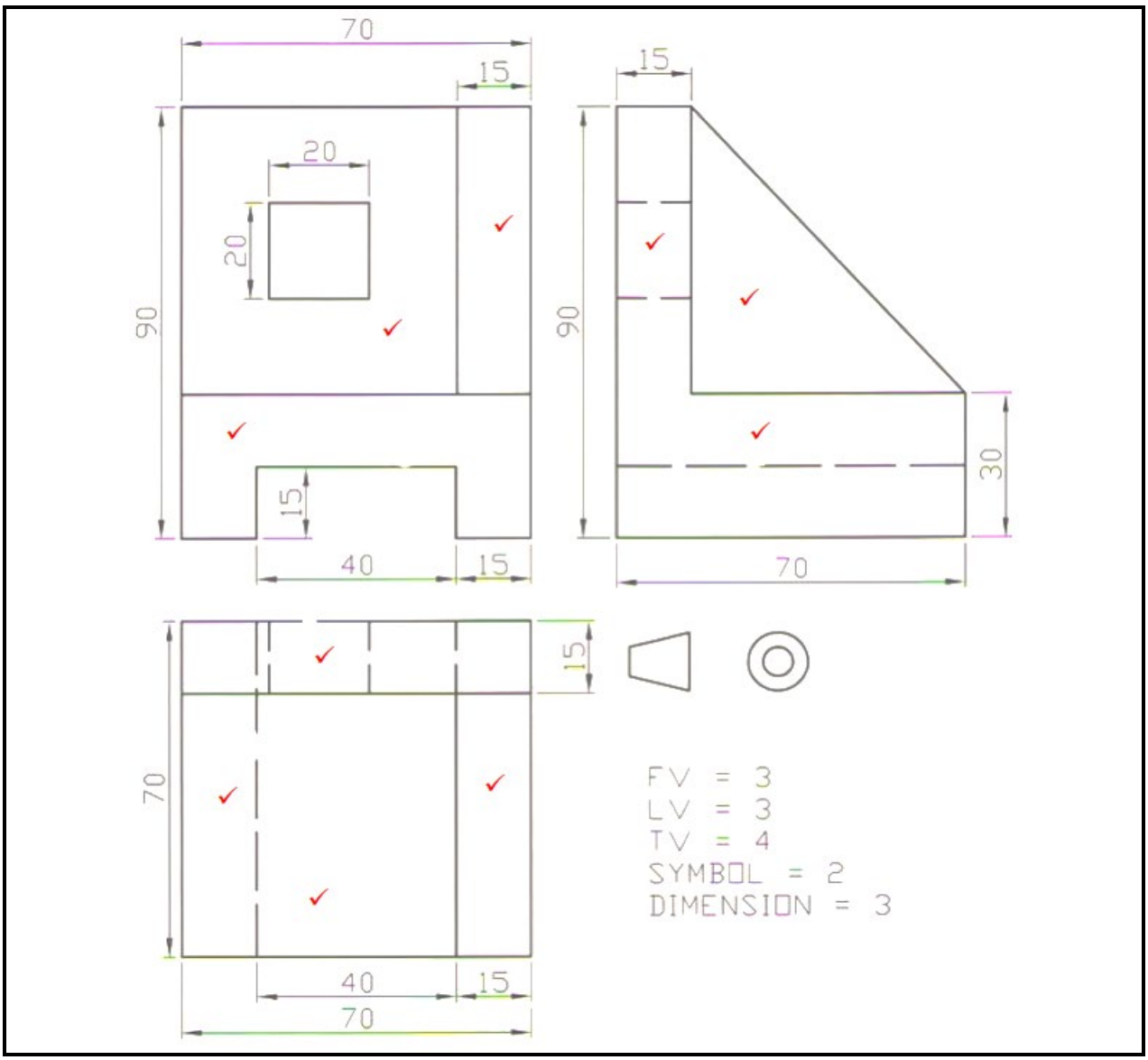
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6.2



(4)
[10]

QUESTION 7



[15]

TOTAL: 100

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