



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

N990(E)(J7)H

NATIONAL CERTIFICATE

MAINTENANCE MANAGEMENT: FARMING N4

(4090524)

**7 June 2018 (X-Paper)
09:00–12:00**

Nonprogrammable calculators may be used.

This question paper consists of 7 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
MAINTENANCE MANAGEMENT: FARMING N4
TIME: 3 HOURS
MARKS: 100

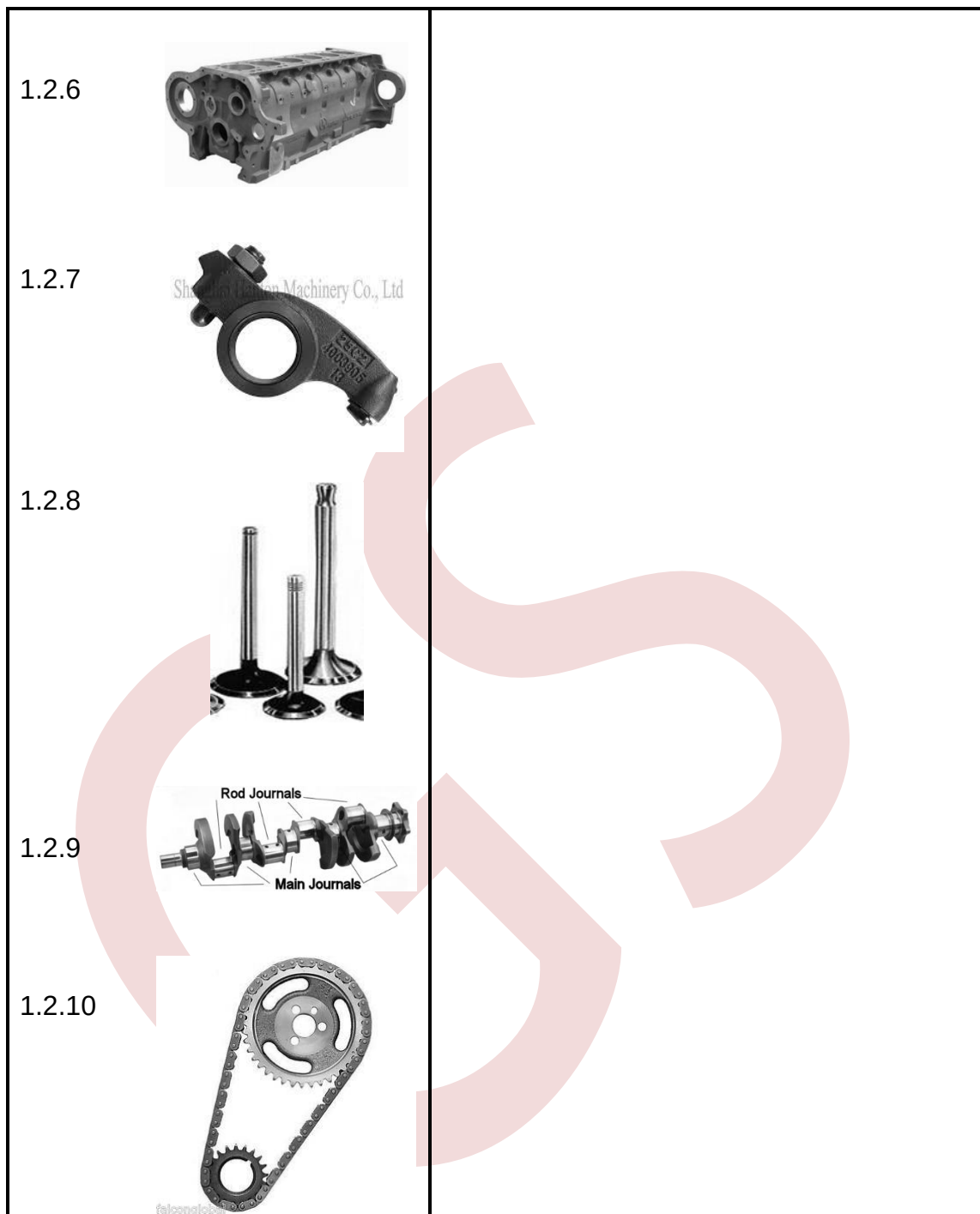
INSTRUCTIONS AND INFORMATION

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. Do sketches and diagrams neatly in pencil and label all.
 5. Write neatly and legibly.
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QUESTION 1

- 1.1 Discuss safety in the workshop as part of policy to prevent accidents and reduce hazards. (5)
- 1.2 Choose a description from COLUMN B that matches a picture in COLUMN A. Write only the letter (A–M) next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

COLUMN A	COLUMN B
1.2.1 	A provide the wheels with constant turning motion or force through the driving system B link the crankshaft and the camshaft C serves as a lever to open the valve D allow the fuel-air mixture to enter the cylinder
1.2.2 	E use to remove a gear from the shaft F it holds the cylinders G use to insert the piston in the cylinder
1.2.3 	H use to support the car when a person is working under it I use when the car's wheels are removed J sometimes used to do wheel alignment procedures
1.2.4 	K camshaft L to remove the tyre from the rim M house all the oil
1.2.5 	



(10 × 1)

(10)
[15]**QUESTION 2**

- 2.1 Explain the inlet stroke of the four-stroke petrol engine. (5)
- 2.2 Make a neat, fully labelled sketch of the inlet stroke of the four-stroke petrol engine to support your explanation in QUESTION 2.1. (5)

- 2.3 Explain the difference between an air-cooled system and a liquid-cooled system. (6)
- 2.4 List TWO types of lubrication systems. (2)
- 2.5 Study FIGURE 1 below and label the different components of the modern clutch assembly. Write only the answer next to the letter (A–H) in the ANSWER BOOK.

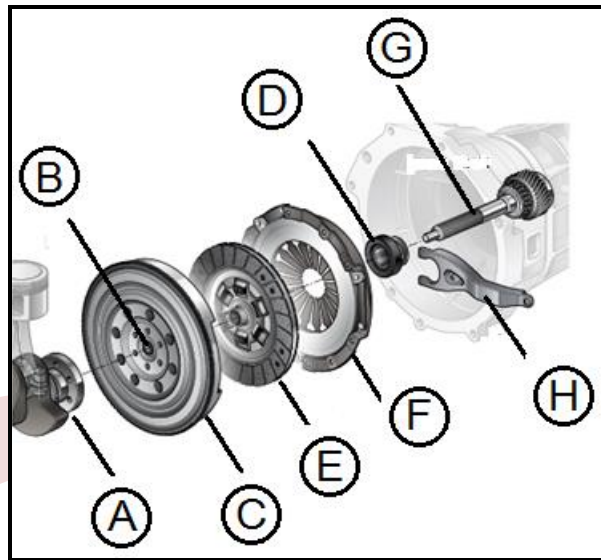


FIGURE 1

(8)
[26]**QUESTION 3**

Indicate whether the following statements are TRUE or FALSE. Choose the answer and write 'true' or 'false' next to the question number (3.1.1–3.1.7) in the ANSWER BOOK. Correct the statement if it is false.

- 3.1 It is the responsibility of the employee to provide a safe working environment.
- 3.2 It is the responsibility of the employer to report any unsafe condition.
- 3.3 The Occupational Health and Safety Act of 1993 regulates safety in the workplace.
- 3.4 The powder type fire extinguisher removes oxygen from the fire.
- 3.5 Store flammable materials in original containers and not in cold drink containers.
- 3.6 Run electrical cables/leads under carpets to prevent people from tripping over it.
- 3.7 The chemical store must be supervised.

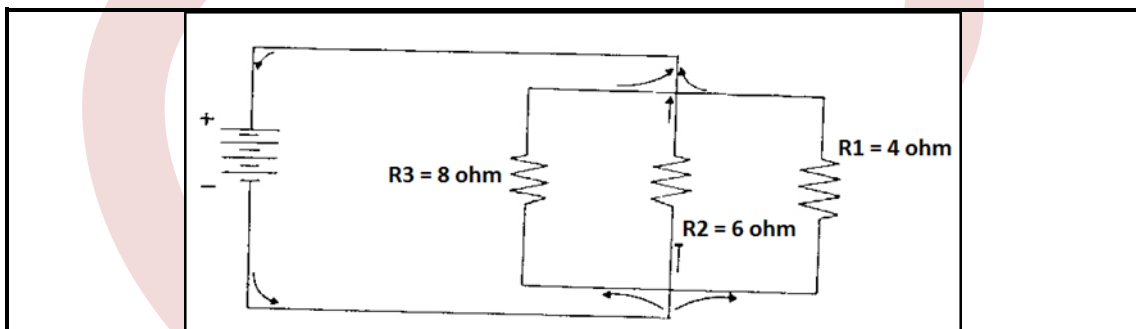
[10]

QUESTION 4

- 4.1 Name TWO methods for striking the arc. (2)
- 4.2 Draw a neat, labelled sketch showing the following welding defects:
- Undercut
 - Hollow weld
 - Oxidation/Porosity
 - Slag inclusion
 - No root penetration
 - Bad fusion
- (6 x 1) (6)
- 4.3 Explain the purpose of the E7018 welding electrode. (2)
- 4.4 List FOUR disadvantages of having a long arc. (4)
- [14]**

QUESTION 5

- 5.1 Study FIGURE 2 below and calculate the total resistance of the circuit.

**FIGURE 2**

- 5.2 Explain Fleming's left-hand rule in relation to electromagnetism in electrical motors. (6)
- 5.3 Complete the following sentences by filling in the missing word(s). Write only the word(s) next to the question number (5.3.1–5.3.3) in the ANSWER BOOK.
- 5.3.1 Electrical current is measured in ...
- 5.3.2 Potential difference is measured in ...
- 5.3.3 Resistance is measured in ...

(3 x 1) (3)
[15]

QUESTION 6

- 6.1 Differentiate between a half-brick wall and a one-brick wall by means of TWO neat, labelled drawings. (2 × 3) (6)
- 6.2 Differentiate between *concrete*, *mortar* and *plaster*. (3)
- 6.3 Make a neat, labelled drawing of a cavity wall with a wall tie. (4)
- 6.4 Explain the purpose of the cavity in the cavity wall. (2)
- 6.5 Explain why brick layers can mix building lime with the plaster and mortar. (2)
- 6.6 What are building profiles and what is its purpose? (3)
- [20]**

TOTAL: 100