higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

AUTOMOTIVE REPAIR AND MAINTENANCE
NQF LEVEL 2

(6021032)

17 November 2022 (Y-paper)
13:00–16:00

This question paper consists of 7 pages.

425Q1N2217

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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. Start each section on a new page.
5. Use only black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

1.1 Name any TWO unsafe conditions in an automotive workshop that result in hazards. (2)

1.2 State the meaning of the following

1.2.1 

1.2.2 

1.2.3 

(3 × 1) (3)

1.3 Employers need to keep reports of all accidents and incidents. Give any TWO reasons for that. (2)

1.4 Why is it dangerous to use a cellphone in a workshop? (1)

1.5 What are the benefits of good housekeeping? (3)

1.6 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.6.1–1.6.5) in the ANSWER BOOK.

1.6.1 When a vehicle is lifted, its occupants are allowed to stay inside it.

1.6.2 Lifting jacks are usually movable and portable devices.

1.6.3 The advantage of a four-post hoist is that brake pads can be changed easily.

1.6.4 It is safe to leave a vehicle on a hoist overnight.

1.6.5 The function of lifting equipment is to lift a vehicle above ground level.

(5 × 1) (5)

1.7 State the functions of the following measuring instruments:

1.7.1 Belt tensioner

1.7.2 Feeler gauge

1.7.3 Compression tester

(3 × 1) (3)

1.8 Name TWO practical uses of a dial test indicator. (2)

[21]

QUESTION 2

2.1 Which instruments are used for the following battery tests?

2.1.1 To check the specific gravity of the electrolyte

2.1.2 To do a terminal test

2.1.3 To do a battery load test

(3 × 1) (3)

2.2 Name THREE types of safety clothing (PPE) that should be worn when a battery is removed and serviced. (3)

2.3 Which battery terminal should be connected first? (1)

2.4 What would be used to clean battery terminals? (2)

2.5 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–F) next to the question number (2.5.1–2.5.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.5.1	Used to mark the point where a hole is to be drilled	A	chain wrench
2.5.2	It holds small workpieces	B	torque wrench
2.5.3	Used to remove oil filters	C	long-nosed plier
2.5.4	Used to tightens bolts to the specified tightness	D	centre punch
2.5.5	Used to join electrical wires	E	hone
		F	soldering iron

(5 × 1) (5)

[14]

QUESTION 3

3.1 Study FIGURE 1 below and then answer the questions.



[Source: *www.google/images.co.za*]

FIGURE 1

3.1.1 Name the part in FIGURE 1 above. (1)

3.1.2 State TWO functions of the part in FIGURE 1. (2)

3.2 A special fluid called antifreeze is used in modern cars. Give any TWO functions antifreeze performs. (2)

3.3 Refer to FIGURE 2 below to answer the following questions (3.3.1–3.3.3) in the ANSWER BOOK:

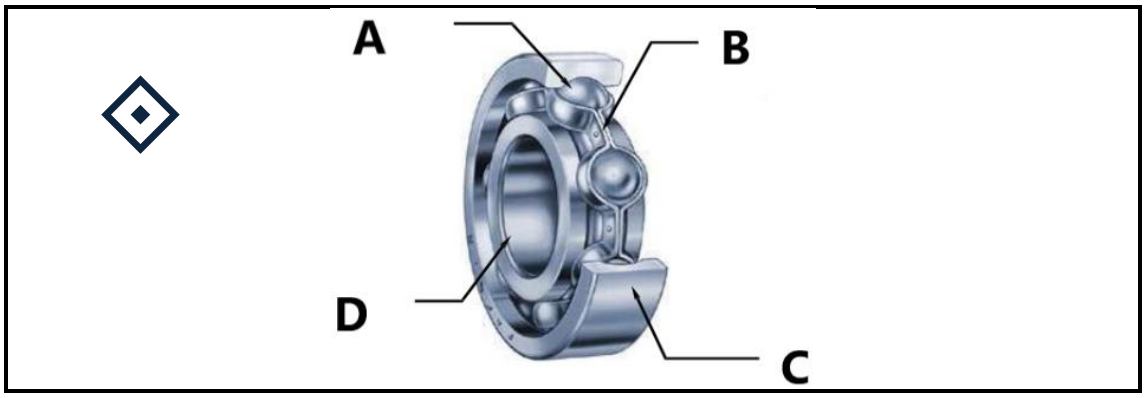


FIGURE 2

3.3.1 Name the parts marked A–D. Write only the answer next to the letter (A-D) in the ANSWER BOOK. (4)

3.3.2 State the function of the component shown in FIGURE 2. (1)

3.3.3 Name the component in FIGURE 2. (1)

[11]

QUESTION 4

4.1 Draw a circuit diagram containing the components below.

resistor, open switch, battery; bulb; wire (5)

4.2 Briefly explain what happens in a four-stroke internal-combustion engine during a power stroke. (4)

4.3 Identify whether the following engine components are located externally or internally.

4.31 Oil filter

4.3.2 Crankshaft

4.3.3 Connecting rod

4.3.4 Petrol pump

4.3.5 Inlet valve

(5 × 1) (5)

4.4 Why is it important to always maintain the correct tyre pressure? (2)

4.5 Explain the function of wheel rims. (3)

4.6 Where will excessive wear appear on a tyre if it is:

4.6.1 Under-inflated?

4.6.2 Over-inflated?

(2 × 1) (2)

4.7 Name TWO materials vehicle wheel rims are made of. (2)

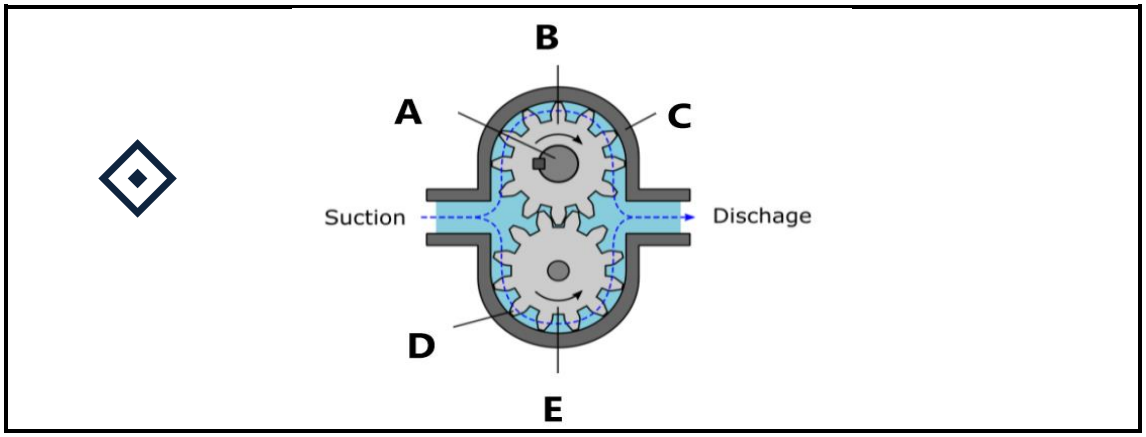
[23]

QUESTION 5

5.1 Explain why engine oil is pumped through a filter. (1)

5.2 Name FOUR lubricants and fluids other than engine oil that are used in a vehicle. (4)

5.3 Study FIGURE 3 and then answer the questions.



[Source: *www.google/images.co.za*]

FIGURE 3

5.3.1 Name the part in FIGURE 3 above. (1)

5.3.2 Name the parts marked A–E in FIGURE 3. Write only the answer next to the letter (A-E) in the ANSWER BOOK. (5)

5.4 Which tool will you use to remove an oil filter during a service? (1)

5.5 A job card is an important document. Give TWO reasons for its importance. (2)

5.6 To service a vehicle, several tools and equipment are required. Name any FIVE of them. (5)

5.7 What do you check during a pre-service inspection of a vehicle's engine compartment? (5)

5.8 How do you prepare the work area for a vehicle service? (4)

5.9 What is the purpose of a roadworthy test? (1)

5.10 Give any TWO reasons for doing a road test after a vehicle has been serviced. (2)

[31]

TOTAL : 100

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