higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

AUTOMOTIVE REPAIR AND MAINTENANCE
NQF LEVEL 2

(6021032)

28 November 2023 (Y-paper)
13:00–16:00

This question paper consists of 7 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
AUTOMOTIVE REPAIR AND MAINTENANCE
NQF LEVEL 2
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 a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

1.1.1 An accident is a desired event that could occur, and results in a loss.

1.1.2 Tools must be cleaned before they are stored.

1.1.3 OHS is the abbreviation for Occupational Help and Safety Act.

1.1.4 Personal hygiene is important to prevent germs from being transmitted among personnel.

1.1.5 Electric shocks can be fatal.

(5 × 1) (5)

1.2 State how you would be able to identify the positive and negative pole on a battery. (4)

1.3 Oil in a vehicle should be changed at the specified service intervals. List any FOUR functions of an engine-lubricating oil. (4)

1.4 Give TWO advantages of good housekeeping. (2)

1.5 Name ONE unsafe condition that should be avoided in a workshop. (1)

1.6 Identify whether the following components are located INSIDE or OUTSIDE of the engine.

1.6.1 Gudgeon pin

1.6.2 Oil filter

1.6.3 Connecting rod

1.6.4 Petrol pump

1.6.5 Cylinder sleeve

(5 × 1) (5)

1.7 What is the aim of the Occupational Health and Safety (OHS) Act? (1)

[22]

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QUESTION 2

2.1 Name THREE types of oil pumps that are used in motor vehicle engines. (3)

2.2 Give TWO important reasons for keeping records of accidents and incidents. (2)

2.3 Name any FIVE tools and pieces of equipment that are required when servicing a vehicle. (5)

2.4 Give ONE important reason to wear the required PPE when working with batteries. (1)

2.5 Name FOUR types of internal-combustion engines. (4)

2.6 Give ONE term for each of the following descriptions by choosing a term from the list below. Write only the term next to the question number (2.6.1–2.6.5) in the ANSWER BOOK.

thermostat; aluminium; radiator; battery; anti-freeze

2.6.1 Material that reduces the mass of a wheel rim.

2.6.2 Primary source of electricity in a motor vehicle.

2.6.3 One of its' functions is to prevent rust in the system.

2.6.4 Acts as a heat exchanger.

2.6.5 Regulates the cooling system to achieve quick heating.

(5 × 1) (5)

2.7 Which FOUR main component checks do you have to carry out to ensure that a vehicle is in a roadworthy condition? (4)

2.8 Give THREE advantages of lifting equipment in an automotive workshop. (3)

[27]

QUESTION 3

3.1 Refer to FIGURE 2 below of a ball bearing and answer the following questions (3.1.1–3.1.2) in the ANSWER BOOK.

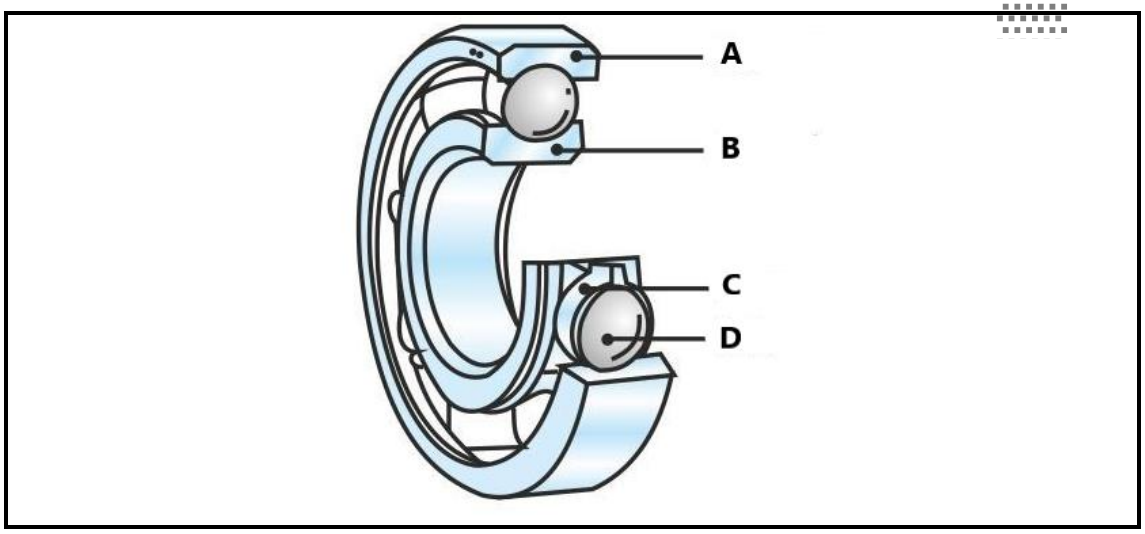


FIGURE 1

3.1.1 Name the parts marked (A–D) by writing only the answer next to the letter in the ANSWER BOOK. (4 × 1) (4)

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

3.2 Briefly explain FIVE functions of tyres. (5)

3.3 Describe TWO tasks that you can perform to promote personal hygiene in the workshop. (2)

3.4 State ONE function for each of the following engine parts:

3.4.1 Piston

3.4.2 Crankshaft

3.4.3 Connecting rod

(3 × 1) (3)

3.5 Explain FIVE things for which you should check when performing visual inspections on a battery. (5)

[20]

QUESTION 4

4.1 Why is it important for you to do a vehicle road-test after the service of the motor vehicle is completed? (3)

4.2 Name the tool used for removing spark plugs during a service. (1)

4.3 Name the special tool used for each of the following tasks:

4.3.1 Setting the valve clearance

4.3.2 Testing cylinder compression pressure

4.3.3 Remove oil filters from vehicles

4.3.4 Tightening cylinder head bolts to correct tightness specification (4 × 1) (4)

4.4 List FIVE checks to be performed during pre-service inspection in the vehicle engine compartment? (5)

4.5 What safety measure do you always need to adhere to before lowering a four-post hoist? (1)

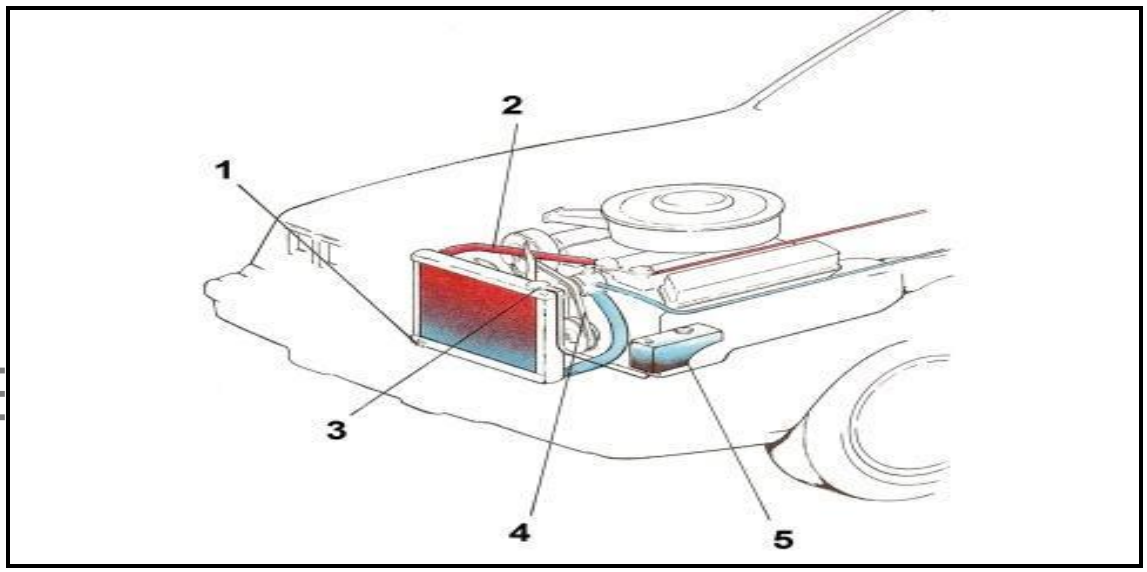
[14]

QUESTION 5

5.1 Explain why a torque wrench is used to tighten bolts. (1)

5.2 Name THREE measurements taken with a Vernier calliper. (3)

5.3 FIGURE 2 below shows that parts of a cooling system. Name the parts labelled (1-5) in the ANSWER BOOK. (5)



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

FIGURE 2

5.4 Name the SI unit and symbol for each of the following:

5.4.1 Voltage 

5.4.2 Current

5.4.3 Resistance

(3 × 2) (6)

5.5 Name TWO types of screwdrivers. (2)


[17]

TOTAL: 100

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