



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

N1010(E)(J5)H

NATIONAL CERTIFICATE

MAINTENANCE MANAGEMENT: FARMING N5

(4090535)

5 June 2019 (X-Paper)
09:00–12:00

This question paper consists of 8 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
MAINTENANCE MANAGEMENT: FARMING N5
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. Sketches and diagrams should be neatly done in pencil.
 5. Write neatly and legibly.
-

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 (1.1.1–1.1.10) in the ANSWER BOOK. ✖

1.1.1 The top half of a cylinder block houses the cylinders and the camshaft.

1.1.2 The cylinder head keeps all the oil to supply the oil pump with lubrication.

1.1.3 The outlet valve is open during the exhaust stroke.

1.1.4 Valve timing is the precise opening and closing of valves.

1.1.5 The distributor converts battery voltage to very high voltage.

1.1.6 The ignition coil directs the high voltages to each engine cylinder.

1.1.7 Cold weather can reduce the efficiency of the battery.

1.1.8 A slow charge for a battery is between 15-50 amps.

✖ 1.1.9 Symptoms of a faulty diesel injector include black smoke.

1.1.10 Symptoms of a very rich fuel mixture include flooding.

(10 × 1) (10)

1.2 Identify the indicated components of the petrol fuel system in FIGURE 1 by writing the answer next to the letter (A–E) in the ANSWER BOOK.

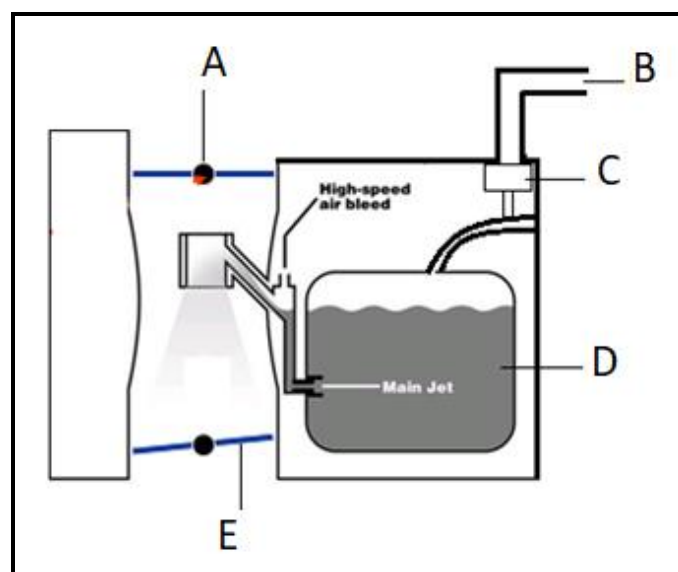


FIGURE 1

(5)

1.3 State TWO functions of the component marked C in FIGURE 1. ✖

(2)

1.4 Complete the following sentences by filling in the missing word or words. Write only the word or words next to the question number (1.4.1–1.4.3) in the ANSWER BOOK. ✖

1.4.1 A battery contains a liquid solution of sulphuric acid and ...

1.4.2 A battery supplying 3 amps for 20 hours is graded as a ... amp-hour battery.

1.4.3 A hydrometer is used to do a ... test on a battery.

(3 × 1)

(3)
[20]

QUESTION 2

2.1 Name the function and purpose of the final drive. (2)

2.2 Copy FIGURE 2 below in the ANSWER BOOK and indicate the path of the power transfer for forth gear by drawing a dark line through the applicable gears and shafts.

✖

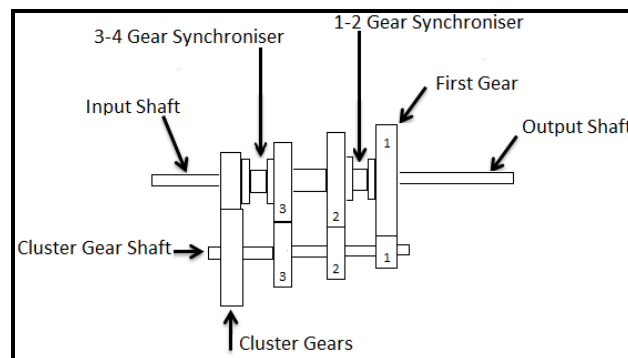


FIGURE 2

(3)

2.3 Identify the marked components of the suspension in FIGURE 3 by writing the answer next to the letter (A–C) in the ANSWER BOOK. ✖

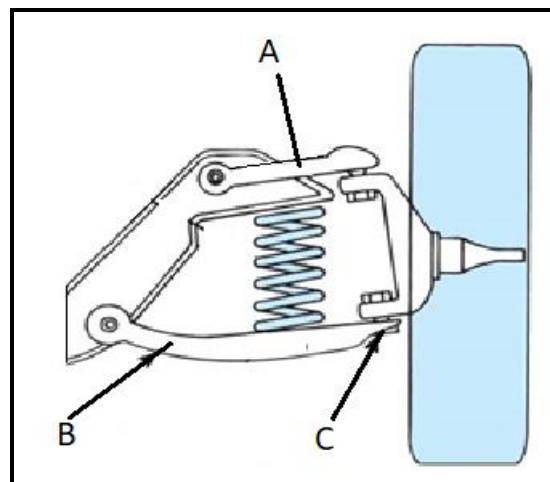


FIGURE 3

(3)

2.4 Choose a description from COLUMN B that matches a word or words in COLUMN A regarding brake problems in the hydraulic braking system. Write only the letter (A–F) next to the question number (2.4.1–2.4.5) in the ANSWER BOOK. ✖

COLUMN A		COLUMN B	
2.4.1	Grab	A	oval brake drums; distorted disc; loose backing plate
2.4.2	Brake shudder	B	incorrect brake adjustment; wheel brake cylinders seizing; loose brake components on backing plate
2.4.3	Pull to one side	C	leak in system; normal wear on shoe or pad lining
2.4.4	Brake fade	D	rust on drums/disc; oil on brake linings or pads
2.4.5	Low fluid level in reservoir	✖ E	fluid leak; faulty master cylinder
		F	incorrect brake pressure; dust on brake pads

(5 × 1) (5)

2.5 Identify the different marked parts of the final drive in FIGURE 4 by writing the answer next to the letter (A–G) in the ANSWER BOOK. ✖

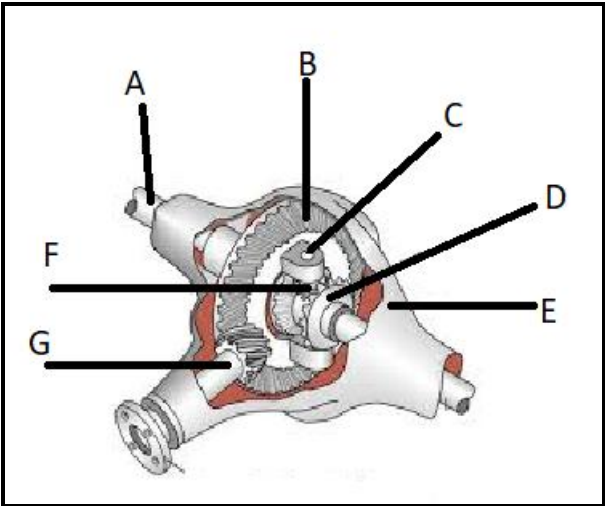
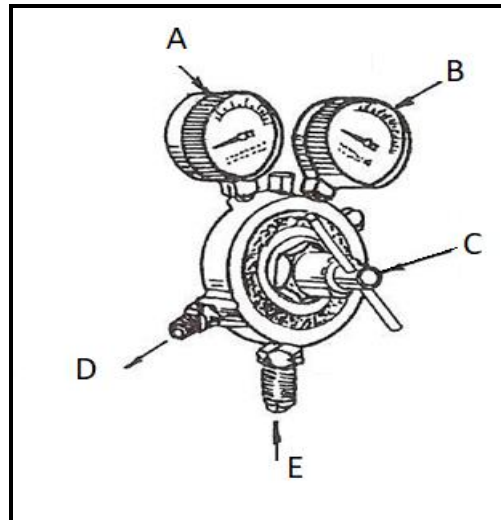


FIGURE 4

(7)
[20]

QUESTION 3

- 3.1 Make a neat, labelled sketch showing the THREE different types of oxygen-acetylene gas flames. Name each flame. ✖ (9)
- 3.2 Identify the different marked parts of the OA brazing system in FIGURE 5 by writing the answer next to the letter (A–E) in the ANSWER BOOK.

**FIGURE 5**

(5)

- 3.3 Make a neat, labelled sketch showing the oxygen-acetylene rightward welding method. Include ALL angles and the weld direction. (6)
[20]

QUESTION 4

- 4.1 Explain FIVE important maintenance and caring tips for electrical motors. (5)
- 4.2 Calculate the total average maximum load in kW by studying TABLE 1.

✖

APPLIANCE	TOTAL CONNECTED LOAD IN WATT	PERCENTAGE USAGE OF LOAD MOMENT
Lighting (all lights)	3200	40% of the time
Stove	9000	5%
Hot water cylinder	3000	90%
Washing machine	3000	20%
Additional plugs	3500	30%
Total	21700	

TABLE 1

(7)

- 4.3 Calculate the average maximum cost for the load calculated in QUESTION 4.2 if the cost per unit is R3,30. ✖ (1)

4.4 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (4.4.1–4.4.2) in the ANSWER BOOK. ✖

4.4.1 The most common cause of electrical shock is owing to bad grounding of the equipment.

4.4.2 The 1,5 mm electrical wire is sufficient for 20 amp plug wiring.

(2 × 1)

(2)
[15]

QUESTION 5 ✖

5.1 Make a neat, labelled sketch showing an open-eave roof structure. Include the following in the sketch:

purlin, rafter, tie beam, roof covering, wall plate, wall, flex board (ceiling), fascia, gutter bracket and gutter

(10)

5.2 Explain TWO functions of the open-eave roof structure.

(2)

5.3 Choose a word or words from COLUMN B to match an item in COLUMN A. Write only the letter (A–L) next to the question number (5.3.1–5.3.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
5.3.1	38 mm × 38 mm	A	wall plate
5.3.2	114 mm × 38 mm	B	ceiling battens
5.3.3	76 mm × 50 mm	C	big six
5.3.4	Corrugated asbestos cement plate	D	purlins
5.3.5	Corrugated galvanised iron	E	canadian pattern
5.3.6	Trough section asbestos cement plate	F	supraspan
5.3.7	Trough section galvanised plate	G	prevents bad odours entering the house from the sewerage system ✖
5.3.8	Water trap	H	IBR
5.3.9	Grease trap	I	to promote the flow of sewerage
5.3.10	Vent pipe	J	to prevent solid waste entering the sewerage system
		K	air ventilates in this pipe
		L	water gets trapped in this item

(10 × 1)

(10)

5.4 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (5.4.1–5.4.3) in the ANSWER BOOK. ✖

5.4.1 A double-pitched roof mostly requires TWO down pipes per slope.

5.4.2 The average water consumption per person per day is 25 litres for water piped to a house.

✖

5.4.3 In a septic tank the sewerage is digested by anaerobic bacteria until very little solids remain so that it is seldom necessary to clean the tank.

(3 × 1) (3)
[25]

TOTAL: 100