



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES**

**DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS**

<b>QUALIFICATION: BACHELOR OF SCIENCE IN AGRICULTURE</b>	
<b>QUALIFICATION CODE: 07BAGA</b>	<b>LEVEL: 7</b>
<b>COURSE CODE: AMC520S</b>	<b>COURSE NAME: AGRICULTURAL MECHANISATION</b>
<b>DATE: JULY 2025</b>	<b>PAPER: THEORY (PAPER 1)</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
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<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Read all the questions carefully before answering.</li><li>3. Number the answers clearly.</li></ol>

**THIS QUESTION PAPER CONSISTS OF 7 PAGES (Including this front page)**

## SECTION A: TRUE OR FALSE QUESTIONS

**QUESTION 1: State whether the following statements are TRUE or FALSE. Write the number of the question and either True or False next to the number.**

- 1.1 Farmworkers are at a higher risk of hearing loss compared to workers in other industries.
- 1.2 Only farmworkers who apply pesticides are at risk of exposure
- 1.3 Regular lubrication of machine parts can help reduce friction and lower noise levels.
- 1.4 In metal arc welding, an electric arc is struck between the parent metal and a consumable electrode.
- 1.5 Increasing the pipe diameter by a factor of two doubles the flow rate.
- 1.6 The alternator on the vehicle changes some of the engine's mechanical energy into electrical energy to operate the vehicle's electrical devices.
- 1.7 The heat generated by the electric arc melts the metals to form a continuous solid mass
- 1.8 Changes to farming mechanisms have only improved working conditions without increasing exposure to respiratory hazards.
- 1.9 Hazard identification is the last step in the risk management process.
- 1.10 Pesticide exposure can lead to both acute and chronic health issues.
- 1.11 The goal of hazard identification is to record and document possible hazards that may be present in their workplace.
- 1.12 The arc is formed by striking the electrode to the welding machine and then withdrawing it.
- 1.13 It is a legal requirement for employers to ensure that workers are safe at the workplace.
- 1.14 Solar radiation can be converted directly into electricity by solar cells to produce renewable energy.
- 1.15 Compaction of concrete is done by adding more water to ensure that the concrete is easy to work with.
- 1.16 One of the ways to treat snakebites is to suck the venom from the wound
- 1.17 A good maintenance process includes intervening before failure happens.
- 1.18 Agricultural processes have no production time restrictions or set timelines, therefore, maintenance is not required.

- 1.19 A centrifugal pump is a hydraulic machine that converts mechanical energy into hydraulic energy by the principle of forced vortex flow.
- 1.20 Routine maintenance is carried out at regular intervals and includes periodic checks of relevant areas.

[20 MARKS]

**SECTION A: SUBTOTAL [20]**

**SECTION B: MULTIPLE CHOICE QUESTIONS**

**QUESTION 2: Choose the correct/appropriate/relevant answer. (Write the number of the question and the letter only).**

- 2.1 Which of the following is a recommended method to treat snake bites?
- a) Suck the venom from the wound
  - b) Wipe venom from the wound
  - c) Apply a tourniquet
  - d) Apply direct pressure at the site of the bite
- 2.2 Which of the following is a function of the drive train of the vehicle's system?
- a) Leads burnt gas away from the engine.
  - b) Help steady the vehicle when attempting to brake.
  - c) Provides structural support and steady the vehicle.
  - d) Gas inlet into the chamber to save passengers
- 2.3 Which of the following is relevant/applicable to an electrified fence?
- a) Wooden droppers
  - b) Lightning protector
  - c) Thermostat
  - d) Barbed wire
- 2.4 Which one of the following is **not** a reason for a good maintenance practice?
- a) To reduce maintenance costs and costs due to production loss.
  - b) To extend the life of the equipment.
  - c) For effective control of employees.
  - d) To intervene before breakages happen.
- 2.5 One of the following is a component of the vehicle's cooling system. Which one?
- a) Fuel tank
  - b) Fanbelt
  - c) Timing belt

- d) Battery
- 2.6 One of the disadvantages of an electrical fence is that;
- a) It requires low maintenance, provided that the fence is correctly planned and erected.
  - b) Its effectiveness is subject to environmental factors, especially plants growing against it, causing short circuits and eventually providing fuel for veld fires that will damage the galvanized wire.
  - c) Anyone can afford it.
  - d) It can't keep predators out.
- 2.7 The following is an example of a zoonotic disease that farmers may contract?
- a) Feline Immunodeficiency Virus (FIV)
  - b) Cryptosporidiosis
  - c) Lymphoma
  - d) Legionnaires' disease
- 2.8 The following are worker infection control measures for zoonotic diseases. Choose the most appropriate one.
- a) Isolating diseased animals.
  - b) Appropriate use of personal protective equipment (e.g., gloves and outer protection, facial and respiratory protection).
  - c) Track aggressive animals so that restraints may be used when necessary.
  - d) Contact a veterinarian to assist with the control
- 2.9 Which of the following is a component of the drive train?
- a) Differential
  - b) Accelerator pedal
  - c) Stationery brakes
  - d) Seatbelt
- 2.10 One of the following is **not** a reason for providing/administering first aid.
- a) Prevent the condition from worsening.
  - b) To ensure the recovery of the patient.
  - c) It is a humanitarian act
  - d) To preserve life
- 2.11 What does the acronym ABC in first aid stand for?
- a) Airbug, Breathing, Circulation
  - b) Airways, Breathing, Circulation
  - c) Airways, Body, Circulation
  - d) Airways, Breathing, Control
- 2.12 What is your first reaction at a vehicle accident scene when rendering first aid?
- a) Secure the scene
  - b) Mobilise the resources you need to use.

- c) Control bleeding before moving the patient.
  - d) Call the ambulance
- 2.13 An advantage of an iron post for fencing is that;
- a) It has a longer lifespan
  - b) It costs less
  - c) It can easily be rusted
  - d) It is available almost everywhere
- 2.14 What is the recommended electrode size for a workpiece of 8 mm thickness?
- a) 2.5 mm in diameter
  - b) 8 mm in diameter
  - c) 4 mm in diameter
  - d) 5 mm in diameter
- 2.15 What is one of the main complications for humans if bitten by an animal such as a dog?
- a) Contracting anthrax
  - b) Contracting rabies
  - c) Trauma
  - d) Becomes prone to being bitten by dogs all the time.
- 2.16 Some boreholes have a problem of sand entering the borehole from underground aquifers. Provide one possible solution for this.
- a) Matching financial resources to water availability.
  - b) Fasten a fairly wide diameter pipe underneath the cylinder.
  - c) Determining how fast water supplies will run out during times of prolonged dry conditions.
  - d) Remove the sand from the borehole.
- 2.17 Which one is an advantage of solar energy?
- a) Among all the benefits of solar panels, the most important thing is that solar energy is not a truly renewable energy source; when there is no sun, there is no energy.
  - b) It cannot be harnessed in all areas of the world and is not available every day.
  - c) It is only applicable in rural areas where there is no proper electricity.
  - d) We cannot run out of solar energy, unlike some of the other sources of energy, because the sun will always be available.
- 2.18 Which of the following is a consequence of high welding current?
- a) Serves to direct the current and become molten
  - b) Serves as the filler metal in the bead.
  - c) A weld that is strong and durable
  - d) Excessive splattering

- 2.19 What is meant by proportioning in concrete work?
- a) It means how easy it is to place, handle, compact, and finish the concrete.
  - b) Measuring and mixing all the ingredients correctly.
  - c) Keeping concrete continuously damp for a period, to allow it to reach maximum strength.
  - d) Removing excess materials from the concrete.
- 2.20 Which is the appropriate definition of maintenance?
- a) It is repairing a machine after it breaks or when it stops working.
  - b) It is a means of reaching the optimum value for equipment to perform the functions for which it is designed.
  - c) Maintenance is caring for a machine after it breaks down or wears out quickly.
  - d) Replacing all equipment that is broken.

[20 MARKS]

**SECTION B: SUBTOTAL [20]**

**SECTION C: SHORT ANSWER QUESTIONS**

**QUESTION 3**

- 3.1. Explain the role of maintenance in agricultural systems of production. (2)
- 3.2. Name 4 ways in which workers can participate in preventing and controlling infections at the workplace. (4)
- 3.3. Outline 4 problems or welding defects that can be caused by selecting a low welding current. (4)
- 3.4. What is the purpose of the fluxing material on the electrode or welding rod? (4)

[14 MARKS]

**QUESTION 4**

- 4.1. Briefly explain what needlestick injury is and provide 4 ways in which needlestick injuries can be prevented. (5)
- 4.2. Explain 3 methods by which you can store unused cement to prevent it from being stolen, moistening, and hardening. (3)
- 4.3. What factors will determine the type of driver a farmer can purchase when planning for farm water supply? (3)

[11 MARKS]

**QUESTION 5**

5.1. Provide the minimum safety standards/regulations to which electrified fencing must adhere. (5)

5.2. Name the parts that form an electrified fence. (5)

5.3. Name 2 types of pumps commonly used for farm water provision and indicate the application of each. (5)

**[15 MARKS]**

**SECTION C: SUBTOTAL [40]**

**SECTION D: STRUCTURED/LONG ANSWER QUESTIONS**

**QUESTION 6**

Explain, in your own words, how to erect and install a boundary fence for a livestock farming operation. (10)

**[10 MARKS]**

**QUESTION 7**

Proper operation of farm vehicles can reduce accidents, injuries and fatalities in agricultural operations. Elaborate on this statement by providing practical safety tips for farmworkers when operating vehicles. (10)

**[10 MARKS]**

**SECTION D: SUBTOTAL [20]**

**TOTAL: 100**