



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

AGRICULTURAL TECHNOLOGY

NOVEMBER 2013

MARKS: 200

TIME: 3 hours

This question paper consists of 14 pages.

INSTRUCTIONS AND INFORMATION

1. GENERAL INSTRUCTIONS AND INFORMATION
 - 1.1 This question paper consists of TWO sections, namely SECTION A and SECTION B.
 - 1.2 BOTH sections are COMPULSORY.
2. SECTION A: MULTIPLE-CHOICE QUESTIONS
 - 2.1 Answer the questions in this section in the ANSWER BOOK.
 - 2.2 Follow the instructions when answering the multiple-choice questions.
3. SECTION B: STRUCTURED QUESTIONS
 - 3.1 This section consists of FIVE questions.
 - 3.2 Answer the questions in this section in the ANSWER BOOK.
 - 3.3 Number the answers correctly according to the numbering system used in this question paper.
 - 3.4 Start EACH question on a NEW page.
 - 3.5 Non-programmable calculators may be used.

SECTION A**QUESTION 1**

Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–C) next to the question number (1.1–1.20) in the ANSWER BOOK, for example 1.21 A.

- 1.1 A septic tank system should always contain live ...
A yeast.
B enzymes.
C bacteria. (2)
- 1.2 The pipe connecting the sanitary system of a house to a septic tank is manufactured from ...
A PVC.
B copper.
C asbestos. (2)
- 1.3 The function of ... in the septic tank system is to decompose all organic waste matter in the system.
A inorganic enzymes
B bacteria
C chemicals (2)
- 1.4 The most important precautionary measure that should be taken when PVC pipes are laid is to ensure that the pipes ...
A do not rust.
B do not leak.
C are resistant to wear and tear. (2)
- 1.5 An advantage of closed drains is that ...
A technical skill and knowledge are required and implemented.
B the drain is not in the way of cultivation practices.
C installation cost is usually not a factor. (2)
- 1.6 The aim of ... is to help the farmer to save money because all farm implements and tractor spare parts should comply with certain requirements, such as being interchangeable and easy to handle.
A mechanisation
B standardisation
C evaluation (2)

- 1.7 ... smoke will be seen at the exhaust outlet when a tractor uses too much oil.
- A White
 - B Black
 - C Blue
- (2)
- 1.8 Long-term credit can be used for ...
- A buildings.
 - B equipment and machinery.
 - C repairs, contract work and transport.
- (2)
- 1.9 An example of working or floating capital expenses associated with a tractor is ...
- A spare parts.
 - B contract work.
 - C wages.
- (2)
- 1.10 Most farmers prefer to use V-belts because they ...
- A do not slip easily from the pulley.
 - B can be joined easily.
 - C can be used over long distances.
- (2)
- 1.11 The function of grease in the moving joints of implements is to ...
- A cause wear and tear.
 - B increase corrosion.
 - C decrease friction.
- (2)
- 1.12 The three-point mechanism of the tractor was designed by ...
- A Harry Ferguson.
 - B John Deere.
 - C Henry Ford.
- (2)
- 1.13 The control valve of a tractor is activated by the ...
- A control-valve lever.
 - B operator.
 - C operator's assistant.
- (2)
- 1.14 The density of round bales can be increased or decreased by changing the ...
- A settings.
 - B tempo of baling.
 - C tyre size.
- (2)

- 1.15 The shielding gas that prevents the welding bead from coming into contact with oxygen during the MIG welding process is called ...
- A carbon dioxide.
 - B carbon monoxide.
 - C hydrogen gas.
- (2)
- 1.16 The standard size for bricks used for building purposes is ...
- A 200 x 100 x 70 mm.
 - B 210 x 110 x 75 mm.
 - C 222 x 106 x 73 mm.
- (2)
- 1.17 The function of a lintel is to give ... above window and door openings.
- A shape
 - B support
 - C neatness
- (2)
- 1.18 The reason for covering the power take-off (PTO) shaft situated between the tractor and implements is to ...
- A protect workers from injury.
 - B make it look neat.
 - C ensure proper functioning of the PTO.
- (2)
- 1.19 ... substances must be locked away to protect workers from injury.
- A Expensive
 - B Hazardous
 - C Oily
- (2)
- 1.20 When the noise levels of an implement are very high you should wear ... to protect your ears.
- A goggles.
 - B earmuffs/earplugs.
 - C a protective helmet.
- (2)

TOTAL SECTION A: 40

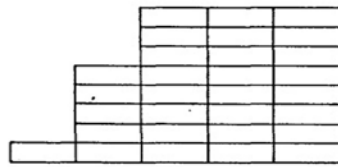
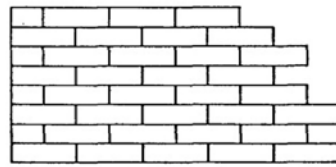
SECTION B**QUESTION 2: MATERIALS AND STRUCTURES**

- 2.1 Fires on a farm can be very dangerous. Safety precautions and preventative measures are therefore very important.



- 2.1.1 Briefly discuss EIGHT measures to prevent unwanted fires on a farm. (8)
- 2.1.2 Explain the safety measures that should be kept in mind when using fire extinguishers. (5)
- 2.2 Briefly describe FOUR measures to prevent power take-off accidents. (4)
- 2.3 What THREE effects will each of the following alloy elements have when stainless steel is formed:
- 2.3.1 Chromium (3)
- 2.3.2 Manganese (3)
- 2.3.3 Nickel (3)
- 2.4 Adhesives can be used for various types of repair jobs on a farm. Name TWO important aspects that should be considered when an adhesive is chosen. (2)
- 2.5 Name any TWO methods used to strengthen foundations and briefly describe each method. (4)

- 2.6 Identify the most suitable bond (**A** or **B**) that can be used for the construction of a brick wall as shown in the sketch below.

**A****B**

(1)

- 2.7 Give a valid reason for each of the following statements:

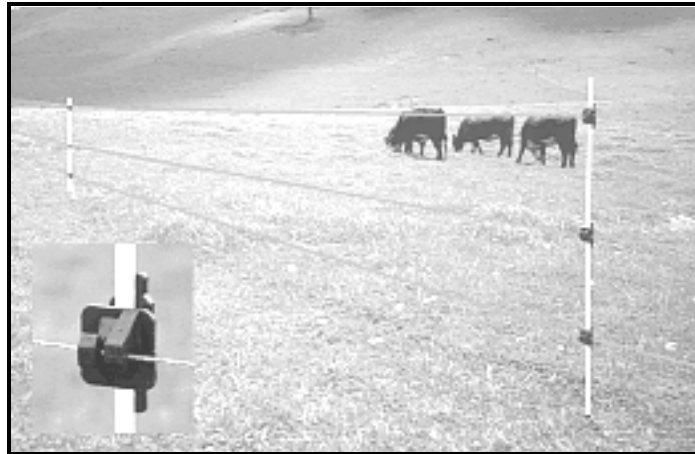
2.7.1 Clear fibreglass roof plates are used on the roof of a greenhouse. (1)

2.7.2 The wires of a fence must not be tensioned on a hot day. (1)

[35]

QUESTION 3: ENERGY

3.1 The photograph below shows a portable electric fence in a field. Answer the questions that follow.



- 3.1.1 Name an alternative energy source that can be used to charge the battery effectively and explain the reasons for your answer. (6)
- 3.1.2 Name any TWO uses of portable electric fences on a farm. (2)
- 3.1.3 State TWO benefits of using portable electric fences on a farm. (2)

3.2 The photograph below shows two different energy sources that are used to produce electricity for a milking parlour on a dairy farm. Use the photograph to answer the questions that follow.



- 3.2.1 List FOUR advantages of alternative energy sources. (4)
- 3.2.2 Discuss TWO types of energy sources and also how they will support each other when used simultaneously. (4)

3.3 Name TWO renewable energy sources that can be used to manufacture biodiesel. (2)

[20]

QUESTION 4: SKILLS AND CONSTRUCTION PROCESSES

- 4.1 The photograph below shows an inverter welding machine used for various welding processes on a farm. Answer the questions that follow.



- 4.1.1 Name TWO disadvantages of the inverter welding machine in comparison with the arc-welding machine. (2)
- 4.1.2 Name THREE general welding tips that should be kept in mind when welding with the inverter welding machine. (3)
- 4.2 Describe the procedure that should be followed when welding two pieces of metal with an oxy-acetylene welder using the rightward or backhand technique. (6)

- 4.3 The photograph below shows a welding apparatus. Answer the questions that follow.



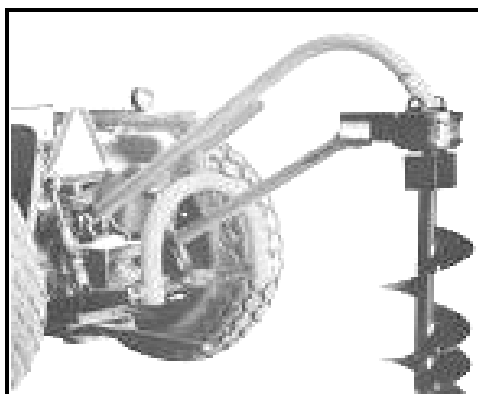
- 4.3.1 Give the name of this type of welding machine. (1)
- 4.3.2 Explain the concept *MIG welding*. (3)
- 4.3.3 Name the THREE basic gases used in the MIG welding process. (3)
- 4.4 Make a neat sketch of a V-butt weld between two pieces of metal 10 mm thick and label the drawing. (5)
- 4.5 Name and explain the THREE different methods (technique) of oxy-acetylene welding. (3 x 2) (6)
- 4.6 Discuss distortion or shrinking caused by the heat generated during the welding process. (4)
- 4.7 State TWO ways to control distortion of welding runs. (2)
- [35]**

QUESTION 5: TOOLS, IMPLEMENTS AND EQUIPMENT

- 5.1 Study the photograph of a baling machine below and answer the questions that follow.

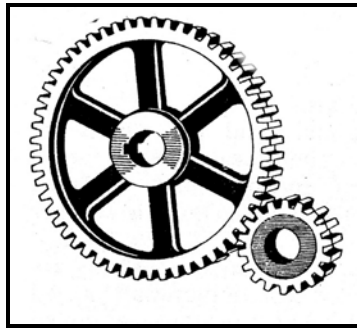


- 5.1.1 Explain the term *timing* of the bale mechanism as found on the ram-type baler. (2)
- 5.1.2 Name THREE tasks that should be performed during the maintenance of a baling machine. (3)
- 5.1.3 Indicate the safety mechanisms that can be found on the ram-type baling machine. (4)
- 5.2 The photograph below shows a farm implement connected to a tractor.

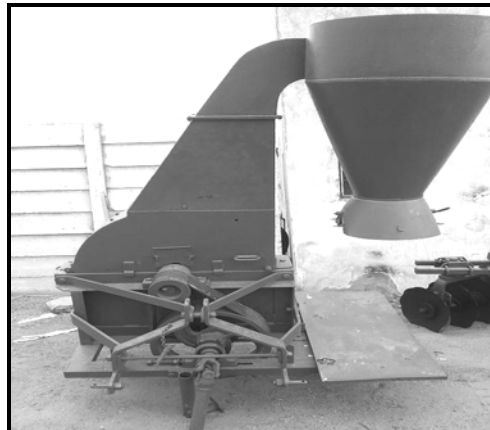


- 5.2.1 Describe the mechanism that is used for connecting the implement to the tractor. (3)
- 5.2.2 A power take-off (PTO) shaft is used as a drive shaft between the tractor and the implement. Name the device that enables the power take-off shaft to operate at different angles. (1)
- 5.2.3 State THREE requirements that a safety screen must comply with to prevent injuries. (3)

- 5.3 Name THREE types of capital associated with a farm enterprise. (3)
- 5.4 State FOUR problems that can occur when using a combine harvester. (4)
- 5.5 The efficient working of a tractor gearbox is made possible by a combination of gears to achieve the best possible ratio for the specific job. The illustration below shows one type of gear set that can be used in the gearbox of a tractor.



- 5.5.1 Identify the type of gear set shown in the illustration above. (1)
- 5.5.2 Name ONE advantage of this type of gear set. (1)
- 5.5.3 State the THREE types of gearboxes commonly used in tractors. (3)
- 5.6 A hammer mill, as shown below, is a very important implement on a farm. It helps a farmer to pulverise feeds to satisfy the feeding needs of different kinds and categories of farm animals.



- 5.6.1 State FOUR factors that must be considered when buying a new hammer mill. (4)
- 5.6.2 State THREE advantages of installing a hammer mill on a level surface. (3)
- 5.6.3 Name FIVE safety measures that should be taken when working with a hammer mill. (5)

[40]

QUESTION 6: WATER MANAGEMENT

6.1 The correct application of water is important for water conservation.

6.1.1 Name THREE factors that must be considered when planning a water scheduling programme. (3)

6.1.2 Explain the goal of irrigation scheduling. (4)

6.2 Choose a word/term from COLUMN B that matches a description from COLUMN A. Write down only the letter (A–G) next to the question number (6.2.1–6.2.5) in the ANSWER BOOK, for example 6.2.6 H.

COLUMN A		COLUMN B
6.2.1	Ditches are dug at regular intervals to a suitable depth to remove free water from waterlogged soil	A stone drain B septic tank
6.2.2	The bottom of the trench is loosely packed with large stones, covered with smaller stones and finally with soil	C herringbone drain D sieve
6.2.3	The waste-water management system that uses biological principles to break down the waste	E open drain F manhole cover
6.2.4	The lateral drain runs into the main drain at an angle of about 45°	G tile drain
6.2.5	The opening of the drain should be covered with this	

(5 x 1) (5)

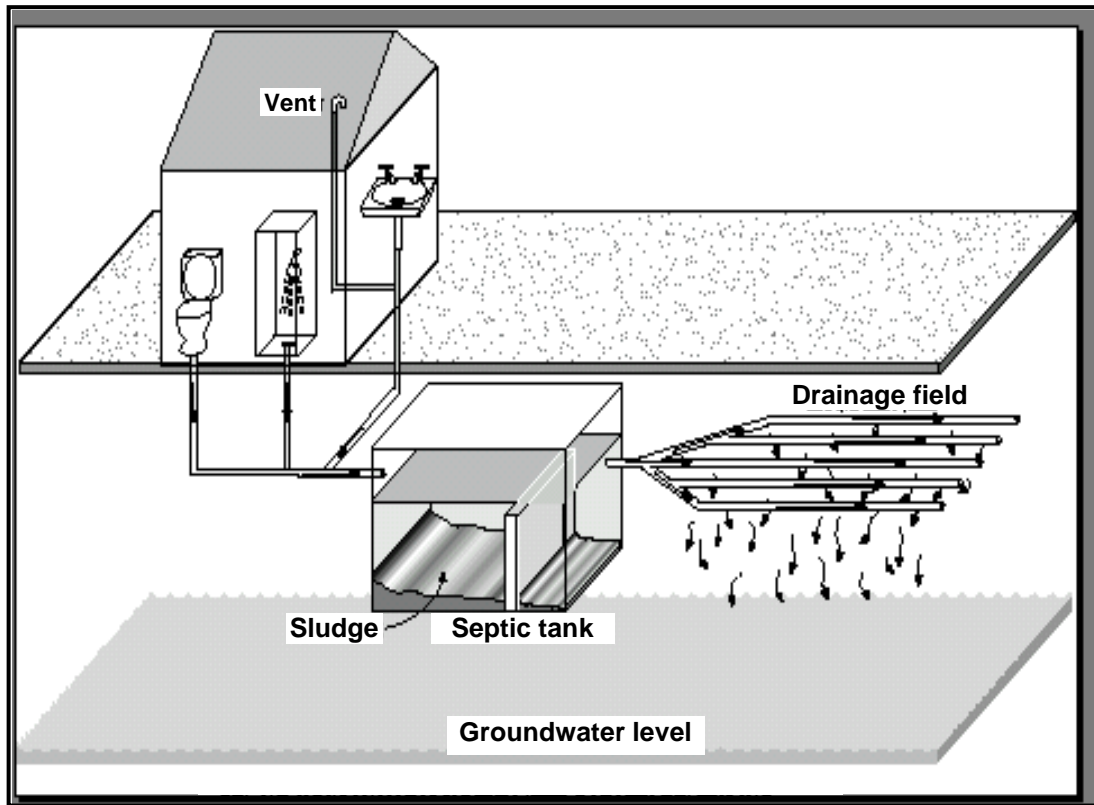
6.3 Drainage is the removal of excess or free water from the upper layers of soil.

6.3.1 Identify the TWO drainage systems most commonly used on farms. (2)

6.3.2 Briefly describe the process of building a pole drain. (3)

6.3.3 Discuss THREE disadvantages of closed drains. (3)

6.4 The sketch below shows a typical septic tank system used on a farm. Study the sketch and answer the questions that follow.



Septic tank with drainage field system

- 6.4.1 Give the reason for placing the outlet pipe of the drainage field at the top level of the septic tank. (2)
- 6.4.2 Name FIVE components of a waste-water system. (5)
- 6.4.3 Name THREE factors that can kill micro-organisms in the septic tank system. (3)

[30]

TOTAL SECTION B: 160
GRAND TOTAL: 200



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GRADE 12

AGRICULTURAL TECHNOLOGY

NOVEMBER 2013

MEMORANDUM

MARKS: 200

This memorandum consists of 12 pages.

SECTION A**QUESTION 1**

- | | |
|------|-----|
| 1.1 | C |
| 1.2 | A |
| 1.3 | B |
| 1.4 | B |
| 1.5 | B |
| 1.6 | B |
| 1.7 | C |
| 1.8 | A |
| 1.9 | A |
| 1.10 | A |
| 1.11 | C |
| 1.12 | A |
| 1.13 | B |
| 1.14 | A/B |
| 1.15 | A |
| 1.16 | C |
| 1.17 | B |
| 1.18 | A |
| 1.19 | B |
| 1.20 | B |

TOTAL SECTION A: (20 x 2) 40

SECTION B**QUESTION 2: MATERIALS AND STRUCTURES**

- 2.1 2.1.1 • Isolate all sources of ignition. ✓
 • Extinguishers (full) in hazardous areas. ✓
 • No smoking signs in hazardous areas. ✓
 • Exits clearly marked in hazardous areas. ✓
 • Proper electrical installation. ✓
 • Flammable materials stored safely. ✓
 • Fire emergency numbers listed near telephone. ✓
 • Emergency fire plan posted. ✓
 • Make of firebreaks.
 • **Any acceptable correct answer** ✓
(Any 8) (8)
- 2.1.2 • Only tackle a fire after the alarm has been raised and it is safe to do so. ✓
 • Ensure you are accompanied when you fight a fire or go to investigate, never do it alone. ✓
 • Only tackle a fire in its very early stage. ✓
 • Put your safety and that of others first, no heroics! ✓
 • Only use an extinguisher if you are sure of how to use it properly. ✓
 • Do not hold the horn on a CO₂ extinguisher – it will be very cold.
 • **Any acceptable correct answer regarding the safety measures** ✓
(5)
(Any 5)
- 2.2 • stop the PTO before dismounting. ✓
 • ensure that safety shields are in place before work starts. ✓
 • replace cracked or defective safety shields immediately. ✓
 • keep clothing, hair and all body parts away from a rotating PTO. ✓
 • never step over a rotating PTO shaft.
 • keep universal joints in phase.
 • always use the driveline or PTO shaft recommended for your machine.
 • position the tractor's drawbar properly. (Any 4) (4)
- 2.3 2.3.1 Chromium
 • Increases resistance against corrosion. ✓
 • Promotes the hardening of steel. ✓
 • Improves strength. ✓
 • Improves resistance to the formation of scale.
 • Improves tensile strength.
 • Decreases magnetism.
 • Most chromium steels can be welded well. (Any 3) (3)

2.3.2 Manganese

- It combats corrosion. ✓
- Gives steel a coarser structure. ✓
- Changes the band structure, at the same time causing a reduction in striking strength. ✓
- Increases tensile strength.
- Reduces the critical cooling tempo and by doing so improves hardening.
- Increases resistance against wear.
- Reduces magnetism.

(Any 3) (3)

2.3.3 Nickel

- It improves the amount of toughness and the hardening ability ✓
- It gives steel a fair amount of toughness at low temperatures. ✓
- Used with chromium, nickel helps to increase the hardening ability of steel much more than when only one of the elements is used on its own. ✓
- Steel which is alloyed with chromium and nickel is resistant to air, water and many chemical acids and alkali.

(Any 3) (3)

2.4

- Type of material to be joined. ✓
- Conditions under which this joint will be used. ✓

(2)

2.5

Strengthening with reinforcement: ✓

Reinforcement beams must be placed in a crisscross pattern in the foundation to prevent the shifting and cracking of the foundation. ✓

Thickness of the foundation: ✓

The thickness of the foundation must correlate with the weight of the structure. ✓

(4)

2.6

Answer is B ✓

(1)

2.7

2.7.1 Light penetration. ✓

(1)

2.7.2 The wire will shrink on a cold day and break. ✓

(1)

[35]

QUESTION 3: ENERGY

- 3.1 3.1.1 Solar(Sun)/Wind ✓
Solar/Sun energy is a freely available energy source ✓
that is used to produce electricity ✓
with the aid of a small photovoltaic cell/sun panel/solar cell. ✓
The solar cell is light weight ✓
and easily transportable to the new construction site of the portable
fence. ✓
- OR**
- Wind is freely available ✓
and is used to drive a small turbine ✓ that produces electricity. ✓
The small wind turbine is light weight ✓
and easily transportable ✓
to the new construction site of the portable fence. ✓ (6)
- 3.1.2 Keeping wild animals and vermin away from domesticated farm
animals and crops. ✓
Separate different groups of animals. ✓
Allowing rotational grazing.
Fencing animals off from eroded areas, trees, rivers and roads.
(Any 2) (2)
- 3.1.3 Affordable ✓
Easily constructed ✓
Durable
Light weight
Easily modified
Less animal hide and pelt damage
Deterrent to trespassers and predators (Any 2) (2)
- 3.2 3.2.1
- No fuel costs ✓
 - Low maintenance costs. ✓
 - No clean-up costs ✓
 - No carbon tax costs ✓
 - Reduced oil imports
 - No air pollution. Environmentally friendly
 - Renewable energy source
 - As a result, large numbers of wind turbines/solar cells could
reduce dependence on other energy sources, providing a more
dependable source of energy in the long term.
 - Less expensive energy source.
 - Great resource to generate energy in remote locations.
 - Solar/Wind power technology is limitless
 - Solar/Wind is also extremely portable.
 - Solar/Wind power can create more energy than is necessary for a
single family needs
 - Extra power from solar panels and wind turbines can be fed back
into the power grid, providing clean, free energy to people
throughout an entire community.
 - A renewable source. (Any 4) (4)

3.2.2 Solar cells are unable to produce electricity during the night time✓
and during cloudy days.✓

The wind turbine can produce electricity during the night✓ and during
cloudy days when wind is available. ✓There might be sun during the
day but no wind. (4)

3.3

- Vegetable oils✓
- Animal fats✓
- Recycled cooking oils

(Any 2)

(2)
[20]

QUESTION 4: SKILLS AND CONSTRUCTION PROCESSES

- 4.1 4.1.1
- Inverter welding machine mainly related to more electronic components that can cause malfunctions/breakages. ✓
 - Complex structure. ✓
 - Inverter welding machine is more expensive (2)
 - Arc-welder can be driven by the PTO of a tractor whereby the inverter needs an energy source
 - Parameter setting difficult/ Welding current settings difficult. (Any 2)
- 4.1.2
- Gravity can cause metal to drip or run down. ✓
 - Keep puddle small. ✓
 - Prevent over penetration, burning through. ✓
 - Electrode size plays a role in penetration.
 - Current plays a dominant role in the welding process.
 - Surface area must be cleaned thoroughly. (Any 3) (3)
- 4.2
- Set up a cleaned work piece. ✓
 - Work pieces of 5mm or less in thickness. ✓
 - Put on the welding goggles. ✓
 - Light up the torch to give a neutral flame. ✓
 - Take a 3mm copper coated welding rod. ✓
 - Starting at the beginning of the joint, hold the welding torch so that its tip forms an angle of approximately 45°-60° with the work piece. ✓
 - Hold the flame steady over the work piece with the inner flame approximately 3 mm above the surface to be welded.
 - When the work piece has heated up sufficiently it melts and forms a pool.
 - To prevent a hole being burnt through the metal, lift the torch tip slightly to keep the pool small.
 - When you have established the pool, place the end of the filler rod at a 45°-60° angle in the centre of the pool.
 - As the weld progresses the filler rod melts and has to be continually fed into the weld.
 - The longer you hold the filler rod in the pool, the larger the build up of the weld.
 - The filler rod must be removed from the pool when there is enough build up.
 - When the filler rod is not in the pool, the end is kept just inside the flame
 - Continue with the weld until a bead is formed. (Any 6) (6)
- 4.3 4.3.1 MIG/MAG/CO₂ welder ✓ (1)
- 4.3.2 It is an arc welding process in which individual consumable electrodes ✓ (standard welding rods) are replaced by continuously fed wire, ✓ and an inert gas shield replaces electrode flux. ✓ (3)

4.3.3 Commercially available mixture with oxygen ✓

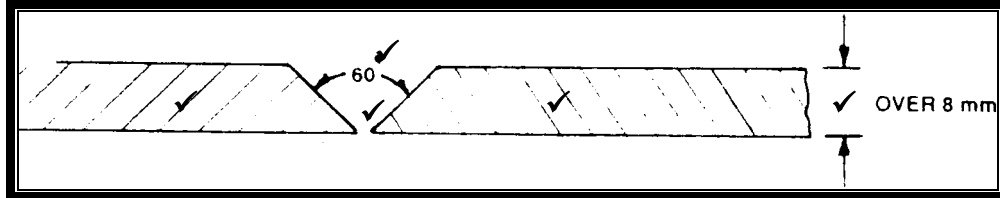
Argon ✓

helium ✓

carbon dioxide (CO₂). ✓

(Any 3) (3)

4.4



(5)

4.5

- Leftward welding technique. ✓
 - Used to weld mild steel sheet up to 5mm ✓
- Rightward welding technique. ✓
 - Used to weld mild steel sheet thicker than 5mm. ✓
- Vertical welding. ✓
 - Welding starts at the lower end of the weld, and then moves upwards to the end of the work piece. ✓

(3 x 2) (6)

4.6

When metal is heated, it expands ✓
and when it cools down it shrinks. ✓

The shrinking of welded metal, as well as weld runs, causes distortion of sheets when they cool down. ✓

Shrinking takes place in all directions simultaneously and therefore causes various types of distortion. ✓

(4)

4.7

- Pre-setting. ✓
- Welding of patch work. ✓
- Clamping.
- Spot/Tag-welding.

(Any 2) (2)
[35]

QUESTION 5: TOOLS, IMPLEMENTS AND EQUIPMENT

- 5.1 5.1.1 It is the exact moment when the needles lift the binding rope✓
so that the compressed hay can be bound. ✓ (2)
- 5.1.2
- Lubrication. ✓
 - Check all bearings, chains and gears. ✓
 - Check all safety clutches. ✓
 - Sharpen all blades.
 - Check tyre pressure.
 - Check bolt tension.
 - Inspect chassis and tyres for damage. (Any 3) (3)
- 5.1.3
- Slip clutch. ✓
 - Screens. ✓
 - Shear bolts✓
 - Ram stop safety mechanism✓ (4)
- 5.2 5.2.1 Three-point mechanism✓
consisting of two lifting arms✓
and a top link. ✓ (3)
- 5.2.2 Universal joint.✓ (1)
- 5.2.3
- Strong✓
 - Easily to remove/install✓
 - Not become loose✓
 - Weight saving✓
 - Must provide adequate/efficient protection. (Any 3) (3)
- 5.3
- Fixed capital ✓
Moveable capital✓
Working or floating capital✓ (3)
- 5.4
- Loss of maize kernels due to blowers that is set incorrectly. ✓
 - Thresher that breaks the kernels. ✓
 - Too much foreign particles. ✓
 - Mechanical problems. ✓
 - Electrical problems✓
 - Cannot use harvester when the crop is wet due to rain or
irrigation. (Any 4) (4)
- 5.5 5.5.1 Straight-cut gear/Spur gear✓ (1)
- 5.5.2 Last very long. ✓ (1)

- 5.5.3
- Sliding gearbox/Manual ✓
 - Constant mesh gearbox ✓
 - Synchronised gearbox ✓
 - Automatic
 - Trip-tronic
 - Pre-select
- (Any 3) (3)
- 5.6
- 5.6.1
- Sturdy construction. ✓
 - Replaceable wearing parts. ✓
 - Rotor housing should close tightly. ✓
 - Strength of power source available ✓
 - Size of the hopper feed aperture.
 - Amount and type of feed that must be grounded.
- (Any 4) (4)
- 5.6.2
- The mass of the moving parts is spread equally over bearings. ✓
 - Cyclone hangs level on the blower pipe. ✓
 - Looks neat. ✓
- (3)
- 5.6.3
- Do not work on the machine while it is still in motion. ✓
 - Ensure that there are no loose objects lying inside the machine when starting it. ✓
 - Wear safety gear. ✓
 - Do not use the machine when the rotor is out of balance. ✓
 - Driving mechanism must be screened off. ✓
 - Use in a well ventilated area.
 - Small pieces of scrap metal must be kept away from fodder.
 - It can cause a spark, which can start an explosion.
- (Any 5) (5)
- [40]**

QUESTION 6: WATER MANAGEMENT

- 6.1 6.1.1
- Quantity of water ✓
 - Topography ✓
 - Frequency of irrigation ✓
 - Duration of application ✓
 - Needs of the plant.
 - Plant density.
 - Soil moisture.
 - Prevailing rainfall.
- (Any 3) (3)
- 6.1.2 It is to apply enough water to fully wet the plant's root zone ✓ while minimizing overwatering ✓ and then allow the soil to dry out in between watering, ✓ to allow air to enter the soil, but not so that the plant is stressed beyond what is allowable. ✓ (4)
- 6.2 6.2.1 E ✓
- 6.2.2 A ✓
- 6.2.3 B ✓
- 6.2.4 C ✓
- 6.2.5 D ✓ (5)
- 6.3 6.3.1 Natural system ✓
- Regular system ✓ (2)
- 6.3.2 Pyramids of three or six poles ✓ are laid lengthwise along the bottom of an open trench and covered with grass ✓ before filling it with soil. ✓ (3)
- 6.3.3
- Installation costs are high. ✓
 - Blockages occur from time to time and are expensive to correct. ✓
 - The installation requires technical skills and knowledge. ✓
- (3)
- 6.4 6.4.1 Only water without solid particles ✓ must flow out through the top pipe and then seeps away into the soil. ✓ (2)
- 6.4.2
- Any household component connected to the sewage system. ✓
 - Septic tank ✓
 - Distribution box ✓
 - Absorption field ✓
 - Cesspools ✓
 - Vent
 - PVC/ceramic pipes.
- (Any 5) (5)

- 6.4.3
- Detergents. ✓
 - Laundry waste. ✓
 - Bleach. ✓
 - Household chemicals.
 - Caustic drain openers.
 - Garbage disposal unit which substantially increase the accumulation of solids.
 - Disposal of items not biodegradable in the system (plastics etc.)
 - Disposal of excessive amounts of grease and fats, which are biodegradable but need particular types of bacteria to digest.
 - Disposal of cigarette butts and sanitary napkins which are also biodegradable but are not readily decomposable.
 - Too many people using a smaller/inadequate or failing system.

(Any 3)

(3)

[30]

TOTAL SECTION B: 160
GRAND TOTAL: 200