ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

AGRICULTURAL ENGINEERING 6048/1

PAPER 1 Multiple Choice

SPECIMEN PAPER 1 hour

Additional materials:
Multiple Choice answer sheet,
Soft clean eraser,
Soft pencil (type B or HB is recommended),
Electronic calculator.

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.
Write your name, Centre number and candidate number on the answer sheet in the spaces provided unless this has already been done for you.

There are **forty** questions in this paper. Answer **all** questions. For each question there are four possible answers, **A**, **B**, **C** and **D**. Choose the **one** you consider correct and record your choice in **soft pencil** on the separate answer sheet.

Read very carefully the instructions on the answer sheet.

INFORMATION FOR CANDIDATES

Each correct answer will score one mark.

Any rough working should be done in this booklet.

This question paper consists of 10 printed pages and 2 blank pages.

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1 The force that enables a tractor to slow down and eventually stop is

A equilibrium.
B friction.
C moment.
D centre of gravity.

2 The energy that enables a tractor to move down a slope with its engine off is called

A potential.
B kinetic.
C electrical.
D frictional.

3 Calculate the amount of work done to move an implement through a distance of **500m,** if the total force of resistance is **200N**.

A 100 kj
B 2.5 kj
C 0.4 kj
D 100 000 kj

4 Which of the following is a computer programme most suitable for irrigation?

A CLIMWAT
B CROPWAT
C SPSS
D GPS

5 Blue smoke and carbon deposition in lubrication systems are an indicator of

A an old engine.
B high speed.
C insufficient lubricant.
D worn out oil rings.

6 What is the meaning of the oil designation, "**SAE 10W/40**"?

A A performance of a good lubricant for specific operating conditions.
B Oil can be used regardless of the climate or temperature.
C Lubricating efficiency enhanced by adding sulphur and phosphorus.
D Oil used in old engines or in badly worn out engines.

7 Viscosity of lubricants is mainly affected by

A air
B force
C pressure
D temperature

8 A feature which is applied when the tractor wheels are stuck in mud is called the

A final drive.
B differential lock.
C clutch.
D driving gear.

9 What is the effect of sliding the hitch assembly to the right on a mouldboard plough?

A causes deeper plough penetration.
B causes shallow plough penetration.
C causes a wider width of cut.
D causes a narrow width of cut.

10 On a disc plough the following are the functions of the rear wheel **except**

A increasing speed.
B controlling depth.
C producing straight furrows.
D preventing lateral movement of the plough.

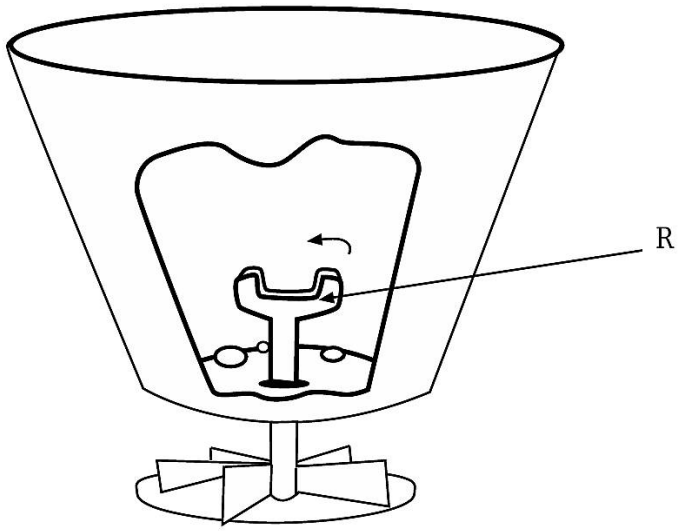
11 Which implement is used to break the hard plough pan?

A Chisel plough
B Lister
C Subsoiler
D Roller

12 The initial intensive operations done on land using heavy machinery is known as

A secondary tillage.
B conservation tillage.
C conventional tillage.
D primary tillage.

The diagram below shows an oscillating fertilizer spreader. Use the diagram to answer question **13** and **14**.



13 What is part R?

A Hopper
B Spout
C Agitator
D Collar

14 What is the purpose of part R in a planter?

A adjust speed of seed placement.
B prevents seed from piling above metering mechanism.
C throw seed out into the furrow.
D space out seed in the row.

15 The inrow spacing of a crop is calculated using the following **except**

A wheel circumference.
B sprocket ratios.
C number of cells in plates.
D plate thickness.

16 How does a faulty press wheel of a planter affect the planter performance?

A Shallow seed placement.
B Poor seed coverage.
C Malfunction of flicker mechanism.
D Malfunction of spacing mechanism.

17 A long pipe containing two or more nozzles of a sprayer is called

A boom.
B knapsack.
C mist blower.
D ultra low volume (**ULV**).

18 What is the function of a strainer in a knapsack sprayer?

A pressure regulation.
B trapping dirt.
C forcing liquid out.
D atomisation.

19 Which part of the sprayer is used for atomisation of liquid particles?

A Pump.
B Nozzle.
C Agitator.
D Strainer.

20 How is the sprayer application rate affected by forward tractor speed?

A Inversely proportional to forward speed.
B Directly proportional to forward speed.
C Independent of forward speed.
D Halved when forward speed is halved.

21 Which part of the groundnut digger removes the soil from the nuts?

A Cutter
B Sheller.
C Shaker
D Inverter

22 The following are functions of a groundnut digger **except**

A cutting the tap root.
B loosening the soil.
C plucking the pods.
D lifting.

23 The threshing effectiveness of a combine harvester can be determined by the percentage of

A clean grain in clean grain auger.
B non-grain material that passes through the walkers.
C unthreshed heads in tailings auger.
D seed detached from non-grain parts.

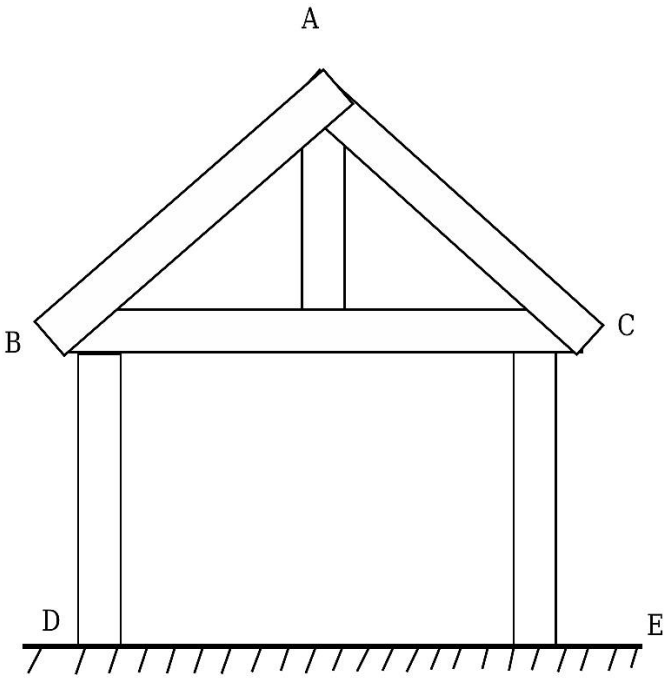
24 The process of separating grain from the cob is called

A dehulling
B shelling
C winnowing
D dehusking

25 Which survey method is suitable for soil conservation structures?

A Topographic
B Geodetic
C Cadastral
D Descriptive

Use the diagram provided below to answer questions 26 and 27 that follow.



26 Which stresses will be experienced in the member BC?

A shear
B tensile
C compressive
D sheer and tensile

27 Identify the member which when removed will cause the wall of the granary to fall outwards.

A BC
B AB
C AC
D DE

28 A precision instrument used for measuring angles in the horizontal and vertical planes during surveying is called a

A dumpy level.
B stake.
C theodolite.
D grade rod.

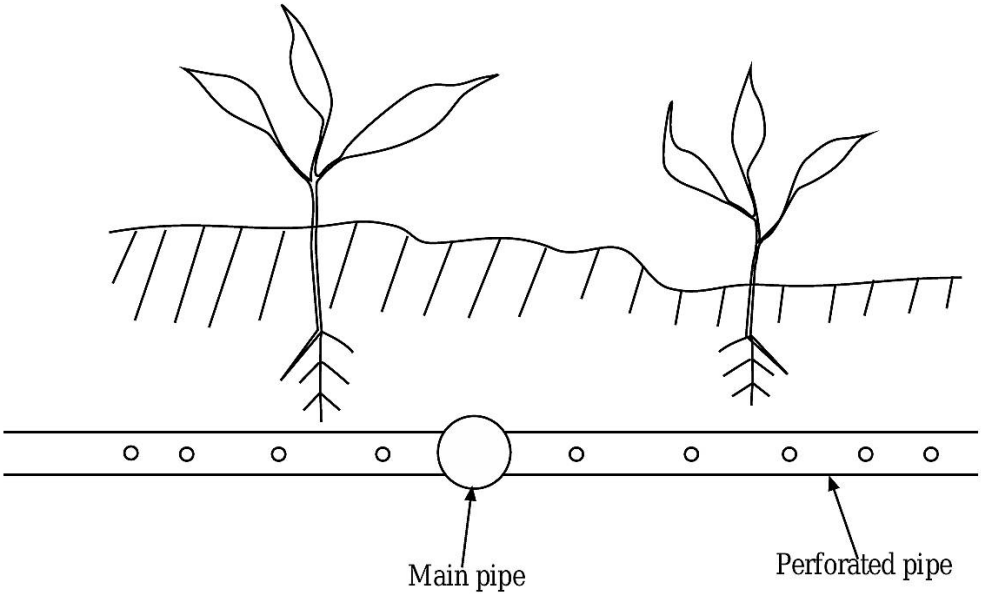
29 Chutes are used in irrigation canals where

A there are big differences in the elevation of the canal.
B there is a direct flow of water between two or more canals.
C they divert part of the water from the canal to a smaller one.
D they carry irrigation water across roads.

30 Which is the most commonly used pump in irrigation systems in Zimbabwe?

A Reciprocating pump.
B Centrifugal pump.
C Chain pump.
D Hydraulic rain.

31 Identify the method of irrigation shown in the diagram below.



A Surface
B Sub surface
C Furrow
D Sprinkler

32 Which irrigation method is suitable for irrigating an undulating terrain?

A Border strip.
B Sprinkler.
C Furrow.
D Flood.

33 The following are roles of integrated water management **except**

A ensuring the sustainability of vital ecosystems.
B promoting holistic and coordinated water management.
C maximising economic and social welfare from water resources.
D assigning the management of land and other natural resources to other stakeholders.

34 The primary use of water includes all of the following **except**

A basic domestic human needs.
B animal drinking.
C moulding bricks.
D irrigation.

35 In the water Act, all water is invested in the

A Board Chairman.
B Minister.
C President.
D Water Authority.

36 According to the water Act, land on which or along the boundary of the whole or any portion of which a public stream exists is called

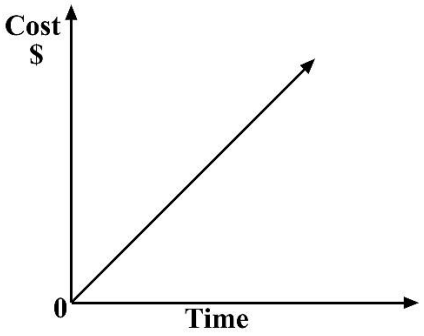
A non riparian land.
B riparian land.
C public land.
D prohibited land.

37 The operating costs of a tractor include:

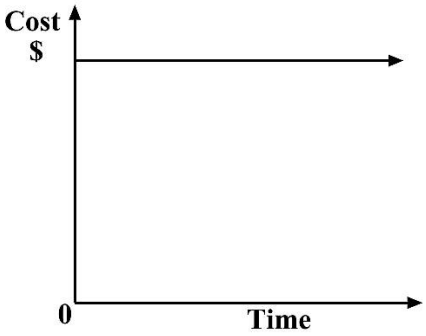
A repairs, maintenance, fuel, oil and labour.
B depreciation, taxes, fuel, oil, labour
C repairs, depreciation, fuel, oil, labour
D repairs, taxes, interest, oil, labour

38 Which graph shows the straight line method of determining machinery depreciation?

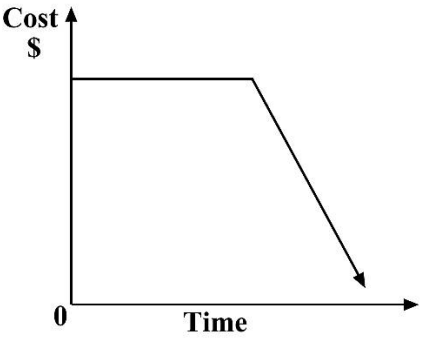
A



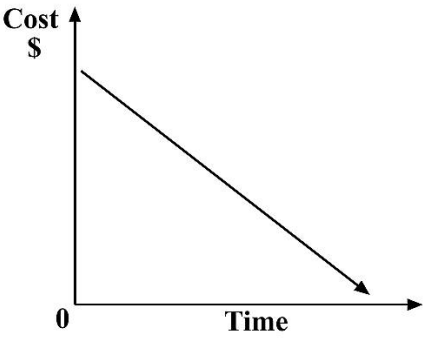
B



C



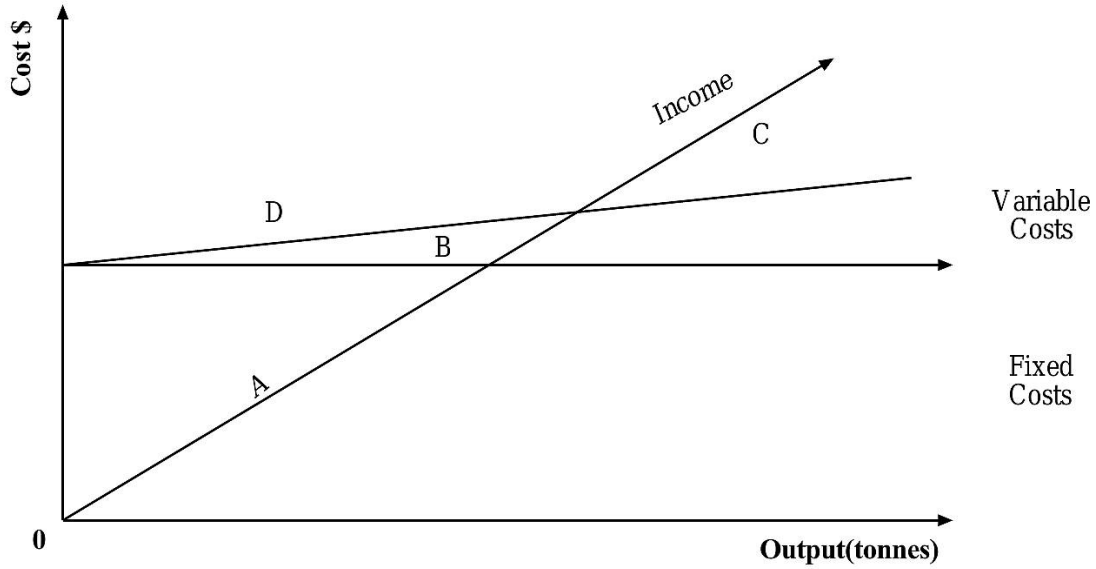
D



39 Calculate the return for every dollar invested in machinery whose total cost is **$11 500** and gross income **$57 500**.

A 6
B 0.8
C 1.2
D 4

40 The graph below shows output and costs from using farm machinery. Which point represents profit?



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