For Performance Measurement

# ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

**General Certificate of Education Advanced Level**

## HORTICULTURE 6024/1

PAPER 1 Multiple Choice

**SPECIMEN PAPER** 1 hour

Additional Materials:
- Multiple Choice answer sheet,
- Soft pencil (type B or HB is recommended),
- Soft clean eraser,
- Scientific Calculator.

**TIME** 1 hour

**INSTRUCTIONS TO CANDIDATES**

**Do not open this booklet until you are told to do so by the invigilator.**

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.

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

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**1** Horticulture is well suited to which kind of environment?

**A** Humid tropical forests
**B** Hot pine forest regions
**C** Cool pine forest regions
**D** Warm, humid tropical forests

**2** Which of the following organelles manufactures Adenosine Triphosphate (ATP)?

**A** Chloroplasts
**B** Nucleus
**C** Mitochondria
**D** Lysosomes

**3** _____ arises due to salts in solution that lower the free energy of water.

**A** Matric potential
**B** Osmotic potential
**C** Overburden potential
**D** Gravitational potential

**4** Matric potential results from the following phenomenon

**A** adhesion and cohesion.
**B** osmotic and adsorption.
**C** capillarity and adhesion.
**D** capillarity and cohesion.

**5** Which is the site of glycolysis?

**A** Mitochondria
**B** Cytoplasm
**C** Golgi apparatus
**D** Endoplasmic reticulum

**6** Which one is **not** a C A M plant?

**A** Aloe vera
**B** Prickle pear
**C** Cactic
**D** Corm

**7** The Kreb cycle occurs in the

**A** Mitochondria.
**B** Cytoplasm.
**C** Golgi apparatus.
**D** Endoplasmic reticulum.

**8** Which one is **not** a method of breaking seed dormancy?

**A** Cloning
**B** Scarification
**C** Stratification
**D** Addition of hot water

**9** The first stable product of the $C_3$ pathway is a carbon compound called

**A** phosphoglycerate.
**B** pyruvate.
**C** oxaloacetate.
**D** malate.

**10** What is the function of molecular oxygen in cellular respiration?

**A** To combine with carbon to produce carbon dioxide
**B** To combine with glucose to produce carbon dioxide
**C** To combine with hydrogen to produce water
**D** To oxidise ADP to ATP

**11** A perfect flower has

**A** both stamen and pistil.
**B** both pistil and sepals.
**C** only petal.
**D** only stamen.

**12** Which one is a biological method of controlling weeds?

**A** Mulching
**B** Crop rotation
**C** Selective crop stimulation
**D** Use of a bioagent

**13** Which of the following describe the effects of compaction on soil?

| | **Porosity** | **Bulk density** |
|---|---|---|
| **A** | increase | low |
| **B** | decrease | low |
| **C** | increase | high |
| **D** | decrease | high |

**14** The ability of a soil structure to resist collapse when saturated with water is known as

**A** vulnerability.
**B** porosity.
**C** stability.
**D** bulk density.

**15** What drainage conditions are associated with red subsoils soils?

**A** Excellent.
**B** Good.
**C** Moderate.
**D** Poor.

**16** Cation Exchange Capacity (CEC) is defined as the sum of all exchangeable

**A** cations.
**B** basic cations.
**C** acidic cations.
**D** basic and acidic cations.

**17** Which of the following insect pest has mandibles?

**A** Beetles
**B** Thrips
**C** Aphids
**D** Bugs

**18** Beading and droplets of water on flowers indicate

**A** high temperature.
**B** high humidity.
**C** low temperature.
**D** low humidity.

**19** Which of the following is **not** a subtropical fruit?

**A** Citrus
**B** Granadilla
**C** Grapes
**D** Apples

**20** Which of the following is **not** a cause of post harvest losses of horticultural products?

**A** Low temperature and high atmospheric humidity
**B** Improper handling during harvesting
**C** High temperature and low humidity
**D** Disease and pest

**21** Secondary growth in both roots and stems results in

**A** production of xylem and phloem vessels.
**B** rapid increase in root and stem length.
**C** development of vascular and cork cambium.
**D** production of parenchyma cells only.

**22** A cross-section of a root shows central star-shaped mass of xylem when the plant is a

**A** dicot.
**B** monocot.
**C** biennual.
**D** perennial.

**23** Which statement explains why $C_3$ plants are not photosynthetically efficient under light conditions?

**A** Stomata close and oxygen reacts with ribulose biphosphate
**B** Stomata open and carbon-dioxide reacts with ribulose biphosphate
**C** Stomata close and oxygen reacts with phosphoglyceric acid
**D** Stomata open and oxygen reacts with glyceraldehyde 3-phosphate

**24** Which of the following is a hydrogen acceptor in a non cyclic photophosphorylation?

**A** ADP
**B** NAD
**C** NADP
**D** RuBP

**25** What is the primary structural differences between roots and stems?

**A** Arrangement of vascular tissues within the stem and root
**B** Arrangement of pith within the stem and root
**C** Differences in xylem and phloem function
**D** Differences in the number of stomata

**26** Which soil structure has caps on the surface and pans in the soil?

**A** Prismatic
**B** Angular blocky
**C** Platy
**D** Crumb

**27** What is the effect of low pH on clay particles with high concentration of nutrients?

**A** Flocculation of clay particles leading to adsorption of cations
**B** Disintegration of clay minerals leading to leaching
**C** Displacement of hydrogen ions to adsorption of cations
**D** Precipitation of hydrogen ions leading to toxic effects

**28** What distinguishes sprinkler irrigation from drip irrigation?

| | **Sprinkler irrigation** | **Drip irrigation** |
|---|---|---|
| **A** | Water under high pressure | Water under low pressure |
| **B** | Water under low pressure | Water under high pressure |
| **C** | High erosion | High erosion |
| **D** | Low erosion | High erosion |

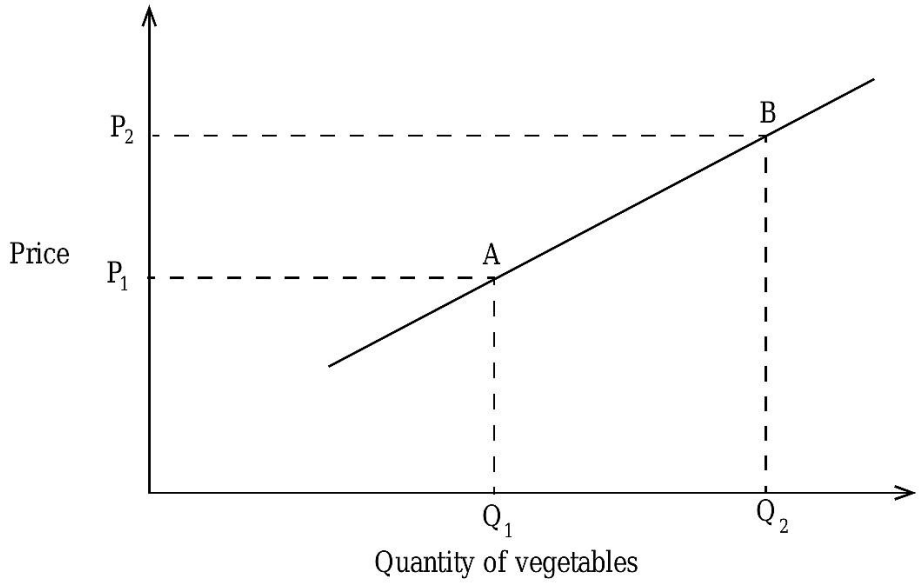
**29** Why do clay soils require large amounts of lime than sandy soils to produce the same pH change?

**A** The silicate in sand has a lower neutralising value.
**B** Sand soil has a large buffering capacity
**C** Clay has more intra – aggregate pores
**D** Clay has more exchange sites

**30** Which physical property of the soil is reduced by adding organic fertilizer?

**A** Porosity
**B** Aggregation
**C** Bulk density
**D** Particle density

**31** The diagram below shows a supply curve of vegetables.



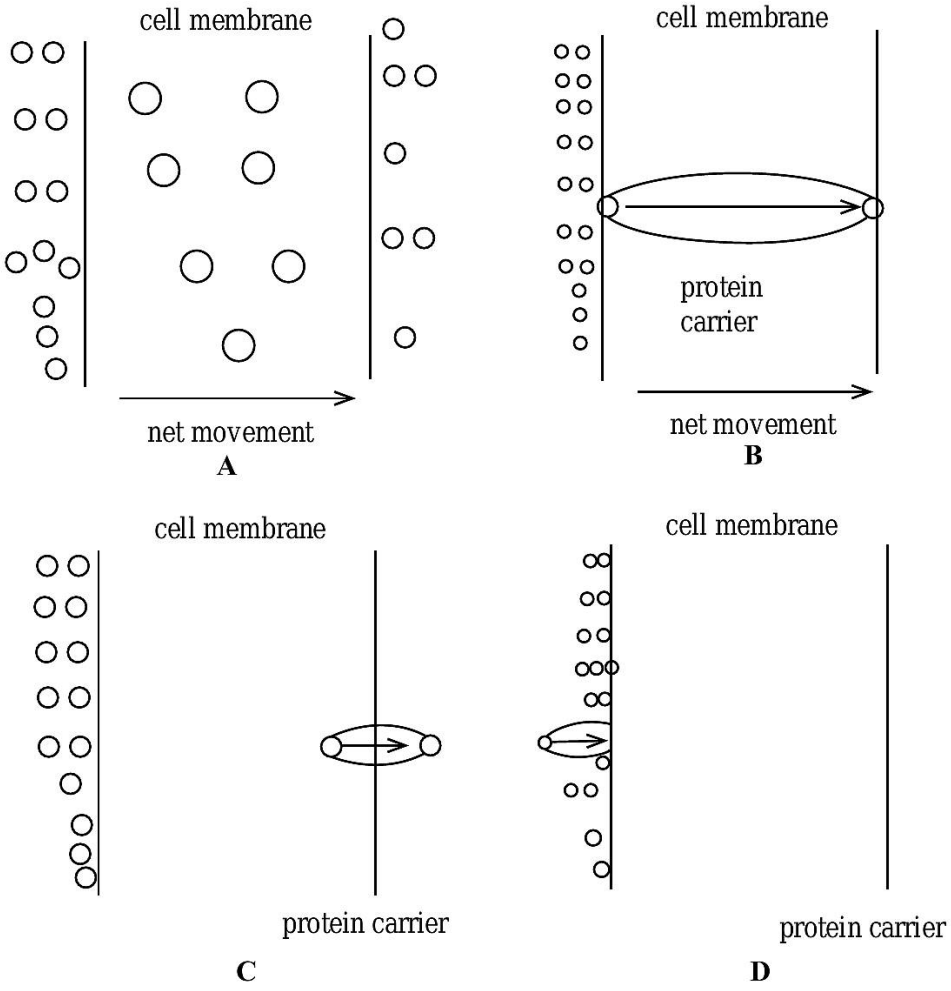

Which factor causes the shift in supply of the vegetables from A to B?

**A** Increase in market price
**B** Improvement in technology
**C** Increase in population
**D** Increase in income

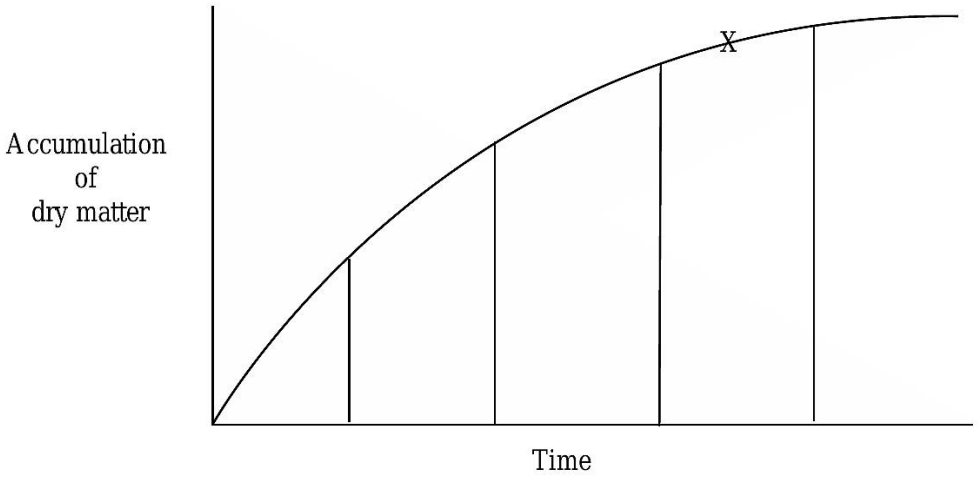
**32** Identify a problem associated with graft incompatibility.

**A** Mature defoliation
**B** General good health
**C** Non degeneration of tissues at graft union
**D** Complete failure to form a graft union

**33** Which one of the following diagrams show facilitated diffusion?

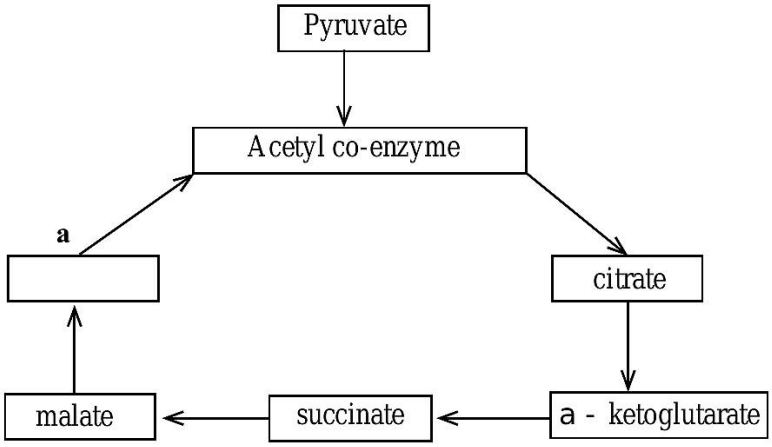


**34** What is the reason why point **X** on the graph is the best time to collect root cuttings.




**A** Good protein reserves
**B** Good carbohydrate reserves
**C** Good fat reserves
**D** Good mineral reserves

**35** The diagram below shows part of the Kreb's cycle.




What name is given to substances labelled **a**?

**A** Rubisco
**B** Aspartate
**C** Citrate
**D** Oxaloacetate

**36** The transition from vegetative growth to flowering in long- day or cold requiring plants can be promoted by application of

**A** auxin.
**B** abscisic acid.
**C** gibberellic acid.
**D** cytokinins.

**37** How does the addition of agricultural lime assist in the availability of soil nutrients?

**A** $H^+$ adsorbed $K^+$ set free
**B** $Ca^{2+}$ adsorbed, $K^+$ and $Mg^{2+}$ set free
**C** $H^+$ adsorbed, $PO^-_4$ set free
**D** $K^+$ adsorbed, $Mg^{2+}$ set free

**38** What would a maggot grow up to be when it moults into an adult?

**A** Fly
**B** Earwig
**C** Louse
**D** Grasshopper

**39** What should be considered when marketing horticultural products?

**A** Handling, storage, products, consumers, markets
**B** Perishability, distribution, products, consumers, handling
**C** Markets, products, storage, consumers, handling
**D** Packaging, storage, transportation, financing, distribution

**40** _____ require more lime to raise its pH.

**A** Sandy soil with low organic matter
**B** Sandy loam with high organic matter
**C** Clay soil with low organic matter
**D** Clay soil with high organic matter

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