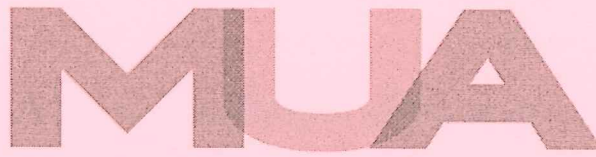


The  
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**UNDERGRADUATE UNIVERSITY EXAMINATIONS**

**SCHOOL OF MANAGEMENT AND LEADERSHIP**

**DEGREE OF BACHELOR OF ARTS IN DEVELOPMENT STUDIES**

**BDS 201 : TECHNOLOGY AND DEVELOPMENT**

**DATE: 3<sup>rd</sup> AUGUST 2023**

**DURATION: 2 HOURS**

**MAXIMUM MARKS: 70**

**INSTRUCTIONS:**

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **THREE** questions.
6. Question **ONE** carries **25 MARKS** and the rest carry **15 MARKS** each.
7. Write all your answers in the Examination answer booklet provided.

**QUESTION ONE**

**Read the Case Study below carefully and answer the questions that follow:**

**AGRICULTURAL BIG DATA ANALYTICS**

Agricultural Big Data analytics is the analysis of large datasets from a wide range of resources, often using artificial intelligence (AI) techniques. The integration of Big Data and AI (Smart Information Systems – SIS) is expected to be vital for the successful growth of the agricultural sector. Agribusinesses are now shifting their focus towards data-driven agricultural solutions. The implementation of sensors, robots and other devices on farms may cause undue stress or harm to farm animals and external wildlife. These electronic devices and sensors may upset, injure or even kill livestock and/or local wildlife. Robots, sensors and unmanned aerial vehicles (UAVs) also have the potential to emit toxic material, fumes and waste into their surrounding environment. An additional concern is that the algorithmic prescriptions used by such devices may cause detrimental effects because they do not consider land external to the farm (Antle, Capalbo and Houston, 2015). For example, some potential effects could be surface water run-off, encroachment on habitats, or general pollution to the surrounding area. Therefore, the ecological and social effects of implementing and deploying SIS technologies to the wider environment are significant factors (Kosier 2017).

**Required:**

- a) Discuss the benefits of adopting Big Data analytics in Agricultural sector  
[9 Marks]
- b) Discuss the reasons driving the adopting of Smart Information Systems in Agricultural sector  
[8Marks]
- c) Evaluate the Challenges in adopting Big Data analytics in Agricultural sector  
[8Marks]

## QUESTION TWO

- a) Discuss in detail the differences between Genetically Modified Organisms and Micro-propagation. **[3 marks]**
- b) Explain three Types of technology **[6 marks]**
- c) Explain the following concepts as used in Technology Management:
- i. Innovation **(2 marks)**
  - ii. Invention **(2 marks)**
  - iii. Patent **(2 marks)**

## QUESTION THREE

- a) Distinguish between science and technology. **[4 marks]**
- b) With the help of a neat sketch, outline the constituents of technology. **[4 marks]**
- c) Explain five ways in which technology can be transferred. **[7 Marks]**

## QUESTION FOUR

- a) It is argued that for developing countries to attain meaningful development, they must embrace globalization as a concept. Using relevant examples, discuss how Kenya stands to benefit from globalization. **[10 Marks]**.
- b) Evaluate 5 possible remedies to challenges that hinder diffusion of technology **[5 Marks]**

**QUESTION FIVE**

Discuss any four advantages and four disadvantages of multinational corporations (MNCs) to poor countries such as Kenya. **[15 Marks]**

**QUESTION SIX**

a) Explain four positive impact of e-government in development.

**[7Marks]**

b) Poor leadership is a manifestation of bad governance in Third World countries.

Discuss any five characteristics of good governance in the Kenyan context.

**[8 Marks]**