



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

FIRST YEAR FIRST SEMESTER EXAMINATION FOR
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

EAE 100: ECONOMICS OF INFORMATION TECHNOLOGY

DATE: 2/2/2022

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

- (i) Answer question one (Compulsory) and any other two questions
- (ii) Do not write on the question paper
- (iii) Show your working clearly

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Review and maintenance is one of the stages in a typical system life cycle. Highlight reasons why a system should be periodically reviewed and maintained. (5 marks)
- b) Explain what you understand by the term Digital Economy and give its characteristics and circumstances when it can be used. (8 marks)
- c) Differentiate between product differentiation and price differentiation and use relevant examples to describe the three types of product differentiation (8 marks)
- d) By use of a diagram, illustrate and describe the business cycle (7 marks)
- e) What is the point discrepancy between a copyright and trade secret? (2 marks)

QUESTION TWO (20 MARKS)

- a) Define software maintenance and explain the two tools that are used in its measurement (6 marks)
- b) Using examples explain the three main types of Price discrimination evident in the Kenyan Economy Today. (10 marks)
- c) Assume a production function in the form of $y = AL^{\frac{1}{2}}K^{\frac{1}{4}}$. Calculate the following:
 - i. Marginal product of Labour (2 marks)
 - ii. Marginal product of Capital (2 marks)

QUESTION THREE (20 MARKS)

- a) Explain the various ways in which use of Information Technology contributes to productivity of workers in an organization (12 marks)
- b) Review four functions of a computer operating system (8 marks)

QUESTION FOUR (20 MARKS)

- a) Differentiate between a software and hardware and discuss any three soft wares used in ICT sector today. (8 marks)
- b) Explain two ways in which IT remedies deficiencies caused by poor prices, exchange markets and information in well-functioning markets (4 marks)
- c) In the supply side economies of scale for industries, 'Price discipline asserts itself in various ways'. Explain this statement. (8 marks)

QUESTION FIVE (20 MARKS)

- a) By the help of a diagram, explain the Verification and validation model of system development. (7 marks)
- b) Identify and explain any three contributions of ICT in the education sector (6 marks)
- c) Explain your understanding on the following terms:
 - i) Network effects
 - ii) Total factor productivity
 - iii) Natural Monopolies (3 marks)
- d) List four computer hardware devices used in the world of ICT (4 marks)