



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATION FOR THE DEGREE IN BACHELOR OF SCIENCE
INFORMATION COMMUNICATION AND TECHNOLOGY
3RD YEAR 2ND SEMESTER
2024/2025 ACADEMIC YEAR
MAIN CAMPUS

COURSE CODE: ITB1304

COURSE TITLE: SPECIAL TOPICS IN CONTEMPORARY ICTS

VENUE: CL3 , CL 2.....STREAM.....

DATE: ...22/4/2025..... EXAM SESSION: ...9.00- 11.00.....

TIME: 200 HOURS

INSTRUCTIONS:

- 1) Answer QUESTION ONE (Compulsory) and any other two questions**
- 2) Candidates are advised not to write on the question paper**
- 3) Candidates MUST hand in their answer booklets to the invigilator while in the examination room**
- 4) Mobile phones are NOT allowed in the examination room.**

QUESTION ONE (COMPULSORY)**(30 MARKS)**

- a) Define the Internet of Things (IoT) and explain how it is transforming smart homes and industries. (6 Marks)
- b) Differentiate between Artificial Intelligence (AI) and Machine Learning (ML), providing real-world applications of each (6 Marks)
- c) Briefly explain how Blockchain ensures data security and trust in digital transactions. (6 Marks)
- d) Highlight the benefits of virtualization in cloud computing. (6 Marks)
- e) Identify three major cybersecurity threats and suggest possible mitigation strategies. (6 Marks)

QUESTION 2**(20 MARKS)**

- a) Discuss how cloud computing and virtualization are shaping the future of IT infrastructure. (10 Marks)
- b) Discuss how Blockchain technology is transforming digital identity management and secure transactions. (10 Marks)

QUESTION 3**(20 MARKS)**

- a) Explain the key differences between 5G and previous generations of mobile networks (2G, 3G, 4G). (10 Marks)
- b) Define Machine Learning and describe its three main types (10 Marks)

QUESTION 4**(20 MARKS)**

Technologies such as IoT, AI, Blockchain, Cloud Computing, Cybersecurity, and 5G are increasingly converging. Discuss how the integration of these technologies is shaping digital transformation across industries. Use real-world examples to support your discussion. (20 marks)

QUESTION 5**(20 MARKS)**

As ICT technologies evolve, ethical concerns and security risks increase. Discuss the ethical implications of AI and IoT in data privacy and surveillance. Propose strategies that businesses and governments can adopt to ensure responsible and secure implementation of these technologies. (20 marks)

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