



***"Investing in Africa's Future"***

**COLLEGE OF ENGINEERING AND APPLIED SCIENCES**

**NCIS307: DATA COMMUNICATIONS AND COMPUTER NETWORKS**

**END OF FIRST SEMESTER EXAMINATIONS**

**NOVEMBER 2024**

**LECTURER: DR. TENDAI ZENGENI**

**TIME: 3 HOURS**

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### ***INSTRUCTIONS***

You are required to answer questions as instructed.

Start **each** question on a new page in your answer booklet

Answer **3 (THREE)** questions **ONLY**

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Credit will be awarded for logical, systematic and neat presentations

**Total = 75 marks**

1. Draw and explain the functions, advantages and disadvantages of the Token Ring network topology. **(25 marks)**
2. Draw the 7 layers of the OSI model in the correct order and explain the functions of each layer and what processes are involved. **(25 marks)**
3. Draw and explain the Ecosystem of components that are involved for two devices to communicate from Australia to China. Show all the components of hardware and software and communication mechanisms and signals in that system. **(25 marks)**
4. a) Hub, Switch, Router, Bridge, Firewall Draw and explain all their functions in computer networks **(25 marks)**
5. 5G technology, Internet of Things, Cloud Computing, Artificial Intelligence, Generative AI, Robotics, Blockchain. Describe and explain only 5 of these emerging technologies. **(25 marks)**

**END OF EXAMINATION**