TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN INSTRUMENTATION AND CONTROL ENGINEERING (DICE4)

TELEMETRY & NETWORKING I

ETI 2231

END OF SEMESTER EXAMINATION

SERIES: MAY 2016

TIME: 2 HOURS

DATE: Pick DateSelect MonthPick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** Questions;. Attempt any THREE Questions.

Do not write on the question paper.

Question ONE

a) Define Telemetry. What are the different types of telemetry (5 marks)

b) Distinguish between current and voltage telemetry systems (5 marks)

c) Outline the sources of fibre optic transmission (5 marks)

d) With the aid of a block schematic, explain optical telemetry system (5 marks)

Question TWO

a) Sketch the block diagram of a typical telemetry system and explain the function of each component. Distinguish between DC and AC telemetry system (12 marks)
b) Discuss the multiplexing and de-multiplexing used in radio telemetry (8 marks)

Question THREE

a) Describe and Justify the need for process of signal modulation and demodulation in a Telemetry system (4 marks)
b) With the aid of a block diagram, describe the process of modulation technique (8 marks)
c) Describe the following types of modulation
    i) Amplitude Modulation
    ii) Frequency Modulation
    iii) Pulse modulation
    iv) Pulse Amplitude Modulation

Question FOUR

a) List out the advantages and drawbacks of bus topology. (4mks)
b) List out the advantages and drawbacks of ring topology. (4mks)
c)
    i. Explain why star topology is commonly preferred
    ii. Outline the relationship between transmission media and topology (4mks)
d) With the aid of sketches OUTLINE the TREE repeater working modes (6mks)
e) Describe the term TOPOLOGY as employed in data networks (2mks)

Question FIVE

a) Define and OUTLINE the main purpose of SCADA system (4mks)
b) OUTLINE the three categories into which industrial processes can be divided (6mks)
c) With the aid of well labeled diagram DESCRIBE the layout and components of a typical industrial SCADA system (10mks)