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**JOMO KENYATTA UNIVERSITY**

 **OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2014/2015**

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN GEOMATIC ENGINEERING AND GEOSPATIAL INFORMATION SYSTEMS

**EGE 2418: COMPUTER AIDED CARTOGRAPHY**

DATE: AUGUST 2015 TIME: 2 HRS

**INSTRUCTIONS:**

Attempt question **ONE** and any other **TWO** questions

**QUESTION ONE (30 MARKS)**

1. What Computer Aided Cartography? (3 marks)
2. Describe the characteristics of Computer Aided Cartography. (7 marks)
3. Which hardware devices and software are used in Computer Aided cartography? List them giving their functions. (3 marks)
4. An employer requires a cadastral plan for JKUAT, a topographical map of JUJA and a population density map of Kiambu. Accrue the purpose of each map, state the likely sources of data and give the expected output from each map. (3 marks)
5. Using a flow diagram describe the cartographic process used in data processing. (3 marks)
6. Computer-aided cartography explores different software. Describe five software applications that can be used. (5 marks)
7. When drafting symbols of the three graphical variables, there are specific rules that need to be adhered to. State at least three of these rules. (3 marks)
8. Interactive display units are used in cartography to display computer graphics. List three devices that may be used in an interactive manner and an example of what feature may be captured and displayed using these units. (3 marks)

**QUESTION TWO (20 MARKS)**

Generalization can be used for spatial and attribute transformation on a map. With the help of a flow chart, describe digital generalization in twelve categories, while explaining each component. (20 marks)

**QUESTION THREE (20 MARKS)**

1. There are four principles of cartographic design. Discuss. (8 marks)
2. a. Geographic contents are important in map composition. Describe the three governing principles, giving an example of each. (3 marks)

b. Map composition is determined by various factors like geographical contents. There are a number of geographic contents to be considered in map composition. Discuss. (9 marks)

**QUESTION FOUR (20 MARKS)**

1. There are four steps in the mapping system of topographic cartography. Using an illustration, explain. (10 marks)
2. Describe the computer aided cartography principle in comparison to Computer Aided Design, Geographic Information System and Land Information System. Elaborate your explanations. (10 marks)

**QUESTION FIVE (20 MARKS)**

1. There are various approaches of data input in computer-aided cartography. Discuss three of these approaches. (6 marks)
2. Given a hardcopy map of Kenya with the natural physical features and a database of the major road networks and schools, illustrate how you would use the data to provide a solution in a county of your choice in the following areas: - Topography, hydrology, thematic cadastral and engineering. (14 marks)