



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
INFORMATION AND COMMUNICATION TECHNOLOGY**

**4<sup>TH</sup> YEAR 1<sup>ST</sup> SEMESTER 2016/2017 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE: ICT 3417**

**COURSE TITLE: INNOVATIVE TECHNIQUES AND MODELS**

**EXAM VENUE: --**

**STREAM: ICT**

**DATE: 15/12/16**

**EXAM SESSION: 9.00 – 11.00 AM**

**TIME: 2.00 HOURS**

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**INSTRUCTIONS:**

- 1. Answer Question 1 (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**

## QUESTION ONE

- a) What is design (2 Marks)
- b) State and explain the three components of concept development (6 Marks)
- c) Outline the three main sources of innovation. (3 Marks)
- d) There are four steps in the creative process. List and explain them (8 Marks)
- e) What is creativity (3 Marks)
- f) Outline the three main types of creativity, and how they involve different ways of generating novel ideas: (6 Marks)
- g) What are the objectives of creativity (2 Marks)

## QUESTION TWO

- a) There are numerous creativity supporting techniques. Describe of some well-known creative techniques for problem solving (5 Marks)
- b) One approach to systems thinking and organizational planning is Breakthrough Thinking. How does it work (5 Marks)
- c) What are the metrics regarding product innovation (4 Marks)
- d) The integration of creativity and innovation at group level can be better illustrated in group work methodologies aimed at generating ideas or problem solving. Discuss (6 Marks)

## QUESTION THREE

- a) In order to systematically identify and classify tools and functionalities supporting a community for innovation's idea evolution process, classification schemes are used on the basis of the activities and tasks. Explain (5 Marks)
- b) The rapid prototype (RP) is a quick formation of visual and experiential manifestations of concepts. How can it assist in determining which solutions are technologically possible? (5 Marks)
- c) What is a Mind Map and Why do you need one (6 Marks)
- d) What are the properties of mind maps (4 Marks)

## QUESTION FOUR

- a) There are lots of situations where you can utilize mind maps effectively in your software development activities. List any experiences. (4 Marks)
- b) What does a mind map look like? (4 Marks)
- c) When utilizing mind maps for user modeling, one central question is which mind maps to analyze, and which parts of the mind maps to analyze. What would be the most suitable answer for these questions (12 Marks)

## QUESTION FIVE

- a) Simulation models are not the only models that can be used for understanding and improving the real world. There exist other modeling approaches. Why would simulation be used in preference to these other modeling approaches? (10 Marks)
- a) Among the most compelling reasons for using simulation are the benefits gained by managers. Explain any THREE benefits. (6 Marks)
- b) Discuss the four steps in the creative process. (4 Marks)