



THE CO-OPERATIVE UNIVERSITY OF KENYA

END OF SEMESTER EXAMINATION DECEMBER -2022

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER
SCIENCE**

(YR IV SEM I)

UNIT CODE: BCSC 4143

UNIT TITLE: VIRTUAL REALITY

DATE: THURSDAY, 22ND DECEMBER, 2022

TIME: 9:00 AM – 11:00 AM

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INSTRUCTIONS:

- Answer question ONE (compulsory) and any other TWO questions

QUESTION ONE

(a) Define the following

- i. Desktop virtual reality. **(2marks)**
- ii. Participatory design. **(2marks)**
- iii. Mixed reality **(2marks)**

(b) Describe FOUR examples of VR headsets used in order to watch videos. **(4marks)**

(c) Briefly explain FOUR applications of Virtual Reality. **(4marks)**

(d) The Johnson Corporation has won a contract to develop the interface to a media player for digital music in a range of formats, such as MP3 and WMA. In contrast to many of these applications, the interface is being designed to support elderly users. Write a brief technical report for your project manager to describe how you would develop the detailed requirements for this interface. You must identify any potential problems that could affect your proposal. **(6marks)**

(e) Many people across the world are worried that Virtual and Augmented Reality is going to affect them. Explain FOUR ways on how VR will impact people's lives. **(4marks)**

(f) A company that you are associated with wants to invest in an AR/VR company. Discuss THREE factors to consider when investing in such a field. **(6marks)**

QUESTION TWO

(a) Compare and contrast between augmented reality and virtual reality. **(6marks)**

(b) Outline FOUR main challenges that android developers face in interacting VR into their apps. **(4marks)**

- (c) Contrast THREE different problems that can arise when designers attempt to identify the requirements for interactive systems from novice and expert users. **(6marks)**
- (d) Explain FOUR advantages of virtual reality training. **(4marks)**

QUESTION THREE

- (a) Explain FOUR in-demand careers in developing and improving VR and AR technologies. **(4marks)**
- (b) Your colleagues at work place want know more about VRML. Explain how to get started with VRML. **(4marks)**
- (c) Discuss the THREE distinct types of mainstream head-mounted displays available in the market. **(6marks)**
- (d) Briefly discuss THREE lasting physical effects to using virtual and augmented reality. **(6marks)**

QUESTION FOUR

- (a) Outline the difference between immersive and non-immersive augmented reality. **(4marks)**
- (b) Discuss THREE depth cues that may be responsible for better depth perception when using Shoebox VR instead of standard 3D graphic on mobile device. **(6marks)**
- (c) Discuss THREE major trends driving the introduction of virtual reality systems. **(6marks)**
- (d) Describe TWO disadvantages of tangible AR interfaces. **(4marks)**

QUESTION FIVE

- (a) In THREE ways differentiate between Fish tank VR and Shoebox VR on mobile. **(6marks)**
- (b) Describe FOUR issues that can slow VR adoption in an organization. **(4marks)**
- (c) Briefly explain the relationship between requirements elicitation and the summative evaluation of an interactive system. **(4marks)**
- (d) You are invited to give a talk on Virtual Reality. Your topic is “*How the virtual world might change the world of work.*” Briefly discuss the point to include in the presentation. **(6marks)**