University of Colombo, Sri Lanka

University of Colombo School of Computing

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS

Second Year Examination - Semester II – UCSC AY20 [held in March/ April 2024]

IS2113 — Community Informatics (ICT4D)

(Two (2) Hours)

74

Answer ALL questions

Number of Pages = 12 Number of Questions = 4

To be completed by the candidate								
Index Number:								

Important Instructions to candidates:

I. Students should answer in the medium of English language only using the space provided in this question paper.

II. Note that questions appear on both sides of the paper. If a page or a part of this question paper is not printed, please inform the supervisor immediately.

III. Write your index number CLEARLY on each and every page of this Question paper.

IV. This paper consists of 4 questions in 12 pages (including the Cover Page).

V. Answer ALL questions.

VI. Calculators and any electronic device capable of storing and retrieving text including electronic dictionaries, smart watches and mobile phones are not allowed.

VII. Do not tear off any part of this answer book. Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.

To be completed by the examiners

1	
2	
3	
4	
Total	

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Question 1

Questions from (1) to (10) are of MCQ (Multiple Choice Questions) type. Each question will have five (05) choices with **one or more correct answers**. All questions will carry equal marks, and incorrect responses will be penalized to discourage guessing.

[20 Marks]

Underline the correct answer.

1. Consider the following statements.

   I. ICT scope one (1) stands for any entity that processes or communicates digital data.
   II. ICT scope two (2) stands for any entity that processes or communicates data in any form.
   III. ICT scope three (3) stands for devices or techniques that apply knowledge to complete a particular task.

Which of the above statements regarding ICT scope is/are correct?

(a) (I) Only.	(b) (II) Only.	(c) (I) and (II) Only.
(d) (II) and (III) Only.	(e) (I), (II), and (III) Only.	

2. Which of the following statement(s) is/are correct regarding ICT4D?

(a) In ICT4D, the primary objective is to provide access to information technology and force people to use technology-based solutions.
(b) ICT4D is the application of any entity that processes or communicates digital data to deliver some part of the international development agenda in a developing country.
(c) It includes ICT scope one (1) and development scope three (3).
(d) It looks into different strategies for reengineering community processes to create suitable business models.
(e) It is a computer science specialization that looks into the use of computers in communities.

3. Identify the correct statement regarding the role of ICT under the "***Dependency***" development paradigm.

(a) ICTs are not central and can deliver either sustainable and just or unsustainable and unjust development, depending on the type of application.
(b) ICTs transferred from the global north have a central role in delivering economic growth and new cultural values.
(c) ICTs transferred from the global north could be exploitative, and greater emphasis should be on the local development of ICTs, which would have a central role in economic growth.
(d) ICTs are not central, but locally appropriate digital applications could deliver social and other developmental outcomes for those on the lowest incomes.
(e) ICTs are not central but are carriers of discourse and sites for exclusive and alternative development approaches.

4. Identify the dimensions of the design reality gap.

(a)	Input
(b)	Information
(c)	Processes
(d)	Objectives and Outcomes
(e)	Management Systems and Structures

5. ..... are the people who actively seek novelty and are eager to experiment with cutting-edge technologies.

(a) Innovators	(b) Late Majority	(c) Early Majority
(d) Early adopters	(e) Laggers	

6. Consider the following matrices.

I. Life expectancy at birth
II. Knowledge
III. Expected years of schooling
IV. Average years of schooling
V. Gross Domestic Productivity (GDP)

Which of the above matrices is/are used as an indicator in the **Human Development Index (HDI)**?

(a) (I), (II), (III) Only.	(b) (I), (II), (III), (IV) and (V).	(c) (I), (III), (IV) Only.
(d) (I), (III), (IV), (V) Only.	(e) (III) and (IV) Only.	

7. The individuals who benefited from the outputs of ICTs but who do not directly use the ICT are known as

(a)	Intermediate Consumers.
(b)	Passive Consumers.
(c)	Active Users.
(d)	Enablers.
(e)	Creators.

8. Consider the following attributes.

I. Appropriateness of presentation
II. Availability
III. Relevance
IV. Openness
V. Completeness
VI. Reliability

Which of the above criteria is/are necessary for the data quality in ICT4D?

(a) (I), (II), (IV), and (VI) Only.
(b) (I), (III), (IV), and (V) Only.
(c) (I), (II), (III), (IV), (V) and (VI).
(d) (I), (III), (IV), (V) and (VI) Only.
(e) (I), (II), and (III) Only.

9. Consider the following statements.

I. Building costly and high-end software solutions to increase digital literacy among communities will provide a solution to bridge the digital divide.
II. Socioeconomic status and Age are two contributing factors to Digital Divide.
III. The digital divide is the gap between those who can engage in a knowledge society and those who cannot.

Which of the above statements regarding Digital Divide is/are correct?

(a) (I) and (II) Only. (b) (II) Only. (c) (I) and (III) Only.
(d) (II) and (III) Only. (e) (I), (II), and (III) Only.

10. Consider the following statements.

I. Goals are the high-level objectives to which development intervention is intended to contribute.
II. Outcomes are the products and services resulting from the completion of the activities.
III. Outputs are short-term or medium-term effects of an intervention outcomes.

Which of the above statements is/are correct regarding the goals, outcomes, and outputs?

(a) (I) Only. (b) (II) Only. (c) (I), and (III) Only.
(d) (I), and (II) Only. (e) (I), (II), and (III)

Question 2

(a) The ICT4D value chain highlights the process of achieving development through different inputs. Identify the **four (04)** domains and **six (06)** sub-elements of the ICT4D value chain and draw a diagram to denote their relationships.

[12 Marks]

(b) Briefly explain one of the domains you identified above with an example.

[04 Marks]

(c) Indexes are available to assess the readiness before initiating an ICT4D project. List **three (03)** quantitative indexes that emerged over time and were used to measure readiness.

[03 Marks]

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(d) The World Economic Forum **Network Readiness Index (NRI)** is a multidimensional index used to incorporate qualitative measures into the assessment. Briefly explain the NRI and its key attributes.

[06 Marks]

(e) The technological foundations of ICT4D are best understood as a series of layers, building one over another. List down the **five (05)** layers of the technological foundations of ICT4D.

[05 Marks]

Question 3

Read the given case study and answer the questions below.

Mobiles and fishermen in Kerala, India (Jenson, 2007)

Before the advent of mobile phones, fishermen in Kerala would land their catch at a particular market (there were several markets along the coast) and try to get the best price. But if other fishermen had chosen the same market or there were few buyers, they might get a poor price and have to throw away unsold fish. Their main problem was information failure: they did not know prices and demand at other markets. With mobile phones, the fishermen would call ahead to different fish markets along the coast, and, as a result, they saw their earnings increase by an average of Rs.205 per day. Most people assume this was because the fishermen were getting a higher price for their fish, but that was not so: the average price per kg of fish actually fell. The increased revenue arose because the fishermen identified markets with higher demand, so they sold more and wasted less of their catch. Less waste meant a higher supply of fish, and the price fell per the laws of supply and demand.

Reference

Jensen, R. (2007). The digital provide: Information (technology), market performance, and welfare in the South Indian fisheries sector. The quarterly journal of economics, 122(3), 879-924.

(a) As given in the case study, one of the key issues faced by producers like fishermen, farmers, and other small enterprises is "**information failure**," a shortcoming around the information that hampers productivity and, hence, wider economic growth. List down the **five (05)** main categories of information failures.

[05 Marks]

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(b) Define the term **"Digital Divide"** and explain the technical and social divisions that can exists between the actors of the above case study.

[05 Marks]

(c) Briefly explain the concept of **"Digital Provide"** using the above case study.

[05 Marks]

(d) Identify the **four (04)** levels of ICT4D-enabled change.

[04 Marks]

(e) Briefly explain the intensive and extensive application of ICTs in economic development with suitable examples.

[06 Marks]

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Question 4

Poverty is one of the main problems in the world. Poverty is a state or condition in which a person or community lacks the financial resources essential for a minimum standard of living. In many countries, ICT has been used to support the poor and as a mechanism to eradicate poverty. Impact sourcing is one such method used to support the poor people with low incomes.

(a) Briefly explain the term **impact sourcing** with a real-world example.

[04 Marks]

(b) Explain the **"Gini Coefficient".**

[03 Marks]

(c) The SDGs are formed to address social, economic, and environmental issues and ensure that all people enjoy prosperity by 2030. List down the **two (02)** sustainable development goals related to eradicating poverty and inequality.

[04 Marks]

(d) Propose an ICT-based initiative that can be used to eradicate poverty other than impact sourcing.

[04 Marks]

(e) Explain the importance of hybrid ICT4D management using the above proposed initiative.

[05 Marks]

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(f) Most ICT-based initiatives aimed at solving development and community problems failed due to many reasons.

(i). Explain what is meant by a total failure with an example.

[02 Marks]

(ii). List down the **three (03)** types of partial failures.

[03 Marks]

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