



FACULTY OF SCIENCE

**ACADEMY FOR COMPUTER SCIENCE AND
SOFTWARE ENGINEERING**

MODULE IT8X031 – CYBER-SOCIAL COMPUTING

CAMPUS APK

EXAM NOVEMBER 2020

DATE: xx NOVEMBER 2020

SESSION 08:30 – 10:30

ASSESSOR(S)

PROF M COETZEE

EXTERNAL MODERATOR

DR A DA VEIGA (UNISA)

DURATION: 2 HOURS

MARKS: 80

NUMBER OF PAGES: 3 PAGES

INSTRUCTIONS: Answer all questions.

QUESTION 1

Consider the following statement:

If two people in a social network have a friend in common, then there is an increased likelihood that they will become friends themselves at some point in the future.

Answer the following questions. Use examples in your answers.

- a) Describe the network principle that supports this statement. (5)
- b) Describe the network measure (metric) that supports this principle. (5)
- c) Discuss the link between the structural property, local bridges, and the interpersonal property of weak ties supporting the argument that social ties connect us to new sources of information and new opportunities. (10)

[20]

QUESTION 2

There are four basic types of network models commonly found in the literature.

- a) Discuss the properties that a model of a social network should have. (4)
- b) Review each of the four basic types of network models and identify which one suits a social network the best. (16)

[20]

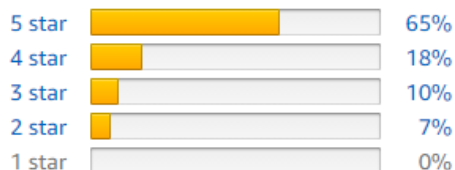
QUESTION 3

- a) Differentiate between a reputation system and a recommendation system by providing a definition of each and highlighting the differences between these types of systems. (4)
- b) Product ratings need to be protected against unfair ratings and bad behaviour of raters. Discuss the protection measures that can be used. (6)
- c) A seller of products always behaves well and builds a good reputation. One day, out of the blue, the seller behaves maliciously and does not deliver large orders that have been paid for. How can users be protected against such sellers? (2)
- d) Given the following ratings for a product on Amazon. Describe all possible factors that will influence the calculation of the rating score and its accuracy. (8)

Customer reviews

★★★★☆ 4.4 out of 5

41 global ratings



[20]

QUESTION 4

There are four users who have rated two movies. The data includes four users **Sue**, **Bill**, and **Chris** who have rated two movies. **Dave** has only rated the first movie. The ratings are stored in lists, and each list contains two numbers indicating the rating of each movie:

Ratings by **Sue** are [1.0, 2.0].

Ratings by **Bill** are [2.0, 4.0].

Ratings by **Chris** are [2.5, 4.0].

Ratings by **Dave** are [4.5, **xx**].

Comprehensively discuss a method that you would use to predict the rating that Dave would give to the second movie, indicated by xx in the last list. **[20]**