

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT) 25

ORGANISATION OF ISLAMIC COOPERATION (OIC)

Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION

WINTER SEMESTER, 2022-2023

DURATION: 1 HOUR 30 MINUTES

FULL MARKS: 75

**CSE 4531: E-Commerce and Web Security****Programmable calculators are not allowed. Do not write anything on the question paper.**

Answer all 3 (three) questions. Figures in the right margin indicate full marks of questions whereas corresponding CO and PO are written within parentheses. The symbols have their usual meanings.

1. a) Define crawling and describe its importance. With a brief description, list the factors that can hinder the process of crawling. 7 + 6  
(CO1)  
(PO1)
- b) Why is HTTPS better than HTTP? 4  
(CO1)  
(PO1)
- c) Shafin created an E-Commerce website for shoes. He adapted several techniques to ensure that the website is shown on the first page returned by any search engine when someone searches for shoes. 8  
(CO2)  
(PO2)
- Shafin got his website verified and installed an SSL certificate. He used the keyword 'shoes' in numerous places on the website, adding texts like: "Shoes are available on this shoe purchasing website", "Here shoes are new", "shoes are cool", "shoes are colorful", "shoes are different", etc. He also added some texts containing the keyword and set their text color to white. Shafin keeps the website updated by adding new shoes for the users to purchase. He thought that if a user is looking to purchase shirts or pants, they might be interested in buying shoes as well. For that reason, he also added some additional keywords so that if a user searches for 'shirts' or 'pants', they are directed to his website, even though he does not sell them. He used Schema Pro to cater to specialized search queries. For example, showing snippets of shoes from brand X, when the user searches for 'X shoes'. At the same time, Shafin paid some other website owners and asked them to add a link to his website on their pages.
- After the launch of the website, it ranked top among the search results in various search engines. However, after a while, the website disappeared from the search results. With proper justification, identify the reasons why such a thing might have occurred.
2. a) Differentiate among Domain Name, Domain Name System (DNS), and Uniform Resource Locator (URL). 3  
(CO1)  
(PO1)
- b) Rafin invested all of her savings in a new E-Commerce business in Silicon Valley. Her business is going well and she intends to expand it which requires further investments. To that extent, she went to Elon Musk, the richest person in the world, and asked him to invest in her business. Intrigued by her expansion proposal, he promised to invest 100 million USD. In return, Mr. Musk will get an equity share in the stock of her business. Rafin also went to Ms. Zafrin, who manages the funds of Warren Buffet, to request her for funds. Considering Mr. Musk already invested in Rafin's business, Ms. Zafrin also gave her a cheque for 50 million USD from the funds of Mr. Buffet. Rafin got overwhelmed by the financial support. She needed some directions on how to manage the investments properly. She sought the help of a company named 'Y Combinator', which provided her with an array of services to manage her finances and funding of 1 million USD. 8  
(CO2)  
(PO2)

With a brief justification, identify the types of raising capital that are mentioned in the given scenario.

- c) Through the help of 'Y Combinator', Rafin figured out that she requires lots of processing power and storage to expand her business. One of the ways to do it is to buy lots of processors and hard drives, which require a huge amount of money. However, Rafin finds it difficult to justify this huge cost to the investors. 8 (CO2) (PO2)

Recommend an alternative technology for Rafin to lower the costs. Mention the characteristics and the services that the technology provides.

- d) While selecting a business strategy, a person can have multiple options, such as Differentiation and Cost Competition. As an E-Commerce specialist, recommend a proper strategy for a new business. 5 (CO1) (PO1)

3. a) Discuss the five sub-types of the Customer Retention Strategy. 5 (CO1) (PO1)

- b) Discuss three exploits that can be used to manipulate results returned by a search engine. 6 (CO1) (PO1)

- c) Mr. Muffin has agreed to pay  $X$  Bangladeshi Taka (BDT) as Cost Per Mile (CPM) to an agency to display his advertisement on various websites. The agency ran the advertisement and it was served  $Y$  times. Here,  $X$  is the year of your birth and  $Y$  is your student ID. 5 (CO1) (PO1)

Calculate the total amount of money that is needed to be paid by Mr. Muffin.

- d) After clicking on the advertisement of Mr. Muffin, a user is directed to a website for selling muffins. Generally, a visitor spends around 5-10 minutes on average exploring the website before closing the tab. For every 1000 visitors, 200 of them actually make some purchases. The purchasers tend to view around 60 types of muffins and add 30 of them to their carts. During the checkout, they often remove some muffins from the cart and end up purchasing around 10 muffins. Usually, 60% of the first-time purchasers continue to buy muffins from the website on a regular basis. 10 (CO2) (PO2)

With a proper justification, identify the Display Ad Metrics from the given scenario.