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ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION
DURATION: 1 HOUR 30 MINUTES

SUMMER SEMESTER, 2021-2022
FULL MARKS: 75

HUM 4441: Engineering Ethics

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.

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1. Michael Scott is a software engineer at Dunder Mifflin. His main job is developing softwares. One day, while his colleague Creed Bratton (Quality Assurance Engineer) was out sick, Michael finalised a module without any confirmation from Creed. The software turned out to be slowing down devices. There was chaos within the company. Dwight Schrute, who is Assistant to the regional manager found out that it was Michael's fault and he told the manager. When accused, Michael denied his mistakes.
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| a) Analyse the mistakes Michael made concerning the NSPE codes and identify the codes he breached. | 10
(CO3)
(PO8) |
| b) Classify the type of whistle-blowing that Dwight engage in. | 4
(CO2)
(PO7) |
| c) Evaluate the necessity of whistle-blowing for Dwight with the four conditions required. | 6
(CO2)
(PO7) |
| d) Explain the role of the manager in preventing whistle-blowing in the first place. | 5
(CO2)
(PO7) |
2. a) The case of "The City of Albuquerque vs. Isleta Pueblo" involves the Isleta Pueblo, a well-known sovereign Indian tribe located in Albuquerque, New Mexico. The Pueblo is concerned about the high concentration of arsenic in the Rio Grande, which they use for drinking during religious ceremonies. They seek to enforce a stricter water quality standard, which is twice as stringent as the EPA regulations, for the water discharged by Albuquerque. The EPA sides with Pueblo, citing federal law giving Indian reservations the right to set their own pollution standards. The city of Albuquerque argues that Pueblo's standards are too strict, unnecessary, and a violation of the First Amendment's prohibition of government-established religion. The case was taken to the U.S. Supreme Court, but the court turned down Albuquerque's appeal and allowed the new EPA arsenic standards based on Isleta's requirements to stand. The city and other similarly affected municipalities are seeking federal aid to meet these new standards, which are of interest to many other states and municipalities in the west.
- Show the perspectives of utilitarianism, rights and duty ethics, and virtue ethics about the case.
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| b) Is there an ethical obligation to ensure that the information you post on your Internet website is accurate and true; or, is it up to the Web user to be discriminating and to realize that some material might not be accurate? Present your argument based on ethical theories on the usage of computers. | 8
(CO1)
(PO6) |
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c) Should computer and software designers be concerned about the possible abuse of their products? Should designs incorporate methods for preventing the misuse of computers? Evaluate with proper justification. 8 (CO2) (PO7)

3. a) Late in 1994, reports began to appear that the latest generation of Pentium microprocessors was flawed. The stories reported that computers equipped with these chips were unable to correctly perform some relatively simple multiplication and division operations. At first, Intel, the manufacturer of the Pentium microprocessor, denied that there was a problem. Later, it argued that although there was a problem, the error would be significant only in sophisticated applications, and most people wouldn't even notice that an error had occurred. It was also reported that Intel had been aware of the problem and already was working to fix it. As a result of this publicity, many people who had purchased Pentium-based computers asked to have the defective chip replaced. Until the public outcry had reached huge proportions (The New York Times), Intel refused to replace the chips. Finally, when it was clear that this situation was a public relations disaster for them, Intel agreed to replace the defective chips when customers requested it. 20 (CO3) (PO8)

Analyze the situation using the Line Drawing Technique to find out if what Intel did was ethical or not. Use the following cases to populate the line:

- There is a flaw in the chip, but it truly is undetectable and won't affect any customer's applications.
- There are flaws in the chip, the customer is informed of them, but no help is offered.
- A warning label says that the chip should not be used for certain applications.
- Recall notices are sent out, and all flawed chips are replaced.
- All allegations are denied and the company refuses to replace anything as it has already been bought.
- Replacement chips are offered only if the customer notices the problem.

b) A company sales representative would like you to attend a one-day sales seminar in Dhanmondi. Your company will pay for your trip. Is this considered a bribe? How about if the meeting is in Switzerland? What if the sales representative's company is going to cover your travel expenses? What if your family is invited as well? 5 (CO2) (PO7)

Compare all the cases and identify the bribes and gifts.