



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020**

COURSE NAME : COMPUTER, ETHICS & SOCIAL
COURSE CODE : BIT 21002
PROGRAMME CODE : BIT
EXAMINATION DATE : JULY 2020
DURATION : 2 HOURS
INSTRUCTION : 1. ANSWER ALL QUESTIONS.
2. PLEASE MAKE SURE TO CLICK
"SAVE ANSWER" BUTTON FOR
SUBJECTIVE QUESTIONS.
OBJECTIVE QUESTIONS ARE
SAVED AUTOMATICALLY.

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1** (a) Define each of the following malware and give a real-world example to show the severity of its threat.
- (i) Virus (3 marks)
 - (ii) Worm (3 marks)
 - (iii) Trojan Horse (3 marks)
- (b) Explain **TWO (2)** ways to ensure that all the data stored in the database of Jabatan Pendaftaran Negara (JPN) are free from errors. (4 marks)
- (c) Describe an example scenario in which computer simulations can be used to fight infectious diseases such as the Novel Corona Virus (COVID-19) (2 marks)
- Q2** (a) “Apple and Samsung have finally put an end to their long-running patent battle whose central question was whether Samsung copied the iPhone. In a court filing today, Judge Lucy Koh said the two companies had informed her that they had reached a settlement. Terms of the settlement were not disclosed.”
- (i) Discuss **ONE (1)** reason, why Apple and Samsung as smartphone manufacturers need to patent their products. (2 marks)
 - (ii) Suggest and explain **ONE (1)** example of a patent that can be granted when designing a smartphone. (3 marks)
 - (iii) Suggest **THREE (3)** lessons that can be learnt from the Apple vs Samsung patent cases. (6 marks)

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- (b) “A British manufacturer of biscuits has been selling cookies in Malaysia for more than 20 years, and has had a registered trade mark 'ChipsMore' for these goods during that time. Two years ago a Malaysian company started manufacturing and selling cookies under the brand 'ChipsPlus'.”

Suggest and explain **ONE (1)** suitable action to be taken by the British manufacturer in order for them to protect their product.

(4 marks)

- Q3** (a) SERENARNYA MY portal, developed by the Malaysian Communications and Multimedia Commission (MCMC) is a one-stop center for Malaysians to check on the authenticity of news content received online through social media platforms, instant messaging services, blogs, websites, and others before sharing. This portal is expected to curb the spread of false news online which can affect the people and country.

Source: malaysia gov my

- (i) Discuss **TWO (2)** immediate actions you can do when encountering a fake news story.
(4 marks)
- (ii) Analyze the action of spreading a fake news story using any Utilitarian theory.
(4 marks)
- (b) Explain a method to assure software quality.
(3 marks)
- (c) Discuss **TWO (2)** latest technologies to secure computers and networks.
(4 marks)

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Q4 (a) Questions Q4(a)(i)-Q4(a)(v) are based on Figure Q4(a).

U.S.A, March 6 – An uncrewed test flight of Starliner, a Boeing spacecraft designed to carry NASA astronauts, could have ended in disaster in December because of lapses that allowed software errors to slip through undetected and unfixed before the spacecraft launched, according to a review by NASA and Boeing that was announced on Friday. The review team made 61 recommendations for fixes and improvements. Some recommendations were specific, such as changes to the software testing procedures. Others addressed possible blind spots in how the program was managed. The Starliner spacecraft, launched on top of an Atlas 5 rocket on Dec. 20, encountered two major software issues during its flight. The first occurred minutes after it separated from the rocket, because the clock had been set wrong. That led to the spacecraft squandering its propellant, and a planned docking at the International Space Station was called off. A second flaw would have fired the wrong thrusters as Starliner was preparing for re entry. Because Boeing engineers hastily combed through the Starliner software in the aftermath of the clock problem, they found the second problem and fixed it. If it had not been fixed, two pieces of Starliner – the capsule that returns to Earth and the service module, which is discarded – might have collided. The capsule might have tumbled and burned up in the atmosphere instead of landing safely in White Sands, N.M.

Figure Q4(a)

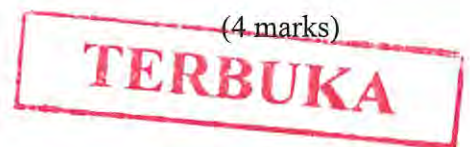
- (i) Describe **TWO (2)** possible causes of system failure in a safety-critical application? (2 marks)

- (ii) Explain **ONE (1)** known fact about computer errors that should justify the 61 recommendations made by the review team. (2 marks)

- (iii) “After learning of the 61 recommendations, the Boeing software engineer team who is responsible for fixing the software decided to only address half of the recommendations while making a false declaration that all of the recommendations have been addressed.”

Describe **TWO (2)** principles from The Software Engineering Code of Ethics and Professional Practice that they might have violated.

(4 marks)



- (iv) Suggest and explain a principle from The Software Engineering Code of Ethics and Professional Practice that the software manager might have violated if he allows **Q4(a)(iv)** to happen. (3 marks)
- (b) Discuss **TWO (2)** important aspects to consider when deciding whether to blow the whistle. (4 marks)

- END OF QUESTION -

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