

Answer any THREE of the five questions.

Each question is worth 20 marks – Total 60 marks.

1. a) Define the term ethics and identify two philosophers who have contributed to its development. (3 marks)

b) Explain, using an example of each category, the difference between negative rights and positive rights. (4 marks)

c) Illustrate your understanding of ethical issues by choosing an IT related story from the past 12 months. Write four paragraphs on the story that- introduces the topic and gives a the background to the story;- identifies the relevant positive/negative rights;- summarises the ethical issues and the responsibilities of the parties affected by the story;- provides a conclusion to guide future cases. (13 marks)

2. a) Explain how the RSA public key system can be used to provide secure multi user encryption of emails, files and other personal data based on the mathematics of prime numbers. You should give details of how the public key is constructed, the related (secret) private key, processes for encryption and decryption and how the underlying mathematics provides cryptographic security. (7 marks)

b) What are the two things that a digital signature is designed to address? (You are not asked to describe the system in detail). (2 marks)

c) Public key systems like RSA give individual citizens the ability to access secure encryption that is unbreakable by government agencies. Write three paragraphs outlining the issues that this raises:

- one paragraph should cover the benefits of public key systems;
- one paragraph should summarise risks and concerns;
- the third paragraph should give your personal views on whether/how much governments should seek to limit secure encryption for their citizens. (11 marks)

3. a) List six fair information procedures that a business should adhere to when considering collecting, processing and storing the personal data of its contacts and customers. (6 marks)

b) New General Data Protection Regulations (GDPR) come into force in May 2018. summarize the main changes that GDPR introduces when compared to previous legislation including any new rights created and any new obligations on business and organizations. (6 marks)

c) A small business which is dependent on social media for marketing and communicating with its customers is concerned about the implications of the new GDPR legislation and has asked for your advice. How would you suggest that they prepare for the new expectations of the 2018 regulations? (8 marks)

4. a) Explain the difference between the terms copyright, trademark and patent giving an example of a product that would receive protection under each of these three ways to protect intellectual property. (8 marks)

b) Explain the concept and limitations of fair use as it applies to the reuse of copyright materials without the need for licensing. (3 marks)

c) Summarise the issues raised by the legal challenge by Oracle claiming that Google breached copyright law in its development of the Android Operating System. Write three paragraphs summarising the background to the case, its implications and the reasons why the US Federal Appeal Court overturned a previous ruling that Google's use of code was covered by 'fair use' provisions. (9 marks)

4. a) Explain the difference between the terms copyright, trademark and patent giving an example of a product that would receive protection under each of these three ways to protect intellectual property. (8 marks)

b) Explain the concept and limitations of fair use as it applies to the reuse of copyright materials without the need for licensing. (3 marks)

c) summarize the issues raised by the legal challenge by Oracle claiming that Google breached copyright law in its development of the Android Operating System. Write three paragraphs summarizing the background to the case, its implications and the reasons why the US Federal Appeal Court overturned a previous ruling that Google's use of code was covered by 'fair use' provisions. (9 marks)

5. a) What are the three offences introduced into the 1990 Computer Misuse Act that target computer hacking? (4 marks)

b) In what way would the creation and/or dissemination of a computer worm or virus breach the provisions of the act? (2 marks)

c) i) List the main ways in which computers and mobile devices can be used to facilitate identity theft. (3 marks)

ii) In what ways can software and systems protect users against identity theft? (3 marks)

d) Summarize the potential benefits and dangers of White Hat or Ethical Hacking and describe any ethical principles that cover this activity. (8 marks)