

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2012/ 2013**

COURSE NAME : NETWORK AND DATA COMMUNICATION
COURSE CODE : BIT 2073 / BIT 20703
PROGRAMME : 2 BIT
EXAMINATION DATE : JUNE 2013
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

CONFIDENTIAL

SECTION A

- Q1** A crossbar switch having n input lines and n output lines (i.e. n full duplex lines) has _____ number of intersections.
- (A) n
 - (B) $2n$
 - (C) n^2
 - (D) $2n^2$
- Q2** In Cyclic Redundancy Check (CRC), there is no error if the remainder at the receiver is _____.
- (A) equal to the remainder at the sender
 - (B) zero
 - (C) non zero
 - (D) is equal to the quotient at the sender
- Q3** Which of the following are the smallest and largest possible values for an IP octet?
- (A) 0 and 512
 - (B) 255 and 512
 - (C) 0 and 256
 - (D) 0 and 255
- Q4** Router operates in _____.
- (A) Data Link Layer
 - (B) Network Layer
 - (C) Transport Layer
 - (D) All of the above
- Q5** _____ is an example of IP address in B class.
- (A) 125.123.123.2
 - (B) 191.023.21.54
 - (C) 192.128.32.56
 - (D) 10.14.12.34

- Q6 Which of the following is a basic service of the transport layer?
- (A) Provides reliability by using sequence numbers and acknowledgments
 - (B) Segments upper-layer application data
 - (C) Establishes end-to-end operations
 - (D) All of the above
- Q7 The presentation layer of OSI model deals with _____.
- (A) routing algorithms
 - (B) manages data format information
 - (C) token management
 - (D) All of the above
- Q8 The process of transferring a packet from the source host to the destination host or to the relaying router is called _____.
- (A) Fixed Routing
 - (B) Dynamic Routing
 - (C) Local Routing
 - (D) Distributed Routing
- Q9 A set of networks interconnected by routers within a specific area using the same routing protocol is called a _____.
- (A) domain
 - (B) backbone
 - (C) inter-domain router
 - (D) All of the above
- Q10 The data link layer encapsulates each packet in a frame by adding _____.
- (A) a header
 - (B) a trailer
 - (C) Both (A) and (B)
 - (D) None of the above

SECTION B

Q11 Traditionally there are 3 methods of switching: Circuit switching, packet switching and message switching.

(a) Briefly explain circuit switching. Use diagram to support the answer. (4 marks)

(b) Draw a space-division three-stage switch using the following attributes:

There are 21 inputs and 24 outputs.

Stage 1 has 3 switches, stage 2 has 2 switches and stage 3 has 4 switches. (6 marks)

Q12 This Hamming Code data 11011100101 is received by a receiver.

(a) Show all workings to prove whether the data received is correct or corrupted? (8 marks)

(b) If correct, what is the original data sent? If corrupted, which position of its bit is corrupted? (2 marks)

Q13 (a) Outline the criteria of IP address classes (A, B, C, D, and E) found in a classful addressing. (15 marks)

(b) Change the following IP addresses from binary notation to dotted-decimal notation.

(i) 10101111 11000000 11111000 00011101

(ii) 11011111 10110000 00011111 01011101

(4 marks)

Q14 Compare Local Area Network (LANs) and Wide Area Network (WANs). Provide **FOUR (4)** major differences between these networks. Sketch the diagram to support your answer.

(10 marks)

Q15 Answer the following questions on transport layer:

- (a) Name **TWO** (2) well known data transport protocols provided by the Transport Layer. (2 marks)

- (b) By referring to **Q15 (a)**,
 - (i) Provide a brief description of each protocol. (4 marks)

 - (ii) Indicate what type of application uses these protocols. (2 marks)

- (c) Explain the term end-to-end delivery in transport layer protocol. (4 marks)

SECTION C

Q16 The Classical Academy has acquired a Class C address, 192.168.1.0 and needs to create subnets to provide low-level security and broadcast control on the LAN. The LAN consists of the following, each of which will require its own subnet:

- Classroom #1: 28 nodes
- Classroom #2: 22 nodes
- Computer lab: 30 nodes
- Instructors: 12 nodes
- Administration: 8 nodes

Given the above Class C network address and the requirements, answer the following questions:

(a) How many subnets are needed for this network? (1 mark)

(b) What is the subnet mask for this network in the following format?
 (i) Dotted decimal
 (ii) Binary
 (iii) Slash format (3 marks)

(c) How many usable hosts per subnet? (1 mark)

(d) Complete the following **Table 1**.

Table 1: Subnetwork

Subnetwork No.	Subnetwork IP	Host Range	Broadcast ID

(10 marks)

- Q17** You work for a small advertising company with 50 employees. The office room is square and approximately 35 meters at each side. Each wall has two entrances equally spaced apart. Scattered around the company are a number of separate computer workstations that perform operations such as word processing, graphic design, spreadsheet, and market analysis. Your boss has asked you to consider installing some form of local network to support computer operations.
- (a) Create a list of possible computer applications that could operate over local area network and would support employee and business daily functions. (3 marks)
 - (b) What type of local area network might you suggest? (2 marks)
 - (c) Propose additional equipments needed to implement this network. (4 marks)
 - (d) Draw a network diagram showing the structured cabling for the room with the proposed additional equipments in **Q17 (c)**. (5 marks)

- **END OF QUESTION** -



**UNIVERSITI TEKNOLOGI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER II
SESSION 2012/2013**

COURSE NAME : PROFESSIONAL ETHICS & WORK SAFETY
COURSE CODE : BIC 21102
PROGRAMME : 2 BIP/BIS/BIW/BIM
EXAMINATION DATE : JUNE 2013
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS.

THIS QUESTIONS PAPER CONSISTS OF SEVEN (7) PAGES

SECTION A

- Q1** What term is used to describe a high-speed Internet connection, such as a cable modem or a DSL modem, that is at least 10 times faster than a dial-up Internet connection?
- (A) broadband
 - (B) hypertext
 - (C) Internet2
 - (D) the Matrix
 - (E) World Wide Web
- Q2** The first popular personal computer with a graphical user interface was the _____.
- (A) Apple Macintosh
 - (B) Compaq Presario
 - (C) IBM PC
 - (D) NeXT workstation
 - (E) Tandy TRS-80
- Q3** Listed below are categorized as Ergonomic Hazards **EXCEPT** _____.
- (A) air temperature too hot/cold, low relative humidity
 - (B) offshore duty roster
 - (C) too bright/dim
 - (D) uncomfortable workstation
 - (E) manual lifting
- Q4** The long term goal of OSHA 1994 is to _____.
- (A) promote high standard of safety and health at work in Malaysia
 - (B) create a healthy and safe working culture and environment in Malaysia
 - (C) stimulate high standard of safety and health at work
 - (D) encourage a healthy and safe working culture and environment in Malaysia
 - (E) encourage high standard of health and safety at work
- Q5** "Supply information related to safety and risk" is one of general duties of _____.
- (A) suppliers
 - (B) importers
 - (C) designers
 - (D) manufacturers
 - (E) all of the above

- Q6** A blog is _____.
- (A) a character in Lineage, a popular on-line game
 - (B) a personal journal kept on the Web
 - (C) a person who assumes a false identity in a chat room
 - (D) a special symbol visible on displays that show Unicode characters
 - (E) the Web version of a “couch potato.”
- Q7** Which of the following statements is **TRUE** about acute effects?
- (A) It is caused by short period of exposure (e.g. in seconds or minutes) to high concentrations of a substance
 - (B) It is caused by long period of exposure (e.g. in hours) to high concentrations of a substance.
 - (C) It is caused by long-term effects by repeated or prolonged exposure of a substance.
 - (D) Involve with relatively low levels of a substance
 - (E) Exposure to mineral oil
- Q8** Sometimes it is legal to reproduce a copyrighted work without the permission of the copyright holder. These circumstances are called _____.
- (A) fair use
 - (B) noncommercial use
 - (C) piracy
 - (D) public domain
 - (E) reciprocity
- Q9** Which of the following is **NOT** a right of a copyright holder?
- (A) The right to reproduce the copyrighted work.
 - (B) The right to distribute the work to the public.
 - (C) The right to perform the work in public.
 - (D) The right to prevent others from producing competitive works.
 - (E) The right to produce new works derived from the copyrighted work.
- Q10** Ethics is _____.
- (A) a rational examination of people’s moral beliefs
 - (B) a branch of philosophy
 - (C) one way to determine which activities are “good” and which are “bad.”
 - (D) a field of study more than 2,000 years old.
 - (E) All of the above

- Q11** The proper noun “Kleenex” is protected _____.
- (A) as a trade secret
 - (B) with a trademark
 - (C) with a patent
 - (D) with a copyright
 - (E) all of the above
- Q12** A piece of self-replicating code embedded within another program is called a _____.
- (A) hack
 - (B) rogue
 - (C) Trojan horse
 - (D) virus
 - (E) worm
- Q13** A program with a benign capability that conceals another, sinister purpose is called a _____.
- (A) hack
 - (B) rogue
 - (C) Trojan horse
 - (D) virus
 - (E) worm
- Q14** An intentional action designed to prevent legitimate users from making use of a computer service is called _____.
- (A) a bombing run
 - (B) a curtain closer
 - (C) a denial-of-service attack
 - (D) an electronic overdose
 - (E) phreaking
- Q15** The process giving someone the legal right to practice a profession is called _____.
- (A) certification
 - (B) licensing
 - (C) matriculation
 - (D) professional ethics
 - (E) professional development

- Q16** Which of the following is **NOT** one of the characteristics of a mature profession?
- (A) Code of ethics.
 - (B) Licensing.
 - (C) Mandatory drug testing.
 - (D) Mandatory professional development.
 - (E) Professional education.
- Q17** The Principles and Clauses in the Software Engineering Code of Ethics and Professional Practice _____.
- (A) address every ethical dilemma a software engineer may face
 - (B) provide algebraic formulas for determining the best course of action
 - (C) incorporate every relevant feature into the formulas
 - (D) All of the above
 - (E) None of the above
- Q18** You may find a virus _____.
- (A) on a hard disk
 - (B) on a floppy disk
 - (C) on a CD-ROM
 - (D) in an email attachment
 - (E) All of the above
- Q19** The volume of spam is increasing because _____.
- (A) companies have found it to be effective
 - (B) it is 100 times less expensive than a traditional flyer sent via mail
 - (C) some people respond to spam advertisements
 - (D) All of the above
 - (E) None of the above
- Q20** The process of determining that a user has permission to perform a particular action on a computer is called _____.
- (A) accountability
 - (B) authentication
 - (C) authorization
 - (D) debugging
 - (E) social engineering

(20 marks)

SECTION B

- Q21** (a) Define Intellectual Property (IP). (2 marks)
- (b) Outline **TWO (2)** conditions that still need to be fulfilled for a person while she / he has a right to the property in their own person and to their own labor. (4 marks)
- (c) Give **THREE (3)** differences between trademark and trade secret. (6 marks)
- (d) Based on the following scenario, propose **FOUR (4)** factors that need to be considered in determining fair use from the professor's perspective.

A professor puts a few journal articles on reserve in a library and makes them assigned reading for the class. Some students in the class complain that they cannot get access to the articles because other students always seem to have them checked out. The professor scans them and posts on his website. The professor gives the students in the class the password they need to access the articles.

(Quinn 2011, pp. 173)
(8 marks)

- Q22** (a) Define what is privacy. (2 marks)
- (b) Describe **FOUR (4)** functions of privacy. (8 marks)
- (c) Differentiate between personal information, public information and public records. (6 marks)
- (d) Compare **TWO (2)** types of censorships. (4 marks)
- Q23** (a) Give a brief definition of computer worm. (2 marks)
- (b) Compare computer viruses to computer worms. (8 marks)
- (c) Differentiate between Hackers and Malicious Hackers (4 marks)

- (d) Propose **THREE (3)** steps that can be done to prevent from hackers' attacks
(6 marks)

- Q24** (a) Explain **TWO (2)** reasons why computer-related career are not considered as a matured profession.
(4 marks)
- (b) Software engineers shall act consistently with the public interest. Outline **TWO (2)** principles related to the statement.
(4 marks)
- (c) Software engineers shall ensure that their products and related modifications meet the highest professional standards possible. Outline **TWO (2)** principles related to the statement.
(4 marks)
- (d) Based on client and employer principle; outline **TWO (2)** actions that must be taken if accidentally you found out that your client's PC contains child pornography materials.
(4 marks)
- (e) Outline **TWO (2)** reasons why some employees become whistleblower.
(4 marks)

-END OF QUESTION-