KABARAK   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

FOR THE CERTIFICATE OF PRE- UNIVERSITY COMPUTER

COURSE CODE: **PCOMP 011**

COURSE TITLE: **INTRODUCATION TO COMPUTER SCIENCE**

STREAM: **SEMESTER ONE**

DAY: **THURSDAY**

TIME: **2.00 – 4.00 P.M.**

DATE: **06/08/2009**

INSTRUCTIONS:

Section A is **compulsory** and has 30 (marks). Attempt **any TWO** questions from Section B. Each question has 20 (marks).

PLEASE TURN OVER

SECTION A

QUESTION ONE

a) What do the following initials stand for?

      (1) ROM (2) MICR (3) WAN (4) OCR.   (4 marks)

b) Give the names of TWO programming languages and for EACH of these two
   languages state the type of program (business, scientific, mathematical, etc.) for
   which it is used.   (4 marks)

c) 3½ inch floppy disks are relatively cheap but floppy disk drives are not always
   included in new PCs. Give TWO reasons why floppy disks have become less popular
   as a storage medium.   (2 marks)

d) Give the names of TWO portable, modern storage mediums that are used instead of
   floppy disks. For EACH of these mediums, give a reason why it is superior to a floppy disk.
                                             (4 marks)

e)   i) Explain briefly what email is.   (2 marks)

      ii) State ONE advantage **and** ONE disadvantage of email compared to
         ordinary letters.   (2 marks)

f) Sometimes emails are encrypted. What is encryption, and why is it used?   (2 marks)

g) People often receive junk email offering all kinds of wonderful things. What should people
   do with these junk emails? Give a reason for your answer.   (2 marks)

h) Define the term 'verification' and explain how this is done.   (2 marks)

i) The following are the main types of validation checks:-
      (1) Presence (2) Reasonableness (3) Character (4) Format (5) Field length (6) Check Digit
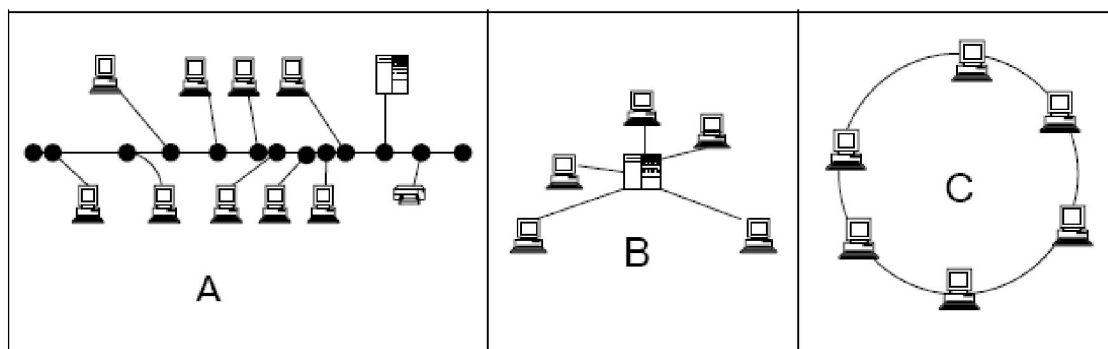
Copy and complete the table below stating which of the above checks are
the most appropriate to identify the error in EACH of the following
circumstances. You may omit the description (middle) column if you wish.   (6 marks)

Nos.	Description of error	Validation check
1	Address omitted from a student's records.	
2	Student number entered as 63463 instead of 36463	
3	Course level entered as Foundation rather than F	
4	Car number entered as XYZ1234 rather than 1234XYZ	
5	New student's date of birth entered as 12/8/1806	
6	Student's first name entered as ★ ★ ★ ★ rather than Jane	

SECTION B

QUESTION TWO

a) Access to a clothes shop's database must be restricted to authorized staff. Describe TWO software methods commonly used to prevent unauthorized access.   (4 marks)

b) Stored data may be destroyed by accident, machine malfunction or otherwise. What should the shop do so that the database can be restored if the data is destroyed?

(2 marks)

c) The database must be protected from virus attack.
   i) What is a computer virus?   (1marks)
   ii) What should the shop owner do so that the database is protected from viruses?

(2 marks)

d) The database required 600MB of disk space. Give the meaning of MB.   (1 mark)

e) Give a reason why a database is preferred to flat files.   (2 marks)

f) All the EPOS in the clothes shop are linked to a LAN network. Three possible topologies are shown below.

i) Copy and complete the following table by writing A, B, or C in the appropriate space.

Topology name	Star	Ring	Bus
Network			

(3 marks)

ii) What is a network fileserver?   (1 marks)

g) Each of the garments in the shop has a label with a printed pattern of 'zebra' stripes like that shown on the right.

i) What is the correct term for this pattern? (1 mark)
ii) What device reads this pattern? (1 mark)
ii) When this pattern is read at a checkout how does the EPOS know what price to charge?
(2 marks)

QUESTION THREE

Common office packages include: - Word processing, Spreadsheet, Database, Art and Presentation software. There are many versions of these office packages. Some Internet companies such as Google offer newer free online versions that allow several people to collaborate (work simultaneously) on a task and save their work on the Internet company's online server. One company also offers a free online project management package.

a) Which of these packages is most appropriate for the following tasks?
   i) Writing a text document.
   ii) Storing records
   iii) Producing a graph
   iv) Doing calculations
   v) Producing a slide show for a talk.
   vi) Drawing a sketch of a machine part. (6 marks)

b) People using the free online packages are identified by their email address and also need to enter a password.
   i) Explain why a password is required. (2 marks)
   ii) Give an example of how a group of students might find the online collaboration facility useful. (2 marks)
c) Give the names of FIVE items of hardware that are needed in order to use an online office package. (4 marks)

d) List FOUR tasks done by an operating system. (4 marks)
e) The operating system uses a Graphics User Interface (GUI). Explain why an inexperienced user might prefer a GUI to a command interface. (2 marks)

QUESTION FOUR

a) The table below lists six activities that could be carried out using a computer:-

Activity Number	Activity	Input Device
1	Copying a picture from a magazine so that it can be inserted into a word-processed document	
2	Selecting an item from a drop menu when word-processing	
3	Entering text when word-processing	
4	Drawing a diagram such as a flowchart	
5	Processing batches of cheques in a bank	
6	Marking multiple choice examinations	

Copy and complete this table by adding the name of a suitable input device. To save time you may omit the middle column if you wish.　　　　　　(6 marks)

b) Give the names of TWO output devices **and** for EACH of this output devices, give ONE example of a purpose for which it might be used.　　　　　　(4 marks)

c) What is a print buffer and why is this useful?　　　　　　(4 marks)

d) Describe EACH of the following computers.
　　　　i) Laptop.　　　　　　(2 marks)
　　　　ii) Mainframe.　　　　　　(2 marks)
　　　　iii) PC.　　　　　　(2 marks)

QUESTION FIVE

a) Define the following number systems
　　i)　　Binary
　　ii)　　Decimal
　　iii)　　Octal
　　iv)　　Hexadecimal　　　　　　(8 marks)

b) Perform the following conversions

　　i)　　$4732.1045_8 = X_{16}$
　　ii)　　$489623_{10} = X_2$
　　iii)　　$510.625_{10} = X_{16}$　　　　　　(6 marks)

c) Compute the following arithmetics
　　　　i) 453.36_8 Multiplied by 231.24_8
　　　　ii) 10110111 Multiplied by 1111
　　　　iii) 11001111 Divided by 111　　　　　　(6 marks)