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University Examinations 2013/2014

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR BACHELOR OF BUSINESS IN INFORMATION TECHNOLOGY

BBT 2206: MULTIMEDIA SYSTEMS AND APPLICATIONS

DATE: APRIL 2014   **TIME: 2HOURS**

INSTRUCTIONS: *Answer question **one** and any other **two** questions*

QUESTION ONE – (30 MARKS)

a) Define the term multimedia as applied in computer technology.   (2 marks)

b) Give the various multimedia elements.   (3 marks)

c) List and explain the three main multimedia domains.   (3 marks)

d) With the use of a diagram, explain the global structure of multimedia systems.
                                                                            (3 marks)
e) Discuss Nyquist Theorem and its application in sound recording.   (5 marks)

f) Distinguish the following terms:

   i.   Analogue v/s Digital   (4 marks)

   ii.   Quantisation v/s Sampling   (4 marks)

   iii. Aliasing v/s noise   (4 marks)

g) If a tree falls in the woods, and there is nobody nearby, does it make a sound?(2 marks)

QUESTION TWO (20 MARKS)

a) Your hard disk has 256Mbytes of free space. You are going to record a speech with a sampling rate of 11 KHz,8-bit resolution and a single channel. What is the length of the recording that can be stored in the hard disk?(Answer in seconds)   (4 marks)

b) A multimedia presentation has 30 minutes of CD-quality digital audio an.wav files. What is the storage required for these files? (4 marks)

c) You are developing a network voice communication program. It used the internet to connect two remote users and allows them to talk to each other in real time. What is the most appropriate sampling rate for recording their voice? (4 marks)

d) Give any four sound compression technologies available in the market today.
(4 marks)

e) Distinguish between digital audio and MIDI. (4 marks)

QUESTION THREE (20 MARKS)

a) Discuss the following terms as applied in digital imaging.
   i.   Pixel (2 marks)
   ii. Depth (2 marks)

b) Identify four ways of acquiring digital images (4 marks)

c) A bitmap image has a resolution of 640 x 480 pixels. Each pixel is 24-bit deep. What is the size of the bitmap in bytes? (4 marks)

d) Define the term vector graphics (2 marks)

e) Discuss the 3 popular languages for describing vector graphics. (6 marks)

QUESTION FOUR (20 MARKS)

a) Distinguish between the terms font and type face. (4 marks)

b) Briefly discuss the digitization of text. (4 marks)

c) Explain the meaning of the term encoding systems and give two examples.
(3 marks)

d) With the use of abounding box, illustrate the measurement of the type for the letter 'g'.
(3 marks)

QUESTION FIVE (20 MARKS)

a) Discuss the following visual representation phenomemon:
   i.   Persistence of vision (2 marks)
   ii. Phi phenomenon (2 marks)

b) Decipher the following acronyms:

      i.   SECAM   (2 marks)

     ii.   PAL   (2 marks)

    iii.   NTSC   (2 marks)

    iv.   HDMI   (2 marks)

c) Give the hardware required to capture video.   (4 marks)

d) Compare and contrast between video and animation.   (4 marks)