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**University Examinations 2014/2015**

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

**CIT 3303: MULTIMEDIA SYSTEMS AND APPLICATIONS**

**DATE: OCTOBER 2015 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Define the term multimedia as applied in computer technology. (2 Marks)
2. Give the various multimedia elements. (3 Marks)
3. List and explain the three main multimedia domains. (3 Marks)
4. With the use of a diagram, explain the global structure of multimedia systems. (5 Marks)
5. Discuss the Nyquist Theorem and its application in sound recording. (5 Marks)
6. Distinguish between the following terms:
7. Analogue v/s Digital. (4 Marks)
8. Quantisation v/s Sampling. (4 Marks)
9. Aliasing v/s noise. (4 Marks)

**QUESTION TWO (20 MARKS)**

1. Your hard disk has 256Mbytes of free space. You are going to record a speech with a sampling rate of 11KHZ, 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)
2. A multimedia presentation has 30 minutes of CD-quality digital audio an .wav files. What is the storage required for these files? (4 Marks)
3. You are developing a network voice communication program. It uses 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)
4. Give any four sound compression technologies available in the market today. (4 Marks)
5. Distinguish between digital audio and MIDI. (4 Marks)

**QUESTION THREE (20 MARKS)**

1. Discuss the following terms as applied in digital imaging:
2. Pixel. (2 Marks)
3. Depth. (2 Marks)
4. Resolution. (2 Marks)
5. Image. (2 Marks)
6. Identify four ways of acquiring digital images. (4 Marks)
7. Define the term vector graphics. (2 Marks)
8. Discuss the 3 popular languages for describing vector graphics. (6 Marks)

**QUESTION FOUR (20 MARKS)**

1. Distinguish between the terms font and type face. (4 Marks)
2. Briefly discuss the digitization of text. (4 Marks)
3. Explain the meaning of the term encoding systems and give two examples. (6 Marks)
4. With the use of bounding box, illustrate the measurement of the type of the letter ‘g’. (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. Discuss the following visual representation phenomenon:
2. Persistence of vision. (2 Marks)
3. Phi phenomenon. (2 Marks)
4. Explain the features of the following standards:
5. SECAM. (2 Marks)
6. PAL. (2 Marks)
7. NTSC (2 Marks)
8. HDMI. (2 Marks)
9. Give the hardware required to capture video. (4 Marks)
10. Compare and contrast between video and animation. (4 Marks)