B. Des (UG)/2nd Semester/UMCD202

2022

INTRODUCTION TO MULTIMEDIA COMMUNICATIONS

Full Marks: 100

Time: 3 hours

The figures in the margin indicate full marks for the questions.

Answer **Question No. 1** and *any four* from the rest.

1. A) Fill in the blanks: (10x1 = 10)

   i. Text, still images, audio and video are called Multimedia _____.

   ii. Digital signals have two amplitude levels called _____.

   iii. RLE is a _____ type of encoding used for data compression.

   iv. The Korean _____ is a script used for a single language.

   v. White, black and grey are _____ colours.

   vi. The scientific study of sound perception is called _____.

   vii. A MIDI file consists of a number of _____.

   viii. A picture from an NTSC broadcast standard consists of _____ lines.

   ix. Luma or luminosity represents the _____ of an image.

   x. The application used for accessing a website is called a _____.

B) State True or False: (1x10=10)

i) The term 'multimedia' was first coined by Tay Vaughan.

ii) Newspaper is an example of static media.

iii) Arithmetic coding falls under the category of Entropy coding.

iv) All symbols are icons but all icons are not symbols.

v) Taller-than-wide orientation used for printed documents is called landscape.

vi) Cone cells are better for low-light vision.

vii) 8-bit colour images are also called indexed colour images.

viii) An amplifier is dependent on external energy source.

ix) The 'p' in a 1080p video denotes 1080 pixels.

x) The range of a Personal Area Network is 10 metres.

2. A) Mention the areas where multimedia can be applied? (5)

B) State the differences between Analog and Digital signals. (5)

C) Describe the process of ADC and DAC with a diagram. (10)

3. A) What is a Typeface? How is it related to a Font? What are Font styles? (2+2+2 = 6)

B) Write briefly about the following: (3x3=9)
  i. ASCII Character Set
  ii. Extended Character Set
  iii. Unicode

C) How are hypertext and hypermedia different from traditional text and media? (5)

4. A) What are the differences between Raster graphics and Vector Graphics? (8)

B) What is an alpha channel? What are the benefits of using an alpha channel? (2+2 = 4)

C) Describe the different colour models briefly. (8)

5. A) How is acoustics different from *psychoacoustics*? (4)

B) What are the characteristics of musical sound? (6)

C) Describe the composition of a MIDI file with a diagram. (10)

6. A) What are Frame Rates and Aspect Ratio? (4)

B) Describe the process of interlacing. Why was it used? (7)

C) What are the various existing TV Broadcast Standards found worldwide? Describe them briefly. (9)

7. A) Describe the different types of computer networks with a diagram. (10)

B) Write short notes on the following with examples: (2x3 = 6)
   i. Web Browsers
   ii. E-mail
   iii. HMD

C) What are the different types of Virtual Reality systems? (4)

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