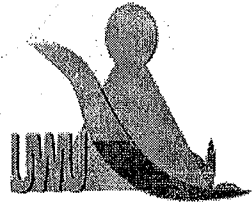


Uva Wellassa University of Sri Lanka  
Faculty of Science & Technology  
Computer Science & Technology Degree Program  
2<sup>nd</sup> Semester Examination Aug/September-2011  
IIT 302-2 Multimedia and Hypermedia technology



Time: Two (02) hours

This paper consist of Four questions. Answer all parts

**Question 1**

- (a) (i) Briefly explain two differences between MIDI and Digital Audio standards.  
(ii) What parameters decides the quality and the size of a digital audio file?  
[6 Marks]
- (b) (i) What sampling rate is needed for a signal with a bandwidth of 15,000 Hz (10000 to 25,000 Hz)?  
(ii) Write two file formats for compressed digital audio.  
[5 Marks]
- (c) (i) Give explanation to the animation features exaggeration timing and staging using suitable examples.  
(ii) Explain the usage of key frames in animation by using suitable examples.  
[9 Marks]

Resolution = 640 x 480  
Bit rate = 8 bits/sample  
Frame rate = 24 frames/second

Consider the specifications given above and calculate the file size of a 20-minute video file for the color sampling given below:

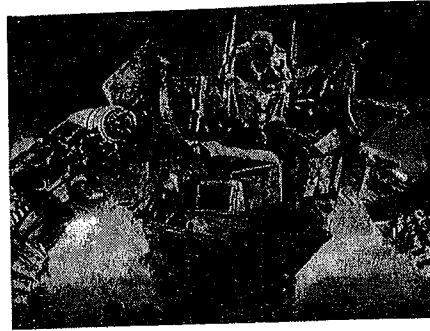
- (i) 4:4:4  
(ii) 4:1:1

[5Marks]

**Question 2**

- (a) (i) Explain what hypermedia is and give an example.  
(ii) Briefly explain two application areas of multimedia by giving suitable examples  
[7Marks]
- (b) Briefly explain two different multimedia authoring metaphors?  
[4 Marks]

- (c) Use the Figure 1 to answer the questions below.



Autobots Bumblebee, Ratchet, Ironhide and Sideswipe led by Optimus Prime, are back in action taking on the evil Decepticons, who are eager to avenge their recent defeat. The Autobots and Decepticons become involved in a perilous space race between the U.S. and Russia, to reach a hidden Cybertronian spacecraft on the moon and learn its secrets, and once again Sam Witwicky has to come to the aid of his robot friends. New villain, Shockwave, who rules Cybertron, is on the scene while the Autobots and Decepticons continue to battle it out on Earth.

Transformers4: Dark of the Earth

Genre: Action/ Science-Fiction

Other Genres: Adventure

Run Time: 160 Minutes

Release Date: 6/6/2011

Venue: Studio Movie Grill

Show times: 10:45am 1:20p m4:20pm 7:20pm 10:00pm

All Tickets: Rs 250.00

Figure 1

- (i) Write the four features in CRAP design standards and explain how each feature in CRAP can be applied to improve the Figure 1.
- (ii) Draw the structure of the improved version of Figure 1 and indicate which improvement fits in to what feature.

[14 Marks]

### Question 3

- (a) You are given an image of 32 colors and your task is to reduce to number of colors to black and white (monochrome). Use the following dither matrix  $D$  to calculate the resulting output image  $O$  from the input image  $I$ . Use the algorithm given below to compute the resulting image  $O$ . (Show the steps of your calculations clearly)

$$D = \begin{pmatrix} 6 & 4 \\ 2 & 8 \end{pmatrix}$$