B.IT (Information Technology) 4TH YR. 1ST SEM. Supplementary EXAM.-2017

Subject: Modelling & Animation

Time: 3 Hours

Full Marks: 100

Note: Attempt *Q.1* and any *five* from the rest

Q.1 Answer *all* questions.

a) How cell animation is advantageous in traditional animation?

b) A monitor can display 32 shades of red, 64 shades of blue and 96 shades of green. Find the color depth (i.e., number of bits required to display total number of colors) supported by the monitor.

c) Squash and Stretch are the major principles of animation - Explain.

d) How does Psycho-visual redundancy differ from Statistical redundancy?

e) Calculate the sampling frequency of an audio signal containing components with frequency values ranging from 50 Htz to 5 KHtz.

f) How does vectoring make the Zig-Zag Scan lossy?

g) How Key frames and tweening are necessary for traditional animation?

h) Explain the technique of chroma-keying in animation.

i) Find out the compressed text using RLE of the original text: HIIIHHHHOOO....HAAAAHHEEEEE....

j) Explain Hierarchical animation with schematic diagram and suitable application area(s).

2x10

Q.2

a) Calculate the compression ration using LZ compression scheme and 7-bit ASCII where the average number of characters per word and number of entries in the dictionary are 9 and 262144 respectively. .

b) In relation to rendering, explain any *five* from the followings: i) Ray casting, ii) Z-buffer, iii) Ray Tracing, iv) Shading algorithm, v) Polygon subdivision and vi) Aliasing.

c) Stop motion can also be thought as an animation - Explain.

4+(2x5)+2

Q.3

a) Discuss the features of different types of frames such as I-frame, P-Frame, B-frame, PB-frame and D-frame used in MPEG-1 video.

b) Compare between intraframe and interframe compression with suitable examples. How do Splines and Patches define the structure of 3D graphical objects? Describe major steps of 3D animations.

c) Give the internal meaning of camera movements of the followings: Pan, Dolly, Pitch, Yaw and Orbit.

(1x5)+(2+2+2)+(1x5)

Q.4

a) Encode the string "REANIMTETHEINANIMATENESS INANIMATION#" using LZW compression technique where initial dictionary contains 27 records (having fields: Symbols, Index as Binary and Index as Decimal) such as {(#, 00000, 0), (A, 00001, 1), (B, 00010, 2),................. , (Z, 11010, 26)}.

b) Discuss at least *one* from device dependent and *two* from device independent color models.

10+2x3

Q.5

a) Differentiate between Forward vs. Inverse Kinematics and pattern matching vs. feature extraction.

b) Describe any *three* from the following steps of JPEG compression: DCT, Zig-Zag scanning, Quantizing and Entropy Coding.

c) With respect to animation, explain the followings: Character rigging, Facial and Crowd animation,

(2x2)+(2x3)+(2x3)

Q.6

a) Find the codeword of the string "BABCADBABC" using Arithmetic compression technique. Check the obtained codeword is efficient than the codeword found by Huffman compression technique or not.

b) Vector graphics does need to go through a digitization phase but raster graphics needs - Explain. Write down the advantages of Sprite Animation.

(10+2)+(2+2)

Q.7

a) Explain static and dynamic elements of multimedia with suitable examples. Path animation is more advantageous than cell animation - Explain with suitable reasons.

b) Compare the features of CRT, LCD, LED and PDP.

c) Distinguish between the Huffman coding vs. LZW coding and Unicode standard vs. Extended ASCII standard.

(2+2+2+2)+4+(2+2)

Q.8 Write short notes on any *four.*

a) Computer assisted vs. computer generated animation

b) Arithmetic encoding

c) Essential components of adapter cards

d) Pros. and cons. of motion capture over 3D animation

e) Characteristics of MMDBMS

4x4