



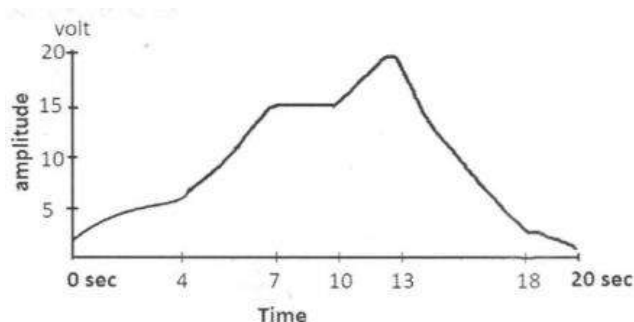
## Multimedia System DEC 2018

Total Marks: 80  
Total time: 3 hours

### INSTRUCTIONS

- (1) Question 1 is compulsory.
- (2) Attempt any three from the remaining questions.
- (3) Draw neat diagrams wherever necessary.

- Q1** Explain in brief: [20]
- a) Characteristics of sound waves and their digital representation
  - b) Different redundancies in images
  - c) Working of Digital Camera
  - d) Need for Quality of Service and the parameters associated.
- Q2 a)** What are the redundancies considered in the video compression? Explain the different motion estimation tech techniques. [10]
- b)** What is steganography? What are the different methods? Discuss LSB steganographic method and its merits and demerits. [10]
- Q 3 a)** What are the different features that make a text into a rich text? Explain how these formatted texts are encoded in RTF. [10]
- b)** For the following 20 sec waveform [10]
- i) Perform the sampling at every 1 sec using 8 levels of quantization.
  - ii) Encode using PCM.
  - iii) Reconstruct the wave after decoding.



- Q 4 a)** Given the architecture of multimedia streaming system on the internet and explain the role of each protocol. [10]
- b)** What kind of redundancy is removed by Huffman coding? For the following image histogram of an image of size 50x50(2500 pixels) and 8 gray levels. Also find the reduction achieved



Gray Level	0	1	2	3	4	5	6	7
Count of pixels	89	600	35	73	267	565	770	101

**Q 5 a)** What is an authoring system? Why it is needed? Explain in the Different design issued faced. [10]  
**b)** Describe the steps foiled in JPGE image compression. [10]

**Q 6** Write short note on (Any Two) [20]

- a) MPEG compression
- b) Digital Signatures
- c) DVD