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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- MAY -2018

M.Tech II Semester

COURSE CODE: 10M11CI214 MAX. MARKS: 35

COURSE NAME: Multimedia Systems

COURSE CREDITS: 03 MAX. TIME: 2:00 HRS

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Ques 1 [2 + 3 = 5 Marks] Discuss the algorithmic steps of Haar basis for N=4. Also, calculate the Haar transform of the image

$$g = \begin{pmatrix} 0 & 1 & 1 & 0 \\ 1 & 0 & 0 & 1 \\ 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{pmatrix}$$

Ques 2 [2+3 = 5 Marks] Discuss the quality of service (QoS) concepts networked multimedia systems? Consider a frame relay network having a capacity of 1 Mb of data is arriving at the rate of 25 mbps for 40 msec. The Token arrival rate is 2 mbps and the capacity of bucket is 500 kb with maximum output rate 25 mbps. Calculate 1.The burst length 2. The max burst length. 3. Total output time.

Ques 3 [2+3 = 5 Marks] Compare and contrast TCP & UDP with Real-time Transport Protocol (RTP) in detail? Also discuss the Source Description and BYE packet format in the Real time Control Protocol (RTCP) packet.

Ques 4 [2+3 = 5 Marks] Compare and contrast discrete wavelet transform and discrete *cosine transform* (DCT) in brief? Also mathematically proof that the small fluctuations feature, multi-resolution analysis, conservation & compaction of energy properties of Haar wavelet in brief.

Ques 5 [15 Marks] Write the short notes on following

a. MPEG video coding
b. Multimedia file systems
c. Recent applications of Big Data in Multimedia Analytics