

# Question Paper

Exam Date & Time: 01-Jul-2022 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal  
Second Semester Master Engineering - ME (Big Data Analytics / Big Data and Data Analytics) Degree Examination - June 2022

### Multimedia Analytics [BDA 5203]

Marks: 100

Duration: 180 mins.

Friday, July 1, 2022

Answer all the questions.

- 1) With a neat anatomical diagram illustrate the human auditory peripheral system. (TLO 1.1) (10)
- 2) Explain how an image produced by a scanner or digital camera is captured with the aid of a diagram. (TLO 2.1) (10)
- 3) Derive the time to transmit the following digitized images at both 64kbps and 1.5Mbps. (10)
  - i. A 640 x 480 x 8 VGA - compatible images.
  - ii. A 1024 x 768 x 24 SVGA-compatible images. (TLO 2.1)
- 4) Discuss the following image properties: (10)
  - i. Additive Color Mixing
  - ii. Subtractive Color Mixing
  - iii. Pixel Depth
  - iv. Aspect Ratio. (TLO 2.3)
- 5) Derive the bit rate and the memory requirements to store each frame that result from the digitization of both a 525 and 625 -line system assuring a 4:2:2 format. Also find the total memory required to store a 1.5 hour movie/video. (TLO 2.3) (10)
- 6) Illustrate Haar cascading technique for detection of human face from a static image. (TLO 2.2) (10)
- 7) Define image Segmentation, identify the need for it in different application domain and describe the steps employed in watershed algorithm with function calls used in opencv. (TLO 2.2) (10)
- 8) Describe the front-end process involved in speech recognition for an application. (TLO 3.1) (10)
- 9) Describe steps involved in face recognition system. (TLO 3.2) (10)
- 10) Illustrate with a diagram how I , P and B frames are encoded in Videos. (TLO 3.3) (10)

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