First Year BASLP Degree Supplementary Examinations March 2019

Biomedical Instrumentation and Acoustics

(2016 Scheme)

Time: 3 hrs   Max marks: 80

- **Answer all questions**
- **Draw diagrams wherever necessary**

Essays   (4x10=40)

1. Name the two categories in which analog devices are classified. Give examples for each category. List out the difference between them
2. Write short notes on:
   - Break down Voltage   • Knee voltage   • Forward Bias   • Reverse Bias
3. Which type of microphone is used in hearing aids. Explain its structure and principle of operation. What is reverberation time. Explain the significance of RT. Explain the method of measurement of RT with graph
4. What is the unit of SPL. Explain the application of sound level meter. What are octave band filters. Explain the necessity of octave band filters in SLM. Explain in detail the characteristics of sound.

Short Notes   (5x5=25)

5. Find the equivalent of B_2F_8 H in decimal and number systems. What are universal gates. Realize all basic gates using any one universal gate
6. What are softwares. With example explain application software and operating system software
7. What is virtual memory management. Explain the significance of RAM
8. What are transducers. Name the two different types of microphones. Explain the general characteristics of a microphone
9. Explain the following terms with reference to amplifier
   - Gain   • Frequency response   • Input and Output Impedance   • Sensitivity

Answer Briefly   (5x3=15)

10. Explain the classification of hearing aid based on gain characteristics, technology and aesthetic aspects
11. What is an artificial larynx. Explain the application and use of this device.
12. What are the different types of audiometers used in the hearing evaluation
13. What is an induction loop system. Where it is used. What are all its limitations
14. Why the signal needs to be processed. With neat block diagram explain the functioning of digital signal processing system.

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