

MASTER OF SCIENCE (AUDIOLOGY)
M.Sc. (AUDIOLOGY) Sem-I : WINTER :- 2021
SUBJECT: TECHNOLOGY IN AUDIOLOGY

Day : Wednesday
Date 30-Mar-2022

W-19534-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 80

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat diagrams **WHEREVER** necessary.
 - 4) Answer to both the sections should be written in **RESPECTIVE** answer books.
 - 5) Answer written in the inappropriate answer sheets will not be assessed in any case.
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SECTION-A

Q.1 Attempt **ANY FOUR** out of **SIX**: **(60)**

- a) Explain various blocks of a typical data acquisition system.
- b) What is Time Division Multiplexing (TDM) and Frequency Divisions Multiplexing (FDM)? Why is it used in communication? Why and how is TDM in cochlear implant?
- c) Explain the working principle of EEG and MEG. Which neural potentials are measured by these methods? Why?
- d) What is wideband spectrogram? How does the time window length for a narrowband spectrogram compare with that for a wideband spectrogram? Which part of speech signal is best observed in a wideband spectrogram?
- e) What are different features used for talker recognition? What is the difference between text-dependent and text-independent talker recognition? List one application each of talker identification and talker verification.
- f) Explain the working principle of MRI. How is the spatial location characterized in MRI?

SECTION-B

Q.2 Attempt **ANY FOUR** out of **SIX**: **(20)**

- a) List different types of microphones.
- b) Which are direct methods of neuroimaging? Which are indirect methods?
- c) What is frequency transposition in hearing aids?
- d) Is cochlea a linear system or a non-linear system? Why?
- e) Briefly describe various noise reduction techniques.
- f) In Cochlear Implant surgery, which parameters can be used to monitor the health of cochlea? Which parameters would be used to monitor the functioning of the implant?

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