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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

II SEM M.Tech (BME) DEGREE END-SEMESTER EXAMINATIONS, APRIL 2018.

**SUBJECT: ALLIED HEALTH SCIENCES (BME 5202)
(REVISED CREDIT SYSTEM)**

Tuesday, 17th April, 2018, 9 am to 12 noon

TIME: 3 HOURS

MAX. MARKS: 100

Instructions to Candidates:

- 1. Answer all 5 questions from part A and all 5 questions from part B. Use separate answer books.**
- 2. Draw labeled diagram wherever necessary**

PART-A, SPEECH & HEARING

(Max. Marks 50)

- Q1) Define pure tone audiometer. Explain in detail the instrumentation and purpose of pure tone audiometry. 10
- Q2) Explain immittance audiometry in detail. 10
- Q3) Define Hearing aids. Explain in detail the working principle of analog and digital hearing aid. 10
- Q4) Explain cochlear implant. With neat diagram label its parts and function. 10
- Q5) Explain auditory brainstem response with neat diagram. 10

PART-B, PHYSIOTHERAPY

(Max. marks 50)

- Q1) Explain the instrumentation for electrical muscle stimulation, wave forms and types of currents used for the same. Add a note on role of electrical muscle stimulation in rehabilitation. 10
- Q2) Write short note on 5+5
(i) Transcutaneous electrical nerve stimulation (TENS).
(ii) Interferential therapy.
- Q3) Explain the phases and sub phases of gait. Mention all the temporal and spatial variables. 5+5
- Q4) Explain the pain gate mechanism, Mention the physiotherapy modalities which works on the basis pain gate mechanism. 10
- Q5) Explain the instrumentation for Nerve conduction study. Add a note on uses of nerve conduction studies. 10