

GANPAT UNIVERSITY
B.TECH. 8th SEM. BIOMEDICAL AND INSTRUMENTATION ENGINEERING
REGULAR EXAMINATION MAY/JUNE 2012
BME 803: Clinical Engineering

Total marks: 70

TIME: 3 Hours

INSTRUCTIONS:

1. Use separate answer sheets for the two sections
2. Figures on the right side indicate marks
3. Please explain with the help of diagram wherever it is necessary
4. Each sub-question carries equal marks unless it is mentioned

SECTION – I

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Que.1. Write answers of the following questions.

- A. Explain the different disciplines for clinical engineering.
- B. Explain the methods to test the medical device from the EMI due to wireless telecommunication device.
- C. Define Clinical Information Systems and describe its salient features.

OR

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Que.1. Write answers of the following questions.

- A. Provide the overview of the remote diagnosis.
- B. Explain the model-based expert system of remote diagnosis.
- C. Explain your views on the severity of EMI effects occur due to the Wireless telecommunication system, Two-way radios, Electronic article surveillance system, and Metal detectors on the medical instruments and pacemakers.

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Que.2. Write answers of the following questions.

- A. Explain in detail the process for detecting the EMI.
- B. Explain the system analysis, design and management in context of the Information System Management.

OR

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Que.2. Write answers of the following questions.

- A. Explain Physiological Monitoring System configuration.
- B. Explain the general classes of the customer service calls.

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Que.3. Write answers of the following questions.

- A. Explain the Clinical Information System architecture.
- B. What are the recommendations for implantable cardiac devices to reduce EMI?
- C. Explain the role of clinical engineer in Clinical Information System.
- D. Explain the modules to develop the call management system.

SECTION – II

Que.4. Write answers of the following questions.

- A. Write in detail patient safety best practice model.
- B. Draw the diagram of Risk Management Activities and explain it.

OR

Que.4. Write answers of the following questions.

- A. Explain clinical engineering's role as patient safety, equipment management, system management, clinical research and facility planning.
- B. Explain the factors that contribute to the medical errors.

Que.5. Write answers of the following questions.

- A. Write the role of HFMEA and write the steps of it and get the Hazard Scoring Matrix.
- B. Discuss JCAHO standards for radiology department.

OR

Que.5. Write answers of the following questions.

- A. Write a short note on Root Cause Analysis.
- B. Write a short note on Hospital Safety Programs.

Que.6. Write answers of the following questions.

- A. Explain the details of System Risk Model.
- B. Discuss three components of the JCAHO environment and care standards.

-----END OF THE PAPER-----