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Reg. No.....

Name.....

**M.Sc. (BIOMEDICAL INSTRUMENTATION) DEGREE EXAMINATION
OCTOBER 2023**

Fourth Semester

AUTOMATION AND QUALITY CONTROL IN BIOMEDICAL ENGINEERING

(2021 Admissions—Regular/2016—2020 Admissions—Supplementary/Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Part A

*Answer any **five** questions.
Each question carries 10 marks.*

1. Explain how the robotic surgery electronics and communication systems are integrated with human nerve network.
2. Discuss on methods of obstacle avoidance used in mobile robotics.
3. Explain the haptic interfacing methods used in robotics.
4. Discuss on the surgical procedure in cardiology while using medical robotics.
5. Explain the management tools used in quality control.
6. Write a brief account on Food and Drug administration regulations.

(5 × 10 = 50 marks)

Part B

*Answer any **ten** questions.
Each question carries 5 marks.*

1. Discuss on the sensors and actuators used in surgical robots.
2. Explain the uses of legged robotic devices in robotic surgery.
3. What are the merits and demerits of robotic surgery.
4. Explain how navigation of surgical robots is achieved.
5. Write a note on computer assisted surgery.
6. Explain the role of rehabilitation robotics in virtual environment.

Turn over





F 6277

7. Discuss on the nano devices used in robotic surgery.
8. What are the different types of biosensors used in robotic surgery.
9. Explain how quality functions are developed to maintain quality.
10. Explain why regional national and international standardizations are needed.
11. Write a note on biosensors used in biomedical engineering.
12. Describe in detail any one tool for quality control.

(10 × 5 = 50 marks)

