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Reg. No......

Name.....

**M.Sc. (BIOMEDICAL INSTRUMENTATION) DEGREE EXAMINATION
AUGUST 2026**

Second Semester

BMI 204—BIOPHOTONICS AND NON-RADIATING MEDICAL IMAGING TECHNIQUES

(2025 Admission—Regular/2022–24 Admissions—Supplementary / 2021 Admission
– First Mercy Chance / 2020 Admission – Second Mercy Chance /
2019 Admission – Final Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Section A

*Answer any **five** questions.*

Each question carries 10 marks.

1. Explain with figures the principle of LASER.
2. Discuss on LASER safety management schemes.
3. Explain with diagrams the methods of recording and reconstruction of holograms.
4. Explain with diagrams the principles of ultrasonic imaging system.
5. Describe the various display modes in ultrasonics.
6. Explain with a block diagram the basics of MRI instrumentation.

(5 × 10 = 50)

Section B

*Answer any **ten** questions.*

Each question carries 5 marks.

1. What are the characteristics of LASER radiation ?
2. What are the advantages of semiconductor LASER ?
3. Discuss on the application of LASER in dermatology.
4. Explain the steps involved in personal safety in using LASER in medical field.
5. Explain the principles of holographic memory.





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6. Describe an application of holography in medicine.
7. Explain how ultrasonic waves interact with body matter.
8. Describe the principle of ultrasonic sector scanning.
9. Explain the role of ultrasonics in the diagnosis of eye.
10. Write a note on 2D-scanners.
11. Explain the principle of image formation in MRI system.
12. Write a note on NMR spectroscopy.

(10 × 5 = 50)

