

(6 pages)

Reg. No. :

Code No. : 10741 E

Sub. Code : ESPH 22

B.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2024.

Second Semester

Physics

Skill Enhancement Course — PHYSICS OF MEDICAL
INSTRUMENTS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer:

1. Who invented microelectrode?

- (a) Hyden (b) Idea Hyda
(c) Newton (d) Kepler

2. Needle electrodes are _____ electrodes.

- (a) Intra muscular wire
(b) Inter muscular wire
(c) Inner muscular wire
(d) Outer muscular wire

3. ECG detects _____.

- (a) pulse rate (b) heart rate
(c) liver rate (d) vision rate

4. EMG is used to check _____.

- (a) muscle (b) brain
(c) liver (d) lungs

5. Who uses short wave?

- (a) sailors
(b) offshore workers
(c) both (a) and (b)
(d) none of the above

6. SCS means

- (a) Servo Controlled System
(b) Service Controlled System
(c) Seashore Controlled System
(d) All the above

7. CT means

- (a) Common Tomography
(b) Computerised Tomography
(c) Clay Tomography
(d) None of the above

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8. Ultrasonic imaging is known as
(a) sonogram (b) sonograph
(c) sonography (d) sonometer

9. Angiography is a _____.
(a) medical imaging technique
(b) medicine imaging technique
(c) bio-medical imaging technique
(d) optical imaging technique

10. Life time of laser is
(a) 10,000–25,000 hours
(b) 15,000–30,000 hours
(c) 25,000–50,000 hours
(d) None of the above

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the term : depth and needle electrodes.

Or
(b) Write a short note on : Microelectrodes.

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12. (a) Explain the method of recording ECG of a patient.

Or

- (b) Discuss about ECG.

13. (a) Explain : shortwave and microwave.

Or

- (b) Write a short note on : thermo luminescence dosimeter.

14. (a) Define : transducer. State and explain the principle of transducer.

Or

- (b) State and explain ultrasonic imaging system.

15. (a) State the advantage of laser surgery.

Or

- (b) Write a short note on radiography.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain : Depth, needle and surface electrodes.

Or

- (b) Discuss : Electrode potential and electrode material in detail.

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17. (a) Discuss the application of ECG.

Or

(b) Describe the method of recording ECG of a patient.

18. (a) Write a short note on :

- (i) Diathermy
- (ii) Ventilation
- (iii) Servo-Controlled system.

Or

(b) Explain pocket type radiation alarm in detail.

19. (a) Describe the application and any four uses of ECG.

Or

(b) Describe the method of recording EEG of a patient.

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20. (a) Explain the laser application in therapy and diagnosis.

Or

(b) Write a short note on :

- (i) radiography
 - (ii) ultrasound imaging.
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