

(6 pages)

Reg. No. :

Code No. : 20360 E Sub. Code : ESPH 22

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2025.

Second Semester

Physics

Skill Enhancement Course – PHYSICS OF MEDICAL
INSTRUMENTS

(For those who joined in July 2023 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Needle electrodes are _____ electrodes.
 - (a) Intra muscular wire
 - (b) Inter muscular wire
 - (c) Inner muscular wire
 - (d) Outer muscular wire

2. What is the most common pH electrode?
 - (a) glass electrode
 - (b) metal electrode
 - (c) ion electrode
 - (d) none of the above
3. ECG detects
 - (a) Pulse rate
 - (b) Heart rate
 - (c) Liver rate
 - (d) Vision rate
4. EEG means
 - (a) Electro Encephalography
 - (b) Electron Emission Graphy
 - (c) Electromyography
 - (d) None of the above
5. Diathermy to generate
 - (a) cool deep within the body
 - (b) heat deep within the body
 - (c) high frequency
 - (d) low frequency
6. Who uses a microwave?
 - (a) radar
 - (b) satellite
 - (c) both (a) and (b)
 - (d) none of the above

7. CT means
(a) Common Tomography
(b) Computerised Tomography
(c) Clay Tomography
(d) None of the above
8. MRI uses
(a) Radio waves (b) X-rays
(c) Gamma rays (d) UV-rays
9. Angiography is a _____
(a) medical imaging technique
(b) medicine imagine technique
(c) bio-medical imaging technique
(d) optical imagine technique
10. Endoscopy used for
(a) to remove bodies
(b) to remove tumors
(c) to remove hair
(d) to remove sore

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Discuss bio-electric potential.
Or
(b) Explain the term : depth and needle electrodes.
12. (a) Discuss about ECG.
Or
(b) Explain about EMG .
13. (a) Explain shortwave and microwave.
Or
(b) Write a short note on pocket dosimeter.
14. (a) State and explain the nuclear imaging technique.
Or
(b) Explain the block diagram of CT scanner.

15. (a) Write a note on fluoroscopy.

Or

(b) Give the advantages of laser surgery.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the components of bio-medical instrumentation.

Or

(b) Explain the types of surface electrode.

17. (a) Describe the method of recording ECG set up of a patient.

Or

(b) Explain about EEG.

18. (a) Explain the block diagram of the electrosurgical diathermy.

Or

(b) Describe thermo-luminescence dosimeter.

19. (a) Explain the principle, construction and working of CT.

Or

(b) Explain MRI principle and instrumentation.

20. (a) Explain the angiography.

Or

(b) Explain the types of endoscopes with their operation.
