

[LH 0815]

AUGUST 2015

Sub.Code :2512

**B.Sc. NEURO ELECTRO PHYSIOLOGY  
SECOND YEAR  
PAPER II – ELECTRONICS**

*Q.P. Code : 802512*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What do you understand by depletion region at PN junction? What is the effect of forward and reverse biasing of PN junction on the depletion region? Explain with necessary diagrams.
2. Draw the circuit diagram of a FWR a) With centre tap connection and b) Bridge connection and explain its operation.
3. Explain the working of EEG with a neat block diagram.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Explain in detail about insulator, semiconductor, and conductor with Energy band diagrams.
2. Define a Transistor. Why transistor is considered as current control device? Explain.
3. Explain about low pass and high pass filter with neat diagrams.
4. What is transformer? Explain its working principle.
5. What is bio potential? Explain about bio potential electrodes.
6. Describe the principles of Electromyography (EMG).
7. What is meant by calibration? Give reasons why calibration is important for medical equipment.
8. How are medical equipment classified according to their application?

**III. Short Answers on:**

**(10 x 3 = 30)**

1. What are the classifications of material based on their conductivity?
2. What is a filter? Name the types of filters.
3. Define Kirchoff's Current Law.
4. Define DC and AC with wave form
5. Draw three resistors (R1, R2, and R3) in serial and parallel combination.
6. Define CMRR.
7. Define Bio-electricity
8. Define Amplifier.
9. Give expansion for EEG, ECG, and EMG.
10. What are the classifications of medical equipment based on electrical safety?

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