Rajiv Gandhi University of Health Sciences, Karnataka

First Year Bachelor in Prosthetics and Orthotics Degree Examination – OCT-2019

Time: Three Hours **Max. Marks: 80 Marks**

BASIC ELECTRONICS – (RS3)

Q.P. CODE: 2966

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

ESSAYS TYPE (Answer any Two) **2 x 10 = 20 Marks**

1. What is an OpAmp? What are its characteristics and applications?
2. With neat diagram explain the working of the thermocouple.
3. What is EMG? List uses of EMG signals in myoelectric Prosthesis.

SHORT ESSAYS TYPE (Answer any Six) **6 X 5 = 30 Marks**

4. List the different types of capacitors and what are their applications
5. Write the ac voltage sine waveform and mark and define peak value, period and rms value.
6. With characteristic curves for the transistor explain the operating regions.
7. List the SI Base unit, the basic quantity, name and symbol.
8. Explain the colour coding in resistors with example.
9. What is the need for bias? Explain the bias circuit for a NPN or PNP transistor.
10. Explain the operation of an oscillator.
11. Explain the working of sound transducers.

SHORT ANSWERS TYPE (Answer any Ten) **10 x 3 = 30 Marks**

12. State ohms law and Kirchhoff's laws.
13. What is a strain gauge? What are its applications?
14. What are active and passive devices? Give examples.
15. With energy band diagram explain the differences between insulator, semiconductor and conductor.
16. A dc motor draws a current of 15 amps when connected across a 230 V dc supply. Calculate the power drawn and the value of load resistance.
17. What is total resistance if 10 ohm, 15 ohm, 25 ohms resistors are given and (i)connected in series (ii) connected in parallel.
18. What is a transformer? Write the relation between primary and secondary voltages and currents.
19. What is a transducer, sensor and actuator?
20. What are the two types of feedback and their applications?
21. What is the need for earthing? List the different types of earthing.
22. What are surface electrodes and what are its applications?
23. What is the difference between fuse and MCB?

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