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B.Sc. VI Semester (CBCS) Degree Examination, May/June-2019

PHYSICS

Material Science and Electronics - II

Paper No. - VIII 6.2

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

1. **Answer all** the questions of Section A in the first two pages only.
2. **Answer any Five** questions of Section B and **Three** questions from Section C.

SECTION - A

I. Answer **ALL** of the following. **(15×1=15)**

1. What is Polymer?
2. Define metallic bonding in material.
3. Define lateral strain.
4. What is hardness of the material?
5. Define thin film.
6. Write one application of thin film.
7. Define size effect of nano materials.
8. Write the size of the protein.
9. Define negative feedback of the Oscillator.
10. What is multivibrators?
11. Define XOR gate.
12. Define Flip-Flop.

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13. What is ring counter?

14. Define frequency modulation.

15. Define selectivity of the Radio Receiver.

SECTION - B

II. Answer any **FIVE** of the following. (5×5=25)

16. Explain engineering classification of materials.

17. Explain covalent bonding in materials with example.

18. Derive an expression for electrical conductivity of metals.

19. Describe an experiment for the preparation of thin film by sputtering technique.

20. Explain the working of phase shift Oscillator.

21. Explain the working of Monostable Multivibrator.

22. Write a note on Amplitude Modulation.

SECTION - C

III. Answer any **THREE** of the following.

23. a) Explain engineering requirement of materials.

    b) Explain ionic bonding in material with example. (5+5)

24. a) Write a note on fatigue.

    b) Write a note on fracture. (5+5)

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25. a) Explain the technique of synthesis of nanomaterials.

b) Write the applications of nanomaterials. **(5+5)**

26. a) Explain full adder with neat diagram and truth table.

b) Illustrate full adder operation by Solving two example

i) A=1 B=1 C_i=0 ii) A=1 B=1 C_i=1 with neat diagram. **(5+5)**

27. a) Explain thermal expansion of materials.

b) Describe super heterodyne receiver with neat block diagram. **(5+5)**

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