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R – 6207

Reg. No. :

Name :

First Semester M.Sc. Degree Examination, May 2023

Physics

PH 213 : BASIC ELECTRONICS

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer any **five** questions. **Each** question carries **3** marks.

1. Discuss on Bode plots.
2. What are Comparators?
3. Give an account on Tunnel diode.
4. Comment on multiplexers.
5. Schematically represent the SR latch using NOR Gate and NAND Gate.
6. Briefly explain intramodal dispersion.
7. Short note on thermistors.
8. What are electrical transducers?

(5 × 3 = 15 Marks)

P.T.O.

SECTION – B

Answer **all** questions. **Each** question carries **15** marks.

9. (a) Explain in detail the Frequency analysis of FET Amplifier Stages.
(b) Comment on impedance matching.

OR

10. (a) Explain the operation of IC 555 when it is wired to perform as astable multivibrator.
(b) Mention briefly on astable multivibrator.
11. Write on seven segment decoder.

OR

12. (a) Give an account on asynchronous and synchronous counters.
(b) How can we define decade counters.
13. (a) Write note on LED's, its structure and quantum efficiency.
(b) How can we define power of LED.

OR

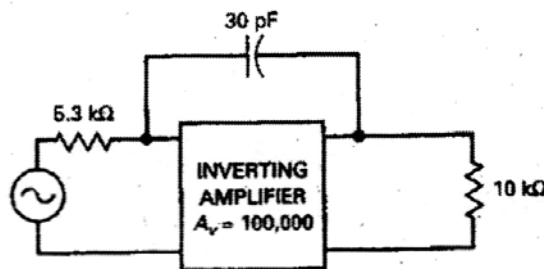
14. (a) Explain the various classifications of transducers.
(b) What are oscilloscope probes.

(3 × 15 = 45 Marks)

SECTION – C

Answer any **three** of the following questions. **Each** question carries **5** marks.

15. The amplifier has a voltage gain of 1,00,000. Draw the ideal Bode plot.



16. Draw the neat circuit of first order low pass filter and describe it.
17. Determine the number of flip-flops that would be required to build the following counters:
 - (a) Mod – 12
 - (b) Mod – 31
18. With a neat circuit diagram, explain the working of various CRT controls of CRO.
19. For the inverting amplifier given that $R_1 = 5K\Omega$ and $R_f = 50K\Omega$. Assuming an ideal amplifier, calculate the output voltage for the input of 1V.
20. Explain what happens when a voltmeter is connected in series with the circuit?

(3 × 5 = 15 Marks)
