



K19U 0136

Reg. No. :

Name :

**VI Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.) Examination, April 2019
(2014 Admission Onwards)
CORE COURSE IN PHYSICS
6B14PHY – Electronics – II**

Time : 3 Hours

Max. Marks : 40

SECTION – A

(Answer **all**. Very short answer type. **Each** question carries **1** mark).

1. If the value of α is 0.9 then the value of β is
2. In a phase shift oscillator, the frequency is determined by
3. In a non inverting amplifier has $R_f = 10\text{ K}\Omega$ and $R_i = 100\text{ K}\Omega$, the closed loop voltage gain is
4. The inputs to a NOR gate is 000, the output will be

SECTION – B

(Answer **any seven**. Short answer type. **Each** question carries **two** marks).

5. What do you understand by hybrid parameters ? What are their dimensions ?
6. What is Barkhausencriterion ?
7. What is stabilisation of operating point ? What is its need ?
8. What is an op-amp ?
9. What are the three basic logic gates ?
10. Explain the function of class B power amplifiers.

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K19U 0136



11. What do you mean by a comparator circuit ?
12. What is a QUAD in a karnaugh map?
13. What is meant by negative feedback ?
14. Draw the half adder circuit and its truth table.

SECTION – C

(Answer **any four**. Short essay/problem. **Each** question carries **three** marks).

15. The collector leakage current in a transistor is $250 \mu\text{A}$ in CE arrangement. If the transistor is connected in CB arrangement, what will be the leakage current ? (given $\beta = 100$).
16. Explain the principle of a summing OP-amp with the help of a diagram.
17. State and prove De-Morgan's theorems.
18. A certain amplifier has voltage gain of 15dB. If the input signal voltage is 0.8V, what is the output voltage.
19. Determine the operating frequency and feedback fraction for colpitt's oscillator. Given $C_1 = 0.001 \mu\text{F}$, $C_2 = 0.01 \mu\text{F}$, $L = 10 \mu\text{H}$.
20. Explain product of sum method with examples.

SECTION – D

(Answer **any two**. Long essay type. **Each** question carries **five** marks).

21. Explain the CE characteristic of a transistor with a neat diagram.
 22. Discuss class A audio power amplifier. Also obtain an expression for efficiency.
 23. Explain the working of an op-amp as integrator and differentiator.
 24. Explain karnaugh map simplification with examples of pairs, quads and octets.
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