



K17U 1045

Reg. No. :

Name :

**II Semester B.Sc. Degree (C.B.C.S.S. – Reg./Supple./Imp.)
Examination, May 2017
CORE COURSE IN PHYSICS
2B02 PHY : Electronics – I (2014 Admn. Onwards)**

Time : 3 Hours

Max. Marks: 40

Instruction : Write answers in **English** only.

SECTION – A

Answer **all**. Very short answer type. **Each** question carries **one** mark.

1. The phase difference between the input and output voltages of a transistor connected in common emitter arrangement is _____
2. In a FET there are _____ pn junctions at the sides.
3. $(101)_2 = (\dots\dots\dots)_{10}$.
4. The inputs of a NAND gate are connected together. The resulting circuit is _____ gate. **(1×4=4)**

SECTION – B

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

5. What is the need for biasing a transistor ?
6. Derive the relation between α and β .
7. What is faithful amplification ? Explain the conditions to be fulfilled to achieve faithful amplification in a transistor amplifier.
8. Explain pinch off voltage of a JFET.
9. Name the parameters of JFET. Give a relation among them.
10. List any four advantages of JFET.

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11. Write De-Morgan's theorems.
12. What are the three basic logic gates ?
13. Convert the decimal number 133 into binary equivalent.
14. What is ASCII code ? **(2×7=14)**

SECTION – C

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

15. How will you draw dc load line on the output characteristics of a transistor ? What is its importance ?
16. In a transistor circuit; collector load is $4\text{ k}\Omega$, whereas quiescent current (zero signal collector current) is 1mA.
 - i) What is the operating point if $V_{CC} = 10\text{V}$?
 - ii) What will be the operating point if $R_C = 5\text{k}\Omega$?
17. What are the difference between JFET and Bipolar transistor ?
18. Explain :
 - i) Shorted gate drain current
 - ii) Pinch off voltage
 - iii) Gate source cut off voltage.
19. Explain Boolean Algebra.
20. Subtract 7 from 18 by two's complement method. **(3×4=12)**

SECTION – D

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

21. How will you experimentally determine the CE transistor characteristics ? Draw input and output characteristics.
22. Explain :
 - i) Self Bias
 - ii) Gate Bias in the case of JFET.
23. What are signed numbers ? Explain the arithmetic operations with signed numbers with example.
24. What are binary coded decimal ? How two BCD numbers are arithmetically operated ? **(5×2=10)**