K18U 0940

Reg. No. : .....

Name : .....

IV Semester B.Sc. Degree (CBCSS-Reg./Sup./Imp.) Examination, May 2018
(2014 Admn. Onwards)
COMPLEMENTARY COURSE IN PHYSICS
4C04 PHY : Modern Physics and Electronics

Time : 3 Hours Max. Marks : 32

SECTION – A

Answer **all 5** questions-very short answer type-**each** question carries **1** mark.

1. The time interval during which half of the atoms of the given radioactive sample decay is called
2. Line defects are called
3. The electron and muon together called
4. The purpose of coupling capacitor in a transistor amplifier is to
5. $(101)_2 = (\_\_\_\_\_)_{10}$. (5×1=5)

SECTION – B

Answer **any four**- short answer type- **Each** question carries **two** marks.

6. State the law of radioactive disintegration.
7. How a surface imperfection arises ?
8. What is meant by luminosity of a star ?
9. What is meant by negative feedback ?
10. What are the three basic logic gates ?
11. Why CE transistor configuration is commonly used ? (4×2=8)

P.T.O.

SECTION – C

Answer **any three**- short essay/problem- **Each** question carries **three** marks.

12. Explain Schottky and Frenkel defect.

13. Write a short note on nuclear fission and nuclear fusion.

14. Calculate the operating frequency and feedback fraction of a Hartley oscillator. Given : $L_1 = 1mH$, $L_2 = 0.1mH$, $C = 10\ pF$. The mutual inductance between the coils, $M = 0.02\ mH$.

15. What is meant by half life ? Derive an expression for it.

16. Explain the ultimate constituents of hadrons. **(3×3=9)**

SECTION – D

Answer **any two**- long essay type-**each** question carries **five** marks.

17. Draw the circuit diagram of a single stage common emitter amplifier and describe its working with necessary theory.

18. Give an account of the evolution of a star.

19. Classify the various crystal defects in detail.

20. Explain nuclear reactors in detail. **(2×5=10)**
