K16U 2487

Reg. No. : .....

Name : .....

I Semester B.Sc. Degree (C.C.S.S. – Reg./Supple./Improv.) Examination, November 2016

CORE COURSE IN CHEMISTRY

1B01 CHE : Theoretical and Inorganic Chemistry

(2014 Admn. Onwards)

Time : 3 Hours

Total Marks : 40

SECTION – A

Answer **all** questions. **Each** question carries **one** mark.

1. What are London dispersion forces ?
2. What are synthetic elements ?
3. Differentiate between accuracy and precision.
4. What is meant by Eigen function ?

(1×4=4)

SECTION – B

Answer **any seven** questions. **Each** question carries **2** marks.

5. A particle of mass 6.6×10^{-24} gm has a kinetic energy of 8×10^{-5} erg. Find the wavelength of the particle.
6. What are the defects of Bohr atom model.
7. Explain photoelectric effect.
8. What are confidence limits ?
9. Explain the term packing fraction.
10. Explain Gieger Muller counter.
11. What are the factors favouring the formation of ionic bond ?
12. Compare the bond lengths NO^+ and NO^-.
13. Differentiate between absolute error and relative error.
14. What are breeder reactors ?

(2×7=14)

P.T.O.

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. What are significant figures ? What are the criteria to be followed while rejecting an analytical data ?

16. Discuss the hybridization and structure of acetylene.

17. Find out the standard deviation for the following data obtained in an experiment 15.67, 15.69, 16.03.

18. Give any three postulates of quantum mechanics.

19. Explain the term binding energy. Given the masses of He nucleus, proton and neutron are 4.00820, 1.00758, 1.00897. Calculate the binding energy.

20. How does band theory explain the conductivity of metals ? **(3×4=12)**

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. a) Explain rock dating.

    b) A sample of uranium ore is found to contain 5.95 gm of ^{238}U and 5.15 gm of ^{206}Pb. Calculate the age of the ore.

22. a) Explain f-test and t-test.

    b) Explain any three methods for minimizing determinate error.

23. a) Explain Davisson and Germer experiment.

    b) Write a note on quantum numbers.

24. a) Give an account of MO theory.

    b) What are the differences between VB theory and MO theory. **(5×2=10)**

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