Reg.	No

Maximum: 30 Weightage

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG—CCSS)

Core Course—Chemistry

CH6 B15—INORGANIC CHEMISTRY—II

I. Answer all the twelve questions. Each question carries a weightage of VI. This section contains

- 1. Answer all the *twelve* questions. Each question carries a weightage of VI. This section contains multiple choice, fill in the blanks and one word answer type questions
 - 1 What is the ligancy of ethylene diamine ligand?
 - 2 Write the EAN of Fe in the complex K_4 [Fe (CN),].
 - 3 Tetraminecopper (II) ion is square planar complex with one unpaired electron. According to VB theory, the hybrid state of copper should be:
 - (a) spa; (b) sp; (c) dsp; and (d) sped.
 - 4 Hexaflouroferrate (III) ion is an outer orbital complex. The number of unpaired electrons present in it is ———
 - 5 Which of the following is not an example for organometallic compounds?
 - (a) trimethyl boron.

'rime: Three Hours

- (b) trimethyl aluminium
- (c) trimethoxy titanium chloride (d) tetracarbonyl nickel.
- 6 Write an example for π -bonded organo metallic compounds.
- 7 The porphyrin structure contains a central _____ membered ring.
- 8 TEM image of a part of an aligned nanotube bundle is obtained from the pyrolysis of the _____ mixture.
- 9 Write the chemical formula of Zeolite.
- 10 Complete the following equation:

$$4\text{CaO} + \text{A1}_2\text{O}_3 + \text{Fe}_2\text{O}_3 \rightarrow \underline{\hspace{1cm}}$$

- 11 What is the other name of ordinary glass?
- 12 What is hard glass?

 $(12 \times \frac{1}{4} = 3 \text{ weightage})$

- II. Answer all the nine questions. Each question carries 1 weightage :
 - 13 What is a bridging ligand?
 - 14 Write the IUPAC name of [CoCl(NO₂)(en)₂]Cl.
 - 15 Write an example of a complex showing d sp hybridization.
 - 16 What is Zeise's salt?
 - 17 Write the photosynthesis reaction.
 - 18 What is the function of haemoglobin and myoglobin?
 - 19 How will you prepare NbS₂ nanotubes?
 - 20 Describe the preparation of gallium nitride nanowire.
 - 21 What is safety glass?

 $(9 \times 1 = 9 \text{ weightage})$

- III. Answer any five questions. Each question carries 2 weightage:
 - 22 Draw the structure of complex $[Co(NH_3)_0]^+$ and write the hybridization and geometry.
 - 23 On the basis of VB theory explain the hybridization of $[Ni(CO)_4]$.
 - 24 Write a note on the uses of organo mercury compounds in medicine.
 - 25 Describe polynuclear metal carbonyls.
 - 26 Explain the biochemistry of magnesium.
 - 27 Illustrate the application of nanotechnology in nanoswitches.
 - 28 Explain potash fertilizers.

 $(5 \times 2 = 10 \text{ weightage})$

- IV. Answer any two questions. Each question carries 4 weightage:
 - 29 Explain optical isomerism in co-ordination compounds.
 - 30 Illustrate the preparation, properties and structures of different sulphides of phose
 - 31 Write briefly about carbides and borides.

 $(2 \times 4 = 8 \text{ weight})$