



A CharutarVidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester 3) Internal Examination - 2025
US03IDCHE01:INORGANIC CHEMISTRY - II

Date: 25/09/2025, Tuesday

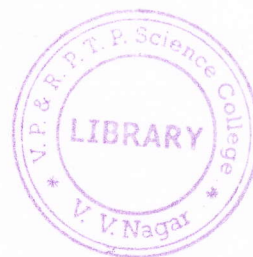
Time: 02:45 PM to 03:45PM

Total marks :20

Q-1 Multiple Choice Question.

6

1. Which is the most widely used extracting solvent for lanthanides?
(a) TBP (b) xylene
(c) kerosene (d) none of them
- 2) Electronic configuration of _____ element is $[Rn] 5f^3 6d^1 7s^2$
(a) Californium (b) Uranium
(c) Nobelium (d) Neptunium
- 3) The colour of more prominent light absorption bands of Am^{3+} ions _____.
(a) colourless (b) yellow
(c) pink (d) red
- 4) The oxidation state of metal in metal carbonyl is _____.
(a) positive (b) negative
(c) zero (d) all of these
- 5) Nickel tetra carbonyl, $Ni(CO)_4$ is prepared by Process.
(a) direct reaction (b) reductive carboxylation
(c) photolysis (d) thermolysis
- 6) How many metal-metal bonds are present in the structure of Diironnonacarbonyl, $Fe_2(CO)_9$?
(a) One (b) Two
(c) Three (d) Four



- Q-2. Define lanthanides. Give the name, symbol, atomic number and electronic configuration of lanthanides. **7**

OR

- Q-2 Explain ion-exchange method for separation of Lanthanides. **7**

- Q-3 Discuss the structure and nature of M-CO bonding in metal carbonyl **7**

OR

- Q-3 Discuss the preparation, properties, structure and hybridization in $Ni(CO)_4$ **7**

Seat No.:



Bachelor of Science (Semester 3) Internal Examination - 2025
US03IDCHE01: INORGANIC CHEMISTRY (Quiz Test) - II

Date: 25/09/2025, Thursday

Time: 02:45 PM to 03:45PM

Total marks :05

Q. 1. Fill in the blanks.

5

- The electronic configuration of Europium is _____.
a) [Xe] $4f^6 5d^1 6s^2$ b) [Xe] $4f^7 5d^0 6s^2$
- The steady decrease in atomic and ionic radii is called _____.
a) Lanthanide contraction b) Earth contraction
- In actinide the newly added electron enters in _____ orbitals.
a) 6d b) 5f
- _____ metallic carbonyl is not diamagnetic.
a) $[V(CO)_6]$ b) $[Co(CO)_6]$
- The number of bridging carbonyl groups present in $Co_2(CO)_8$ and $Fe_2(CO)_9$ is _____ respectively.
a) 2 and 3 b) 1 and 2

