

KHYBER PAKHTUNKHWA, PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATION FOR THE POSTS OF PROVINCIAL MANAGEMENT SERVICES (BPS-17).

2013

CHEMISTRY PAPER-I

TIME ALLOWED: 03 HOURS

MAX:MARKS: 100

Note: Attempt any Five questions. All questions carry equal marks.

- Q.1 A) Explain **Schrodinger wave equation** and its graphical representation? 15
B) Describe postulates of **Bohr Theory** of Hydrogen atom? 05
- Q.2 A) Explain Standard enthalpies of formation and **Hess's Law**? 14
B) What do you know about **Born Haber cycle**? 06
- Q.3 A) Explain **Debye-Huckel theory**, by using this theory define activity coefficients, Galvanic cells and Fuel cell? 15
B) Write difference between strong and weak **Electrolytes** and its effect on cell? 05
- Q.4 A) What is the role of **Carbon** in organism and industry? 06
B) Describe manufacturing of **Nitric Acid** in laboratory and industry? 14
- Q.5 A) Describe method of preparation and purification of **Iron ores**? 14
B) Name types of **Fertilizer**? Explain Phosphorus Fertilizer with its uses? 06
- Q.6 How the structures of **Coordination Compound** are explained on the basis of Molecular Orbital Theory? Explain the strong and weak field Ligands with examples? 20
- Q.7 A) What is air pollution and most common diseases related to **Air Pollution**? 14
B) Which factors are responsible for Air pollution, how we can overcome its harmful effects? 06
- Q.8 A) Describe in your words about Fixation of Nitrogen. (10)
B) Write down different types of Water hardness. Give names of compounds that are responsible for these types. (10)