



**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION FOR**  
**RECRUITMENT TO POSTS IN BS-17**  
**UNDER THE FEDERAL GOVERNMENT, 2015**

Roll Number

QuickJobs.pk

**CHEMISTRY, PAPER-I**

<b>TIME ALLOWED: THREE HOURS</b> <b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>	<b>PART-I (MCQS)</b> <b>PART-II</b>	<b>MAXIMUM MARKS = 20</b> <b>MAXIMUM MARKS = 80</b>
<b>NOTE: (i) Part-II is to be attempted on the separate Answer Book.</b> <b>(ii) Attempt ONLY FOUR questions from PART-II. ALL questions carry EQUAL marks.</b> <b>(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.</b> <b>(iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.</b> <b>(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.</b> <b>(vi) Extra attempt of any question or any part of the attempted question will not be considered.</b> <b>(vii) Use of Calculator is allowed.</b>		

**PART-II**

- Q. No. 2.** (a) What is Pauli's Exclusion Principle? (5)  
(b) Give the electronic configuration of Sodium. (5)  
(c) What are Bohr's postulates and how do they explain the hydrogen atom spectrum? (10) (20)
- Q. No. 3.** (a) Define Heat of combustion. How is it experimentally determined? (10)  
(b) For the combustion of 1 mole of benzene at 25 °C, the heat of reaction at constant pressure is given by (10)  
$$\text{C}_6\text{H}_6(l) + 15/2 \text{O}_2(g) \rightarrow 6\text{CO}_2(g) + 3\text{H}_2\text{O}(l);$$
$$\text{H}^\circ = -326720.32 \text{ J}$$
Calculate E at 25 °C. (20)
- Q. No. 4.** (a) Describe the manufacture of Phosphorus on a large scale. (5)  
(b) Draw the figure of Nitrogen cycle in nature. (5)  
(c) Compare the physical properties of three allotropic forms of Carbon (10) (20)
- Q. No. 5.** (a) How is steel manufactured? Describe various chemical reactions taking place in the blast furnace. (10)  
(b) Describe the electrolytic refining of Copper. (10) (20)
- Q. No. 6.** (a) What are fertilizers? Why are they needed? Describe various types of fertilizers and their uses. (10)  
(b) Describe the processes of Urea manufacturing in Pakistan. (10) (20)
- Q. No. 7.** (a) What are transition metals? Discuss their characteristic features (5)  
(b) Draw molecular orbital diagrams of  $[\text{Co}(\text{NH}_3)_6]^{3+}$  and  $[\text{CoF}_6]^{3-}$  (10)  
(c) What was Rutherford's atomic model? (5) (20)
- Q. No. 8.** (a) What is Greenhouse Effect? How does it cause global warming of Earth? (10)  
(b) What is meant by water pollution? Discuss various sources of water pollution. (10) (20)

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