KHYBER PAKHTUNKHWA PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR THE POSTS OF PMS OFFICERS (BPS-17)

COMPUTER SCIENCE

Time Allowed: 03 Hours **Maximum Marks: 100**

Attempt any five questions.

Attempt at least one question from each part.

Each question carries 20 marks. Draw diagrams where applicable.

Section-A

Q1) a. What is the stored program concept in computer architecture? Explain with the help of a diagram.

b. Differentiate between SIMD and MIMD in the context of Computer Architecture

Q2) a. Explain the concept of pages in paging technique in Operating Systems.

b. What are the main goals of process scheduling policies? Describe any two process scheduling policies in detail.

Q3) a. If you have been assigned a task to set up a lab of 20 computers. What factors you should consider to set up a LAN and a WAN network.

b. Explain the TCP/IP reference model with the help of a labeled diagram

Section-B

Q4) a. Write a program to input marks (out of 100) of five subjects of a student from the keyboard. Calculate the percentage of marks. Make use of the switch statement to show grades (A, B, C, D) according to the percentage obtained.

b. What is the difference between virtual functions and pure virtual functions in C++?

Q5) a. How time complexity of an algorithm is analyzed?

b. Describe little-O and big-O notations in detail.

Q6) a. What is Software Engineering? What is the difference between Software Engineering and Computer Science?

b. Discuss any two classic software development life cycle models in detail.

Section- C

Q7) a. What is an ER Model and what does it represent? Identify the entities involved in an accounts section of a school system and represent it using ER Model.

b. Describe the concept and role of normalization. Why 1NF, 2NF, and 3NF are important in a Relational database?

Q8) a. Write HTML code for designing a "sign in and sign up" web page using form including text boxes of email address and password with respective captions

b. What is CGI? Explain the concept of CGI in Perl programming. Demonstrate with a suitable code example

Q9) a. Differentiate between clipping and windowing in Computer Graphics.

b. How a 3D model works? Explain with a suitable example