Quaid-i-Azam University
Department of Computer Science

MS-IST (Information Science & Technology)
Sample Admission Test

The purpose of this sample test is to give applicants an idea of computing subject areas in which their knowledge will be evaluated. The number of questions may vary in the actual admission test.

Problem Solving and Programming

Q1) Write code in C++ / Java to reverse the data stored in an array of size N (after execution, item stored at location 0 is swapped with the item stored at location N-1 and so on)

Q2) Differentiate between (a) run time error and logical error (b) Break statement and continue statement.

Q3) How would you measure exactly 6 litres of water when you have only two containers, a 4 litres bucket and a 9 litres bucket. Write an optimal algorithm to solve the problem?

Q4) Suppose you are given the digits 3, 8, and 4. You have to form an even number, using one, two or all three of the given digits. Each digit can be used only once in a number. How many even numbers can be possibly formed?

Databases

Q5) Create an Entity Relationship Diagram for the given scenario. (1 page)
A national level ART Gallery wants to develop a database for its resource management. The gallery has one outlet in city. The outlet is in rented space. The gallery space displays the artists' art. The art can be of different types e.g. Painting, sculpture, digital art etc. Each art is made/owned by one person (artist) The art is displayed at one outlet at a certain time. It can be displayed at different outlets at different time periods. A person can buy the art by paying for its fixed price to the gallery. The gallery keeps 20% of the paid price and gives 80% to the artist. The Gallery wants to keep track of all the art display information, along with its selling details.

Q6) Give the structure Query Language syntax of the given queries.   (1 page)
Artist (A_Id, A_Name, A_DoB, A_Label, A_City, A_Country)
Album (B_Id, B_Title, B_Release_D)
Song (S_Id, **A_Id,** S_Title, B_Id, S_Release_Date)

i) Give the artists' detail who released a song in January 2022.
ii) How many albums released in year 2021?

Software Development

Q7) What is the difference between
i) Performance Testing & Load Testing   ii) Browsing and Searching
iii) Validation and Verification   iv) Intranet and Internet
v) Direct and Indirect Pointing Device   vi) E-commerce and E-business

Q8) You have to design a part of the Web-based assignment submission system for the academic departments in a university. The system is to be implemented using Web-based technologies. The users are faculty members and the students. The students can add an assignment, remove an assignment before the D/Line, and see their submitted assignments. The teachers can see all the assignments for his / her course and download any of those for evaluation.
i.   Sketch the different components which are required to be implemented in context of MVC (Model-View-Controller architecture)
ii.   Select the most appropriate technology (such as HTML, JSP/ASP, PHP, Servlets) for the implementation of each component and justify your selection. Pay particular attention to incorporate "separation of concerns".
iii.   Model the relationships showing the necessary interconnections between the data entities

Q9)

A) The owner of a video store has contacted you to develop a system to keep track of videos and rentals. He has never used computer systems before but feels that such a system will help in managing accounts and providing better customer services. Which process model will be most appropriate to use for software development and why?

B) In part 9-A., if the owner states his requirements clearly, and you have developed similar systems, will this change your choice of a model? Which model will you choose now and why?

Q10) Convert the following table in XML:

Date	Day	MS/MPhil	MPhil/PhD
May 29, 2014	Thursday	CS-611 (HII) Room 201	
June 3, 2014	Tuesday	CS-631 (WS) Room 217	CS-825 (ML) Lab CS1
June 5, 2014	Thursday		CS-828 (CM) Lab CS2
June 9, 2014	Monday	IST-821 (D4U) Room 201	CS-873 (OE) Room 201
June 13, 2014	Friday	IST-785 (STIST) Room 217	

Human Computer Interaction

Q11) Design a usable interface for a vending machine.

Q12) Give short answers:
- a) Differentiate direct and indirect manipulation interaction styles.
- b) Demonstrate (diagram) transfer of information for sensory memory to short term memory and from short term memory to long term memory.
- c) List and define WIMP components.