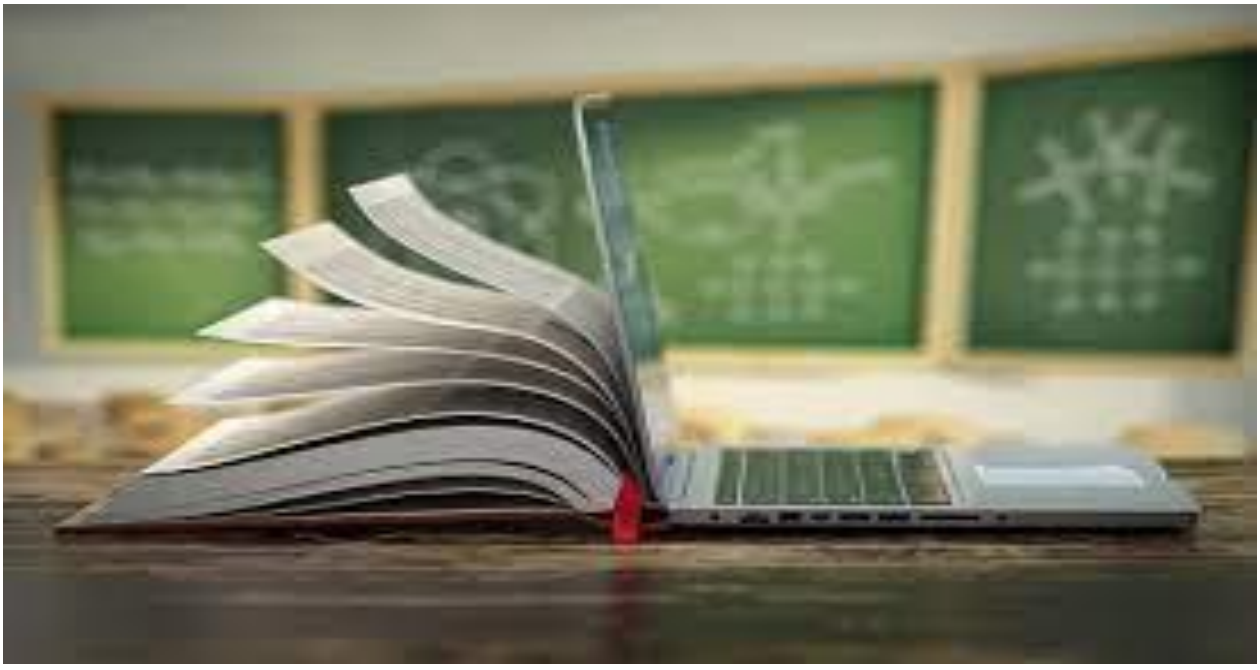
ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR

"HSC-I COMPUTER"

ZUEB EXAMINATIONS 2021



PREFACE:

The ZUEB examination board acknowledges the serious problems encountered by the schools and colleges in smooth execution of the teaching and learning processes due to sudden and prolonged school closures during the covid-19 spread. The board also recognizes the health, psychological and financial issues encountered by students due to the spread of covid-19.

Considering all these problems and issues the ZUEB Board has developed these resources based on the condensed syllabus 2021 to facilitate students in learning the content through quality resource materials.

The schools and students could download these materials from www.zueb.pk to prepare their students for the high quality and standardized ZUEB examinations 2021.

The materials consist of examination syllabus with specific students learning outcomes per topic, Multiple Choice Questions (MCQs) to assess different thinking levels, Constructed Response Questions (CRQs) with possible answers, Extended Response Questions (ERQs) with possible answers and learning materials.

ACADEMIC UNIT ZUEB:

1. **Extended Response Questions (ERQs)**

HOW TO ATTEMPT ERQs:

- Write the answer to each Constructed Response Question/ERQs in the space given below it.
- Use black pen/pencil to write the responses. Do not use glue or pin on the paper.

SECTION C (LONG ANSWER QUESTIONS)

1. **Write some applications of ROBOT?**

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1.	**Define Topology? Discuss 3 basic type of topologies?**	**TOPLOGY** **The physical structure or Layout of a network is called a Topology. The 4 Basic Topologies of LAN are Star, Ring, Bus and Hybrid Topology. In a network topology, a component or a device is called a Node, which is usually a computer on a network.** **(1) STAR TOPOLOGY** **In this type of Topology, each device is connected to a Central Unit. Any Communication between one device and another goes through the central unit. The main central computer is called "Server". Each device or Computer is directly connected to the central server. Central server contains interface cards and important software to manage all type of communication in Star Network.** **Advantages** **1. New Nodes or Terminals can be added to a network easily.** **2. No Chance of data collision because server prevents collisions.** **3. If a connection is broken between any communication device and the server, the rest of the devices on the network will Continue operating.** **4. In case of adding new Nodes to the network, no transmission Delays occurred.** **Disadvantages** **1. Most important device is central server. If the server fails, the entire Network will collapse.** **2. It is most expansive because a separate cable is required for connecting each terminal with server.** **(2) RING TOPOLOGY** In this type of Topology, there is no central server so multiple terminals and some peripherals are connected into a ring – like Structure. All communication between terminals follows a clockwise or anticlockwise pattern. The message goes from terminal to terminal until the designated device is reached.	**K/A**	**M**

		Advantages **1. Messages Flow in only one direction. Thus, there is no danger of collision. (Crash of signals)** **2. It is more reliable than star topology because Communication is not fully dependent on a single server.** **Disadvantages** **1. If the Ring is broken, the entire network stops working.** **2. Trouble shooting of Ring Network is quite difficult.** **3. New Nodes or Terminals cannot be added to a network easily.** **4. Communication delay is directly proportional to the number of computers in the network.** **(3) BUS TOPOLOGY** **In this type of Topology, there is no server so each device is connected to a Common Cable. Each Component must have its own interface device or card. The interface Card contains the hardware and software necessary to access the network. All communication takes place on the common cable or bus.** **Advantages** **1. This is the basic, simplest form and easy to Understand type of topology.** **2. This is client / server or Peer – to – Peer network** **3. New Nodes can be added to a network easily.** **4. If one terminal becomes defective it does not disturb on the whole network.** **Disadvantages** **1. Additional / Extra circuitry and software are needed to avoid data collision.** **2. If error arises in a network, it is not easy to detect.** 3. If the connection is broken, The Entire network may stop working		
2.	**Define OSI model? Discuss all 7 layers.**	**OSI MODEL** OSI is the Acronym for Open System Interconnection. This is the most important communication standard, created by ISO (International Standard Organization) **OSI model simulate (suggest) the communication process using Seven (7) Layers.** **Each Layer has its own set of protocols** **The purpose of OSI Model is to enable (allow) any vendor's (seller) computer system to share data with any other vendor's system in an open networking environment.** **7 Layers of OSI Model are** **(1) Physical Layer (2) Data Link Layer (3) Network Layer (4) Transport layer (5) Session Layer (6) Presentation Layer (7) Application layer** **(1) Physical Layer**	**K/A**	**M**

		This is the First layer from the computer side. The Physical Layer Controls the electrical, mechanical and functional transmission of bits over the Data circuits **(2) Data Link Layer** **The Data Link Layer detects and compensates (balance) for transmission errors and ensures (make sure) that slow receivers properly receive information sent by high – speed transmitters.** **(3) Network Layer** **The Network Layer determines how information is routed (The way or the direction) between computers and within and between individual networks. It also handles software interface between networks, including networks with different protocols.** **(4) Transport Layer** **The Transport Layer Specifies the Rules for information exchange and manage end – to – end delivery of information within and between networks, including error recovery. It also controls information flow …. For example, multiple data streams on a single channel.** **(5) Session Layer** **The Session Layer controls the dialogue (conversation) between two computers, managing file transfers and putting checkpoints into a data stream (flow) to allow portions of files to be retransmitted as needed.** **(6) Presentation Layer** **The Presentation Layer supplies transport communications by masking the differences in unlike data formats such as the ASCII and EBCDIS character codes, and perform data compression and encryption.** **(7) Application Layer** **The Applications layer supplies functions for particular applications such as file transfer, remote access, and virtual terminals.** **<u>CONCLUSION</u>** **When sending or receiving information according to the OSI model, the sender and receiver must use the Seven – Layer Protocols and interface.**		
3.	**Define Hard Disk? Discuss the mechanism of Hard Disk**	**<u>Hard Disk</u>** **Hard Disk also Called <u>Fixed Disk</u>, is the Basic Storage Device for all Computers. It is also Called <u>Mass Storage</u> Device.** **<u>Mechanism of Hard Disk</u>.** **- Hard Disk Contains one or several rigid platters on which data may be recorded.** **- There may be as many as 12 Platters in a Unit.** **- All units are connected to a Central Spindle or Shaft.** **- Hard Drive is the Whole unit including Hard Disk, The Motor & a Set of Read Write Heads.** **- It is the Primary Storage Device & Typically rotate 7200 RPM having capacity range of GB.**	**K/A**	**M**

		- Hard Disk Consist of Several Platters Stacked one atop another. (Disk has almost 2 Sides) **- Every Hard Disk has a <u>Cylinder</u> which is refer to the same track across all the disk sides.** **- Hard Disk Generally Store 512 Bytes of Data in a Sector.** **- A Term <u>Fragmentation</u> means that a Data File becomes Spread out across the Hard Disk in many Non-Contiguous Clusters. (Speed Slow) Defragmentation Means Data on the Hard Disk is Re-organized**		
4.	**Define CPU? Discuss all its important Parts.**	**<u>CPU</u> (CENTRAL PROCESSING UNIT)** **The central processing unit (CPU) executes program instruction. You can think of it as the computer's brain. In a microcomputer, the entire CPU is contained on a tiny chip called a microprocessor, which is no larger than your smallest fingernail.** **The CPU has two main components:** **The Control unit The Arithmetic/logic unit** **<u>THE CONTROL UNIT</u>** **All the computer's resources are managed from the control unit, whose function is to coordinate all the computer's activities. You can think of the control unit as a traffic cop, directing the flow of data around the CPU and around the computer.** **<u>THE ARITHMETIC/LOGIC UNIT</u>** **When the control units encounter an instruction that involves arithmetic or logic operation, it passes control to the second component of the CPU, the arithmetic/logic unit (ALU). Arithmetic operations are, as you might expect, the fundamental math operations: addition, subtraction, multiplication, and division. Logical operations consist of comparisons. That is, two pieces of data are compared to see whether on is equal to (=), less than (<). Or greater than (>) the other There are also combinations, such as "greater than or equal to".** **<u>MAIN MEMORY</u>** **The main memory-also called main storage, primary storage, internal storage or simply memory-holds data and instructions for processing. Although closely associated with the CPU, main memory is technically separate from it. Memory Stores program, instructions or data in a computer**	**K/A**	**M**
5.	**Define Monitor? Discuss CRT and Flat Panel Display**	**<u>MONITOR</u>** **Monitor is the most commonly used form of output device when a permanent record is not required. A monitor is a television-like device to display text and graphics from a computer. The monitor is also referred as screen, video display terminal (VDT) console, and cathode-ray tube (CRT).** **There are two main types of monitors:** **Cathode-ray tube (CRT) monitor. Flat panel monitor.**	**K/A**	**M**

		The following chart shows three types and some common varieties of monitors included in these categories. **<u>CATHODE-RAY TUBE MONITORS</u>** **The cathode-ray tube (CRT) is an output display device that resembles a television screen (see Fig. 1.30). This is the type of monitor used with microcomputer. CRTs contain an electron "gun" that a beam of electrons. The inside of the front of the CRT screen is coated with phosphor. When a beam of electrons from the electron gun hits the phosphor, it lights up tiny points of phosphor for a short period of time. Each tiny point of light is called a pixel (a contraction of picture element). Each character you see on the screen is made up of many pixels.** **<u>FLAT PANEL MONITORS</u>** **CRT monitors are the standard for use with desktop computers because they provide the brightest and clearest picture for the money. There are, however, certain major disadvantages associated with CRT monitors.** **There are three types of Flat Panel monitors** **(a) LCD (liquid crystal display)** **(b) EL (electroluminescent display)** **(c) Gas-plasma display**		
6.	**Define Operating System? Write down the important Features and Functions of Operating System**	**<u>OPERATING SYSTEM</u>** **The operating system (OS) is a collection of system software used to manage that overall operation of the computer. It is designed to support the activities of a computer. OS is a controlling hardware and software program. The prime objective of operating system is to improve the performance and efficiency of a computer system and increase facility, the ease with which a system can be used. Thus like a manger of a company, an operating system is responsible for the smooth and efficient operation for the entire computer system. Moreover, it makes the computer system user friendly. That is, it makes it easier for people to interface with and make use of the computer.** **<u>POPULAR OPERATING SYSTEMS</u>** **Popular operating systems include MS-DOS (Microsoft Disk Operating System), OS/2 (Operating System Two), Windows 95 through XP, Windows NT (Windows New Technology) through 2000 and UNIX. The Macintosh uses finder and MultiFinder.** **<u>FEATURES OF OPERATING SYSTEM</u>** **Operating systems should have the following features:**	**K/A**	**M**

		1. **Efficiency, in terms of processor and resource utilization.** 2. **Reliability, in terms of being error-free and handling all possibilities in the execution of jobs.** 3. **Maintainability, in terms of enhancing facilities, modularity, correction of bugs etc.** 4. **Small size, in terms of the amount of memory and backing store required.** **<u>FUNCTIONS OF OPERATING SYSTEM</u>** 1. **Processor management, that is, assignment of processors to different tasks being performed by the computer system.** 2. **Memory management, that is, allocation of main memory and other storage areas to the system programs as well as user programs and data.** 3. **Input/output management, that is coordination and assignment of the different input and output devices while one or more programs are being executed.** 4. **File management, that is, the storage of files on various storage and the transfer of these files from one storage device to another. It also allows all files to be easily changed and modified through the use of text editors or some other file manipulation routines.** 5. **Establishment and enforcement of a job priority system. That is, it determines and maintains the order in which jobs are to be executed in the computer system.** **Interpretation of commands and instructions**