ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR

"SSC-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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S.NO	ERQ	ANSWER	CL	DL
1.	Discuss Mechanical Era? Discuss Some important Devices used in Mechanical Era?	**EVOLUTION OF COMPUTERS IS GENERALLY DIVIDED INTO FOLLOWING 3 AGES** **(I) MECHANICAL ERA (DARK AGE)** **In mechanical era, human became successful to make simple machines that could help performing simple arithmetic Operations, in other words computing. These machines were manually operated since the electricity was not invented. Some of the important machines of this era are:** **(a) ABACUS (3000 B.C.)** **Abacus was invented about 5000 years ago. It is also known as counting frame. Abacus is still used to teach basic arithmetic operations to the students. It was considered as first computer prototype.** **(b) NAPIER'S BONES (1612 A.D.)** **In 1612, Scottish mathematician John Napier developed Napier's Bones. It was also called Napier's Rods. It was a small machine that contained 10 rods. The rods were made up of bones, wood or metal. Napier's Bones was used for multiplication and division only.** **(c) SLIDE RULE (1622 A.D.)** **In 1622, English mathematician William Oughtred invented the First Slide Rule. It was basically a pair of 2 moveable rules placed side by side. They had a standardized set of markings called scales. These scales were used for mathematical computations. Slide Rule was used to multiply and divide numbers. The modern slide rules are still used in some countries like China, Japan & Korea.** **(d) PASCALINE OR PASCAL'S CALCULATOR (1642 A.D.)** **In 1642, French mathematician Blaise Pascal invented the very first mechanical calculator which was called Pascaline. He developed this machine to help his father who was a tax collector. Pascaline can perform only addition and subtraction by eight figures.** **(e) LEIBNIZ'S CALCULATOR (1694 A.D.)** **In 1694, Leibniz's Calculator was developed by the German mathematician Gottfried Wilhelm Leibniz. It was also called stepped reckoner. It can be called as the**	K/A	M

		first calculator that could perform all four basic arithmetic operations; addition, subtraction, multiplication and division		
2.	**Discuss Second and Third Generation of Computers?**	**a) FIRST GENERATION OF COMPUTERS (1940 TO1956)** **Based on vacuum tubes, first generation computers were very large in size. This generation computers used Machine Language (i.e. 0's and 1's). Magnetic drums were used as primary internal storage medium and punched cards for input. In this generation mainly batch processing operating system was used. Computers of this generation were primarily used for scientific and research purposes. Electronic Numerical Integrator and Calculator (ENIAC), Universal Automatic Computer (UNIVAC) were examples of first generation computers.** **(b) SECOND GENERATION OF COMPUTERS (1956 TO 1963)** **With the usage of TRANSISTORS computers became smaller, faster, cheaper and more efficient. Assembly language and a high-level language FORTRAN were introduced. Magnetic core was used as a primary internal storage medium. Punched Cards were used for input. Batch processing and Multiprogramming Operating systems were used. These computers were mainly used for commercial productions, scientific and engineering analysis and design.** **Examples are IBM 7094 and IBM 1401**	**K/A**	**M**
3.	**Classify the Computers according to Technology or Type of Data they handle?**	**According to Technology or type of data they handle, computers are classified into three types.** **(a) ANALOG COMPUTERS** **Analog Computers are used to process analog data. Analog data are in the form of continuously varying physical quantities like pressure, temperature, voltage, speed and weight. Examples of Analog computer are speedometer of a car, voltmeter etc.** **(b) DIGITAL COMPUTERS** **Digital Computers are most commonly used type of computers. They are used to process information with quantities using the binary number system (0's and 1's). Digital Computers are used in home, educational institutes, offices, business, scientific fields, etc.** **(c) HYBRID COMPUTERS** **Hybrid Computers are the combination of Analog and Digital Computer system. These computers combine analog and digital features of computers in a single**	**K/A**	**M**

		machine. A Hybrid Computer uses analog to digital and digital to analog conversion. It may input or output either digital or analog data.		
4.	**Classify the Computers according to their size**	**Computers are also divided into four groups according to their size.** **(a) SUPER COMPUTERS** **Super Computers are the most powerful, fastest and largest computers. They are extremely expensive. These computers are widely used in scientific applications such as aerodynamics, design simulations, processing of geological data, weather forecasting and nuclear research.** **(b) MAINFRAME** **Mainframe Computers are powerful multi-user and multiprocessors computers. They can process huge amount of calculations at very high speed. Mainframes are also very expensive and require a lot of technical expertise to be installed and operated. They are used in banks and many large business organizations where several users work simultaneously.** **(c) MINICOMPUTER** **These are smaller than mainframe computers, but they are more powerful than Microcomputers. Minicomputers usually use multi-user operating system. Multiple users can use the Minicomputers through terminals. Minicomputers may be used as network servers and Internet servers. DEC VAX and IBM AS/400 are good examples of minicomputers.** **(d) MICROCOMPUTERS** **Microcomputers are also called Personal Computers (PCs). The use of microprocessor has made computers cheaper yet faster and more reliable. These are the smallest computers designed to be used by individuals. PCs can be used for variety of tasks like documentation, calculations, illustration and entertainment. The power of network and internet has also made it more useful. Now computers are also used for communication and socialization**	**K/A**	**M**
5.	**Discuss the Functions of Operating System**	**FUNCTION OF OPERATING SYSTEM** **Operating system manages every activity of a computer. It is the master control program that provides an interface for a user to communicate with computer. System software and application software run on operating system. Operating System performs the FOLLOWING FUNCTIONS.**	**K/A**	**M**

(i)Booting

Booting is a process of starting the computer operating system. It checks the computer resources and makes it ready to perform different tasks.

(ii) Resource Management

Operating system manages all the hardware and software resources. This includes allocation and de-allocation of processor, memory, access to shared cache memory and access to network resources.

(iii) User Interface or Command Interpreter

We interact with operating system through user interface. Command interpreter is one of the parts of operating system which reads the commands from user, interprets them and translates them into machine language instructions that the computer hardware can understand.

(iv) Memory Management

Memory management module performs the task of allocation and de-allocation of memory space to programs and data in need of these resources.

(v) Input / Output (I/O) Management

An Operating System provides the device driver to facilitate I/O functions involving I/O devices. These device drivers are software that control I/O devices through their controllers

(vi) File Management

It manages all the file -related activities such as organization storage, retrieval, naming, sharing, and protection of files.

(vii) Process Management

A process is a job or activity to be performed by the system. Process management manages creation, deletion, suspension and resumption of processes. The term process refers here to program code that has been loaded

		into a computer's memory for execution by the central processing unit (CPU). In a multiprogramming system, there will be a number of computing processes. The operating system must ensure that each process gets a fair share of the CPU's time. The OS decides the order in which processes have access to the processor, and how much processing time each process should get. This function of OS is called process scheduling		
6.	**Explain briefly Twisted Pair Cable, Coaxial Cable and Fiber Optic Cable?**	**a) Twisted Pair Cable** **This type of cable is made by two separate wires twisted together. A twisted pair cable is made up of insulated wires. The insulation and twisting of wires prevent external interference (Noise). Each pair of wires has unique color code. This type of cable is widely used in different kinds of data and voice infrastructures. There are two types of twisted pair cables:** **Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP)** **(i) Unshielded Twisted Pair (UTP)** **This type of cable can block interference but it is vulnerable to external interference. It is mostly used for telephonic applications. It is less expensive and easy to install.** **(ii) Shielded Twisted Pair (STP)** **This type of cable consists of a special coating to block external interference. It is used in fast-data-rate Ethernet and also in voice and data channels of telephone lines.** **(b) Coaxial Cable** **Coaxial cable is also known as coax. It has an outer plastic covering containing two parallel conductors each having a separate insulated protection cover. Cable TVs and analog television networks widely use coaxial cables.** **(c) Fiber-Optic Cable** **In optical fiber or fiber-optic cable data is transferred in the form of light. It uses the concept of refraction of light through a core made up of glass or plastic. The core is surrounded by a less dense glass or plastic covering called the cladding. It is used for transmission of large volumes of data at very high speed**	**K/A**	**M**
7.	**Define any two of them? (Switch, Router, Modem)**	**(i) SWITCH** **A switch is a special device that connects computers and other devices likeprinters, scanners and cameras on a network. Data cables from all computers and other**	**K/A**	**E**

		devices of network are plugged into the switch to enable communication b/w them. **(ii) ROUTER** **A Router is a device that connects two or more networks. Routers are a combination of hardware and software. The main function of a router is to determine the optimal data path and transfer the information through that path, Router is also known as network traffic controller.** **(iii) MODEM** **Modem is short for Modulator and Demodulator. Modulation is the process of converting digital signals into analog signals. Demodulation is quite opposite; it converts analog signals into digital signals**		
8.	**What do you mean by Topology? Discuss All Three type?**	**TOPOLOGY :** **The physical layout in which computers are connected is called topology. The topology of network describes the way computers are connected. Topology is a major design consideration for computer networking.** **(a) BUS TOPOLOGY** **In BUS Topology, Computers and other devices are connected with a single cable. The central cable is the backbone of the network and every device communicates with the other device through this bus. The Advantages of Bus Topology are simplicity, low cost and easy expansion of the network. The Disadvantage of the Bus Topology is that a breakdown in the bus cable brings the entire network down.** **(b) RING TOPOLOGY** **In Ring Topology, computers are connected in a ring or circle shape. The signal travels around the loop in one direction and passes through each computer. The recipient of the message receives the message while another computer acts like a repeater to send it to the next computer. The failure of a link or a computer can make the entire network non- functional.** **(c) STAR TOPOLOGY** **In a star topology, all the computers are connected to a central device called hub or switch. To communicate with any computer, the sender must send information to the hub. Then the hub transmits that information to the destination. The advantages of star topology are easy to set up and easy expansion of the network. Another feature of Star Topology is that if one link to the hub breaks, only the station using that link is affected not the whole network**	**K/A**	**M**
9.	**What do you know about cybercrime?**	**CYBERCRIME:** **Cybercrime is the crime that is committed through a computer and network. Cybercriminal uses devices to**	**K/A**	**E**

	What can Hacker do?	**gain unauthorized access to important information. Stealing passwords and important information, hacking social media accounts, accessing anyone else's account and making transactions, committing online frauds are some of the examples of cybercrime** **HACKERS:** **Hacker can be a person who has in-depth knowledge of computer systems, networks, and programs. Hacker may be someone who uses his or her extensive skills to identify and overcome a network loophole. Government and business organizations are now hiring ethical hackers, also known as white hat hackers, to prevent data theft**		
10.	**Define Term Anti-Virus? What can Hacker do?**	**ANTIVIRUS** **Anti-viruses are utility software designed to protect computers from any potential threats of data or hardware loss. It is highly recommended that the user must install an antivirus on an operating system like Windows.** **Many anti viruses software can be found on the internet and most of them are generally free. However, in the free version of antivirus, some advanced features are not available. Paid customers are called premier users and they get advance security features.** **The most common anti-viruses are:** **NORTON** **Norton antivirus has been a popular antivirus utility since 1991. This is a part of a large family of security and other utility software by Symantec Corporation. Norton Antivirus is easy to use Antivirus.** **McAfee** **McAfee claims that it provides a combination of antivirus, privacy an identity tools and features. This enables users to stay protected against the latest virus, malware, ransom ware and spyware attacks while keeping their identity and privacy protected and personal**	**K/A**	**M**
11.	**Define Term Data Base? Write down the advantages of Database Management System over the Flat File System?**	**DATABASE** **A database stores data in organized form. A database is composed of tables which contain rows and columns. These rows and columns are called records and fields respectively. A database is an electronic system that facilitates easy access, manipulation and updating of data.**	**K/A**	**M**

Advantages of Database Management System over the Flat File System

DBMS	FLAT FILE SYSTEM
Multiple users can access data simultaneously	Only one user can access at a time
Capable of handling huge sets of data	Suitable only for smaller sets of data
Allows non-duplication and integrity	Increases duplicate and redundant data
Supports online access	Does not support remote connections
Good for small, medium andlarge businesses	Limited only to smaller data management needs