Department of Information Technology

Course Name :Basics of Information Technology

Course Code:IT1101 Term:ODD2019

Detailed Solution

Assessor-Smt.Anita D.Kshirsagar

Q.No	Model Answer	Marks
1.a	**Define a)Translator b)Parity Bit**	
Ans:	**Translator**: A translator takes a program written in source language as input and converts it into a program in target language as output. It is Translating the high-level language program input into an equivalent machine language program. **Parity Bit:** a bit which acts as a check on a set of binary values, calculated in such a way that the number of 1s in the set plus the parity bit should always be even (or occasionally, should always be odd). OR A **parity bit**, also known as a check **bit**, is a single **bit** that can be appended to a binary string. It is set to either 1 or 0 to make the total number of 1-**bits** either even ("even **parity**") or odd ("odd **parity**"). The purpose of a **parity bit** is to provide a simple way to check for errors.	Each Definition 1Mark
1.b	**State the need of Binary System**	
Ans:	A computer is built with many connections and components, which are used to transfer and store data, as well as communicate with other components. Most of that storing, transferring, and communicating happens with digital electronics. Digital electronics use the binary system (ON/OFF). A signal with a series of ON/OFF pulses is equal to a binary number. Digital computer represents all kinds of data and information in the **binary system**. **Binary** Number **System** consists of two digits 0 and 1 Because there are only two valid Boolean values for representing either a logic "1" or a logic "0", makes the system of using **Binary Numbers** ideal for use in digital or electronic circuits and systems.	Valid Descriptio n 2Marks
1.c	**Enlist various types of memory categories**	
Ans:	1) **Random Access Memory (RAM):** This is the main memory of any computer systems. Processors normally access information in a given order. The information must be loaded in the RAM so that the processor can access it. This type of computer memory can be classified into different categories which include: **a)Dynamic RAM (DRAM)** – The maintenance of its state will always depend on the presence of electricity. Its access time normally ranges from 60 to 70 nanoseconds. **b)Static RAM (SRAM)** – Its access time is less than 60 nanoseconds. 2)**Read Only Memory (ROM)-** : Unlike the RAM, the data present in the ROM cannot be changed thus being a non-volatile (it will always keep its contents regardless whether there's power or not). These types of computer	Each Type of Memory 1Mark

	memory are used to describe different media or memory that can only be read e.g. the DVD-ROM and CD-ROM. This type of computer memory can be classified into different categories which include: a)**Programmable ROM (PROM)** – It store programs and cannot be erased. b) **Erasable PROM (EPROM)** – Can always be erased by exposure to UV light. c) **Electrically EPROM (EEPROM)** – Can be erased by exposing it to an electric charge.	
1.d	**Explain working of optical mouse.**	
Ans:	An optical mouse is an advanced computer pointing device that uses a light-emitting diode , an optical sensor, and digital signal processing in place of the traditional mouse ball and electromechanical transducer. Movement is detected by sensing changes in reflected light, rather than by interpreting the motion of a rolling sphere. The optical mouse takes microscopic snapshots of the working surface at a rate of more than 1,000 images per second. If the mouse is moved, the image changes. The tiniest irregularities in the surface can produce images good enough for the sensor and DSP to generate usable movement data. The best surfaces reflect but scatter light; an example is a blank sheet of white drawing paper. An optical mouse does not need cleaning, because it has no moving parts. This all-electronic feature also eliminates mechanical failure. If the device is used with the proper surface, sensing is more precise than is possible with any pointing device using the old electromechanical design.	2 Marks
1.e	**State the advantages of Pen drive.**	
Ans:	**1)Small and Light** The biggest advantage of pen drive is that it is very small in size and light and therefore it can be carried anywhere. It can even be kept in the pocket as it is very light which is not the case with other storage devices like CD, DVD and floppy disks which are big in size and therefore cannot be carried easily. **2)Size** Previously pen drive could carry up to only 8 GB of data but nowadays pen drive can carry even 1 TB of data and hence if one wants to transfer large amount of data than also pen drive makes it easy as all data can be stored in 1 pen drive only resulting in ease of high volumes of data transfer for an individual. **3)Compatibility** Nowadays only few laptop and desktops have floppy drive or CD drive while rest have only USB port and therefore if you have data on CD or DVD and are working on new computers than you will find it difficult to transfer your data and pen drive is the only option as it is compatible with all types of devices. Hence one can use pen drives at all places whether it's at home or at the office or driving a car and so on.	Any TWO advantages Each 1Marks
1.f	**Describe working of Inkjet Printer**	
Ans:	Inkjet Printer works by propelling droplets of ink on a piece of paper. The quality of output generated by an Inkjet Printer is better than that of dot matrix printer.	2Marks

	An ink tank (black) supplies the ink dispenser (green) through a narrow tube by capillary action. A droplet of ink from the tank sits waiting at the very end of the tube .When the printer circuit wants to fire an ink droplet, it energizes two electrical contacts. The membrane pushes against a hole in the ink dispenser (green), increasing the pressure there. The pressure forces the waiting ink droplet from the tube toward the paper.	
1.g	**Enlist the components of PC and write function of Modem**	
Ans:	**Components of PC:** **CPU**-CPU is the main processing unit of a computer .All the input/output operations, processor-related tasks, memory storage tasks are performed. Some typical components of CPU are- i)Motherboard –Mounts all the electronic components and circuitry ii)Microprocessor –processes the instructions and generates the desired result iii)Random Access Memory(RAM)-stores the currently running applications iv)Hard-disk Driver –Stores all computer's data. v)Power Supply Box- controls the electrical power supply to the computer . **Monitor**- It is the output unit of computer which displays generated output Two types of monitors are –i)CRT Monitor ii) LCD Monitor **Printer-**It is an output device that prints output generated by the computer on a sheet of paper **Scanner**-It is an input that scans text of images printed on piece of paper to generate the corresponding image files. **Modem-**It is device that converts digital data to analog signals and vice-versa. **Memory-**It is the storage location where computer stores its data **Sound Card-** It is a hardware device that allows a computer to playback or records sound **The function of a modem** is Modulation And Demodulation. Modem is used to connecting a computer to the Internet.	Components of PC: 1Marks The function of a modem-1Marks
1.h	**Define a)URL ii)WWW**	
Ans:	**i)URL**-Uniform Resource Locator-URL is the string that you type on the address bar of the web browser to access a web page. It has following parts - <protocol>://<domain name>.<domain name extension>/<web page> ii) **WWW**-World Wide Web-WWW is a system of interlinked websites accessed over the internet using HTTP. This entire arrangement of interconnected web pages is commonly referred as WWW	Each Definition 1Mark
1.i	**Describe any two uses of Internet**	
Ans:	1**. Email-Communication**-The E-mail features allows internet users to exchange data and information with each other. 2. **Chat Communication**-The chat or messenger feature allows Internet users to exchange data and information with each other through instant chat messages. 3. **File sharing**-Internet allows users to share files with each other by attaching them along with Email messages. 4.**Online Collaboration:** Internet features VOIP telephony and web conferencing allowed remote users to collaborate with each other	Any two uses of this - 2Marks
1.j	**Explain components of CPU**	
Ans:	**Components of CPU:** **CPU**-CPU is the main processing unit of a computer .All the input/output operations, processor-related tasks, memory storage tasks are performed. Some typical components of CPU are-	4components-2Marks

	i)Motherboard –Mounts all the electronic components and circuitry ii)Microprocessor –processes the instructions and generates the desired result iii)Random Access Memory(RAM)-stores the currently running applications iv)Hard-disk Driver –Stores all computer's data. v)Power Supply Box- controls the electrical power supply to the computer .	
1.k	**Define E-commerce. And give example of B2B E-commerce**	
Ans:	**We can define E-commerce** as the sharing of business information, maintaining business relationships and conducting business transactions using telecommunication networks. Example –B2B E-commerce One of the methods of identifying a vendor is by examining on-line catalogues available in the websites of vendors.	Definion-1Mark Example-1Mark
1.l	**Enlist any four offences stated in IT ACT 2000 that leads to punishment**	
Ans:	1. Downloads, copies or extracts data from a database without the permission of the owner. 2. Introduces any computer virus into any computer. 3. Damages programs or data residing in a computer, network or illegally copies them. 4. Disrupts a computer or network. 5. Denies access to a computer or network by authorized person. 6. Charges for services availed of a person to another person by tampering with or manipulating accounts in a computer or network. 7. Sends out bulk email known as spam. 8. Distributes pornography or material considered generally objectable.	4 offences-2Marks
Q.2 a.	**Explain ASCII and EBCDIC code.**	
Ans:	**ASCII code-** The full form of **ASCII code** is American Standard Code for Information Interchange. It is a seven bit code based on the English alphabet. In 1967 this code was first published and since then it is being modified and updated. ASCII code has 128 characters some of which are enlisted below to get familiar with the code. DEC OCT HEX BIN Symbol Description 0 000 00 00000000 NUL Null char 1 001 01 00000001 SOH Start of Heading **EBCDIC code-**The EBCDIC stands for Extended Binary Coded Decimal Interchange Code. IBM invented this code to extend the Binary Coded Decimal which existed at that time. All the IBM computers and peripherals use this code. It is an 8 bit code and therefore can accommodate 256 characters. Below is given some characters of **EBCDIC code** to get familiar with it. Char EBCDIC HEX Char EBCDIC HEX Char EBCDIC HEX A 1100 0001 C1 P 1101 0111 D7 4 1111 0100 F4 B 1100 0010 C2 Q 1101 1000 D8 5 1111 0101 F5 C 1100 0011 C3 R 1101 1001 D9 6 1111 0110 F6 D 1100 0100 C4 S 1110 0010 E2 7 1111 0111 F7	ASCII code Explination-Marks EBCDIC code-2Marks

2.b	**Describe i)Main Memory ii)Cache Memory**	
Ans:	**i)Main Memory(Primary Memory)** Primary memory holds only those data and instructions on which the computer is currently working. It has a limited capacity and data is lost when power is switched off. It is generally made up of semiconductor device. These memories are not as fast as registers. The data and instruction required to be processed resides in the main memory. It is divided into two subcategories RAM and ROM. **Characteristics of Main Memory** • These are semiconductor memories. • It is known as the main memory. • Usually volatile memory. • Data is lost in case power is switched off. • It is the working memory of the computer. • Faster than secondary memories. • A computer cannot run without the primary memory. **ii)Cache Memory-** Cache memory is a very high speed semiconductor memory which can speed up the CPU. It acts as a buffer between the CPU and the main memory. It is used to hold those parts of data and program which are most frequently used by the CPU. The parts of data and programs are transferred from the disk to cache memory by the operating system, from where the CPU can access them. **Advantages** The advantages of cache memory are as follows − • Cache memory is faster than main memory. • It consumes less access time as compared to main memory. • It stores the program that can be executed within a short period of time. • It stores data for temporary use. **Disadvantages** The disadvantages of cache memory are as follows − • Cache memory has limited capacity. • It is very expensive.	Main memory-2Marks Cache Memory-2Marks
2.c	**Explain LOAD and STORE instruction**	
Ans:	A **LOAD** operation is used for a memory READ operation;Loads the MBR with the contents of the memory location whose address is in MAR A **STORE** operation is used for a memory WRIE operation;Stores the data from MBR into a memory location whose address is in MAR **Example: Transfer of Byte** LOAD 15 Load MBR with contents of the memory location 15 (MBR is implicit ,hence not specified) STORE 13 Stores data from MBR in the memory location 13 (MBR is implicit ,hence not specified)	LOAD instr with example 2Marks STORE instr-with example 2Marks
2.d	**Describe working of Liquid Crystal Display Technology**	
Ans:	We get the definition of LCD from the name “Liquid Crystal” itself. It is actually a combination of two states of matter – the solid and the liquid. They have both the properties of solids and liquids and maintain their respective states with respect to another. Solids usually maintain their state unlike liquids who change their orientation and move everywhere in the particular liquid. Further studies	Description-4Marks

	have showed that liquid crystal materials show more of a liquid state than that of a solid. It must also be noted that liquid crystals are more heat sensitive than usual liquids. A little amount of heat can easily turn the liquid crystal into a liquid. This is the reason why they are also used to make thermometers. The liquid-crystal display has the distinct advantage of having a low power consumption than the LED. It is typically of the order of microwatts for the display in comparison to the some order of milliwatts for LEDs The main principle behind liquid crystal molecules is that when an electric current is applied to them, they tend to untwist. This causes a change in the light angle passing through them. This causes a change in the angle of the top polarizing filter with respect to it. So little light is allowed to pass through that particular area of LCD. Thus that area becomes darker comparing to others.	
2.e	**Explain i)Web Browser ii)Use of Computer in Business**	
Ans:	i)**Web Browser**- It is a software application that allows you to open websites and access other web resources over the internet. You can use web browsers for browsing a website, downloading data files like songs, documents ,pictures ,etc and uploading data. A variety of web browsers are available with different features, and are designed to run on different operating systems. Common browsers include Internet Explorer from Microsoft, Firefox from Mozilla, Google Chrome You can use web browser. **ii) Use of Computer in Business-** a)To process large volume of data b)To Process data in many ways c)To advertise the products in this competitive world d)To process daily operations eg: land registration docs processing	Explanation Web Brwosr-2Marks Uses of Computer in business any 4 uses-2Marks
Q.3 a	**Explain any two basic operations.**	
Ans:	There are three basic operations- **1) Sequence-** It is series of steps that we follow in any algorithm without any break that is unconditionally. The algorithm for making tea belongs to this category. Any Algorithm or example students can write. **Algorithm-** Begin 1. Take a utensils. 2. Take the utensil to the water tap. 3. Open the tap. 4. Fill the utensil with water. 5. Close the tap. 6. Put the utensil with water. 7. Start the gas or then oven. 8. Wait until the water boils. 9. Switch off the gas or oven **2) Selection-** There are quite few of our actions depend on certain events thus there is need to be able to make a choice from many available options Therefore there is. Process of selection .Like if condition then .end if is Any Algorithm or example students can write. **Algorithm:** Begin 1. If the guest wants tea 2. Then makes a tea.	Any Two operation with example or algorithm 4Marks Each-2Mark

	3. End-if 4. Offer biscuits 5. End **3)Iteration-**It performs repetitive tasks. It is series of if –then –else statements. Example-waiting of friends until my work finishes .This problem solves by Iteration operation. Any Algorithm or example students can write. **Algorithm:** **1.** Repeat **2.** Wait for 2 minutes **3.** Until I arrive **4.** Go for movie	
3.b	**Describe working of Hard-disk**	
Ans:	A hard drive has only a few basic parts. There are one or more shiny silver platters where information is stored magnetically, there's an arm mechanism that moves a tiny magnet called a read-write head back and forth over the platters to record or store information, and there's an electronic circuit to control everything and act as a link between the hard drive and the rest of your computer. **Steps of working of hard disk** 1. Actuator that moves the read-write arm. In older hard drives, the actuators were stepper motor. In most modern hard drives, **voice coils** are used instead. As their name suggests, these are simple electromagnets, working rather like the moving coils that make sounds in loudspeakers. They position the read-write arm more quickly, precisely, and reliably than stepper motors and are less sensitive to problems such as temperature variations. 2. Read-write arm swings read-write head back and forth across platter. 3. Central spindle allows platter to rotate at high speed. 4. Magnetic platter stores information in binary form. 5. Plug connections link hard drive to circuit board in personal computer. 6. Read-write head is a tiny magnet on the end of the read-write arm. 7. Circuit board on underside controls the flow of data to and from the platter. 8. Flexible connector carries data from circuit board to read-write head and platter. 9. Small spindle allows read-write arm to swing across platter.	Working of hard disk-4Marks
3.c	**Explain characteristics of Computers**	
Ans:	1. Speed-It is directly depends on the underlined hardware configuration. 2. Accuracy-Computer can generates results with high degree of accuracy. 3. Diligence-Unlike human's computer does not get tired. Its solves the problems with same level of accuracy No matter how many times you repeat operations 4.Versatality- Computer is highly versatile they can be used to perform completely different tasks 5. Reliability: Computers are considered as quite reliable as far as correctness of the result is result is concerns. 6. Storage capability- Computer have the capability of storing large amount of data for long period.	Any 4 characeristcis-4Marks

3.d	**Explain Dial up and Wireless Internet connections**	
Ans:	**Dial up Internet Connection**: Users dial the phone number of the internet service provider and connect to the internet with that help of modem. This method uses the analog communication medium from transferring data. Advantages:- Economical Disadvantages:- Slow speed(56kbps) **Wireless Internet Connection**: It is types of connection no physical medium like telephone or cable line is used for connecting to the internet instead connection is established through radio frequency bands. Wireless Internet connection is still a new concept that is spreading gradually beyond metro cities. The key feature of wireless connection is mobility. It does not require you to sit at a one place for establishing connection to the internet. Advantages:- Mobility Disadvantages:- High Cost	**Dial up** with its advatnges-2Marks **Wireless** with its advatnges-2Marks
3.e	**Explain any two advantages and disadvantages of E-commerce.**	
Ans:	**Advantages of E-commerce:** 1: Business can reach out to worldwide customer base at a very low cost. 2. Order processing cost is reduced as manual data entry. 3.Inventory size is reduced 4. Funds transfer is faster. 5.A large number of potential business partners can be quickly found and contacted usin appropriate search engine **Disadvantages of E-commerce:** 1. Communication infrastructure is expensive and not very reliable particularly to individuals in ruler area. 2. Faith or trust while doing payment by credit or debit card. 3. Small business difficult to do E-commerce. 4. Websites of e-shops will be vulnerable to attacks by hackers unless special precaution are taken. 5. Customers privacy may be lost.	Any 2 advantage -2Marks Ay 2 disadvantage-2Marks