SCHEME OF VALUATION

(Scoring Indicators)				
Revision	Rev(15)	Course Code:-6043		
Course Title	COMPUTER HARDWARE & NETWORKING			
Qn.No.	**Scoring Indicator**	**Splitup Score**	**Sub Total**	**TOTAL**
	PART-A			
I .1	higher efficiency (70%-90%).size and weight is significantly reduced.less sensitive to input voltage variations. Protection of system components	1x2	**2**	**2**
I.2	Sound card,video card, NIC , AGP	0.5x4	**2**	**2**
I.3	Electro static discharge from a conducting material to earth.	2	**2**	**2**
I.4	TCP/IP, FTP	**1x2**	**2**	**2**
I.5		2	2	2
	PART-B			
II.1	Optical mice work by using an optical sensor to take successive pictures of the surface the mouse is operating on. use LEDs to illuminate the surface that is being tracked; Changes between one frame and the next are processed by the image processing part of the chip and translated into movement on the two axes. The main components of the optical mouse are:Inbuilt optical sensor,High speed camera which can take 1000 pictures at a time,LED.These have an inbuilt optical sensor	1x6	6	6
II.2	Centronics interface :- A standard interface for connecting printers and other parallel devices.. The Centronics interface is a standard input/output (I/O) interface designed in the 1970s for connecting printers and other devices. The Centronics interface is also known as a the Centronics port, parallel port or printer port. In the original Centronics interface, data flowed in one direction only but used eight parallel data lines.Standard 36-pin parallel-port connection between computer and printer, developed by the Centronics printer company (now defunct) and governed by IEEE 1284B protocol. USB port :- is a standard cable connection interface on personal computers .USB ports allow stand-alone electronic devices to be connected via cables to a computer (or to each other).USB stands for Universal Serial Bus, USB allows data to be transferred between devices. USB ports can also supply electric power across the cable to devices without their own power source. Versions of USB: - The USB industry standard exists in multiple versions including 1.1, 2.0 and 3.0. The computer acts as the host. Up to 127 devices can	2x3	6	6

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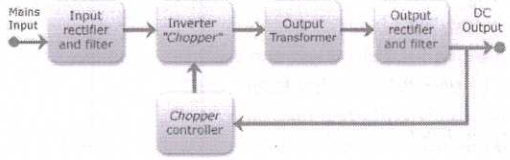
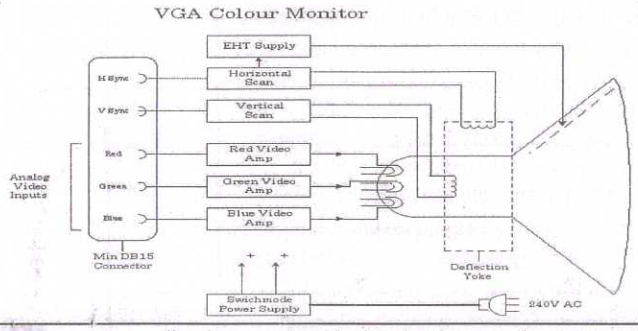
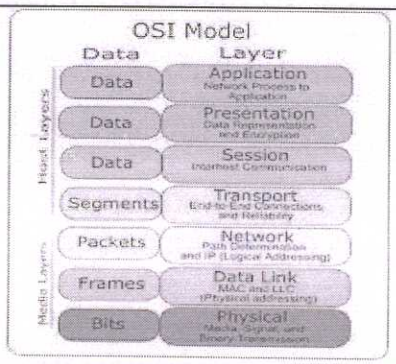
II.3	Due to the mismatch between the speeds of the main memory and the CPU. The CPU clock is very fast, whereas the main memory access time is comparatively slower.. The cache memory stores the program (or its part) currently being executed. The cache memory also stores temporary data that the CPU may frequently require for manipulation. The Capacity of the Cache Memory is too low in compare to Memory and Hard Disk. The cache memory lies in the path between the processor and the memory. A cache memory have an access time of 100ns, while the main memory may have an access time of 700ns. **level** of cache means, the connecting circuits or electronic pathways (bus) and physical proximity to the CPU. Internal Cache (Level I or L1) is a small amount of SRAM that is placed inside the actual CPU (internally) that is accessed directly. It runs at the same speed as the processor. External Cache (Level II or L2) is separate (or external) from the	2x3	6	6
II.4	Partitioning the hard disk is dividing it into pieces; into logical volumes. partition size has an important impact on both performance and on how efficiently the disk's space is utilized. DOS/Windows and allow hard disk partitions . using FDISK tool.FDISK and is used only for partitioning FAT family file systems (FAT12/FAT16/VFAT/FAT32), and allows you to perform the following functions: Create Partitions: FDISK allows you to create a primary partition or logical volumes. to set the primary partition on your boot disk active, Delete Partitions: FDISK will let you delete partitions . Display Partition Information. .	2x3	6	6
II.5	File sharing,Printer sharing,Communication and collaboration,Remote access: ,Data protection - Explanation of each	1x6	6	6
II.6	Wireless LANs can use the following technologies: infrared, narrow-band radio spread-spectrum radio.	3x2	6	6
II.7	Dynamic RAM loses its stored information in a very short time (for milli sec.) even when power supply is on. The capacitor holds the bit of information – a 0 or a 1. The transistor acts as a switch that lets the control circuitry on the memory chip read the capacitor or change its state. The problem with the capacitor is that it discharges. Therefore, for dynamic memory to work, either the CPU or the Memory Controller has to come along and recharge all of the capacitors holding it before they discharge	1x6	6	6
	PART-C			
III. a)	SMPS works like DC chopper. By operating the on/off switch very rapidly, AC ripple frequency rises which can be easily filtered by L and C filters circuits which are small in size and less weight..The output DC voltage is controlled by varying the duty cycle of the chopper by PWM of FM techniques.Input Rectifier Stage: Inverter stage: The inverter stage converts DC to AC. Voltage converter and Output rectifier: The out transformer converts the voltage up or down to required output level, if DC output is required then transformer output is rectified. Regulation: A feedback circuit monitors the output voltage and compares it with a reference.	1x4	4	

		1x3	3	7
b)	A keyboard is a miniature computer. It has its own processor and circuitry that carries information to and from that processor. A large part of this circuitry makes up the key matrix. The key matrix is a grid of circuits underneath the keys. In all keyboards (except for capacitive models,), each circuit is broken at a point below each key. When you press a key, it presses a switch, completing the circuit and allowing a tiny amount of current to flow through. When the processor finds a circuit that is closed, it compares the location of that circuit on the key matrix to the character map in its read-only memory (ROM). A character map is basically a comparison chart or lookup table. It tells the processor the position of each key in the matrix and what each keystroke or combination of keystrokes represents.	1x8	8	8
IV. a)		1x4	4	
	The computer monitor is an output device that is part of your computer's display system. A cable connects the monitor to a **video adapter**.The computer sends a signal to the video adapter, telling it what character, image or graphic to display. The video adapter converts that signal to a set of instructions that tell the display device to draw the image on the screen.	1x4	4	8

b)	The principle at work in a laser printer is static electricity, The core component of this system is the photoreceptor. the drum is given a total positive charge by the charge corona wire, a wire with an electrical current running through it. As the drum revolves, the printer shines a tiny laser beam across the surface to discharge certain points. the laser "draws" the letters and images to be printed as a pattern of electrical charges -- an electrostatic image. The system can also work with the charges reversed. After the pattern is set, the printer coats the drum with positively charged toner. Since it has a positive charge, the toner clings to the negative discharged areas of the drum, but not to the positively charged "background. With the powder pattern affixed, the drum rolls over a sheet of paper, which is moving along a belt below. Before the paper rolls under the drum, it is given a negative charge by the transfer corona wire (charged roller). This charge is stronger than the negative charge of the electrostatic image, so the paper can pull the toner powder away. Since it is moving at the same speed as the drum, the paper picks up the image pattern exactly. To keep the paper from clinging to the drum, it is discharged by the detac corona wire immediately after picking up the toner. Finally, the printer passes the paper through the fuser, a pair of heated rollers. As the paper passes through these rollers, the loose toner powder melts, fusing with the fibers in the paper. The fuser rolls the paper to the output tray, and you have your finished page. the drum surface passes the discharge lamp. This bright light exposes the entire photoreceptor surface, erasing the electrical image. The drum surface then passes the charge corona wire, which reapplies the positive charge The printer controller is the laser printer's	1x3 1x4	3 4	7
V.a)	POST is a built-in diagnostic program. This self test ensures that the computer has all of the necessary parts and functionality needed to successfully start itself, such as use of memory, a keyboard and other parts. Then additional tests are done during booting. If errors are detected during the test, the BIOS instruct the computer to give a code that reveals the problem. Error codes are typically a series of beeps heard shortly after startup.The BIOS also works to give the computer basic information about how to interact with some critical components, such as drives and memory that it will need to load the operating system. Once the basic instructions have been loaded and the self-test has been passed, the computer can proceed with loading the operating system from one of the attached drives.	6	6	6
b)	The BIOS software is built into the PC, and is the first code run by a PC when powered on. The primary function of the BIOS is to load and start an operating system. When the PC starts up, the first job for the BIOS is to initialize and identify system devices such as the video display card, keyboard and mouse, hard disk, CD/DVD drive and other hardware. The BIOS then locates software held on a peripheral device (designated as a 'boot device'), such as a hard disk or a CD, and loads and executes that software, giving it control of the PC.	4 5	4 5	9
VI.a)	A network card (also known as a Network Interface Card, NIC, Network Adapter, or Ethernet card) is used to connect a computer to a high-speed network. a video card converts signals from computer into a standardized output that can be displayed on computer's monitor	3 3	3 3	6
b)	RAM into one of three forms SIMM,DIMM's and RIMM's. -Explanation of each.	3x3	9	9

VII.a)	A hard disk uses round, flat disks called platters, coated on both sides with a special media material.. The platters are mounted onto a spindle. The platters rotate at high speed, driven by a special spindle motor connected to the spindle. Special electromagnetic read/write devices called heads are mounted onto sliders. The sliders are mounted onto arms, are mechanically connected into a single assembly called an actuator. A logic board controls the activity of the other components and communicates with the rest of the PC. Each platter has its information recorded in concentric circles called tracks. Each track is further broken down into smaller pieces called sectors, each of which holds 512 bytes of information	3 4	7	7
b)	different types of file systems in use by different operating systems for PC hardware., NTFS file systems and HPFS. (FAT, FAT12, FAT16):- Explanation of each.	4x2	8	8
VIII.a)	1. Low-Level Formatting: t creates the physical structures (tracks, sectors, control information) on the hard disk. 2. Partitioning: This process divides the disk into logical "pieces" that become different hard disk volumes (drive letters). This is an operating system function. 3. High-Level Formatting: This final step is also an operating-system-level command. It defines the logical structures on the partition and places at the start of the disk any necessary operating system files.	7	7	7
b)	There are two essential physical differences between CD and DVD disc. the smallest DVD pits are only 0.44 micron in diameter; the equivalent CD pits are nearly twice as large, or 0.83 micron wide. And DVD data tracks are only 0.74 micron apart, where as 1.6 microns separate CD data tracks. So although a DVD is the same size as a CD, its data spiral is of 11 kilometers long-more than twice the length of a CD's data spiral. To read the smaller pits, a DVD player's readout beam must achieve a finer focus than a CD player's does. In order to do this, it uses a read semiconductor laser that has a wave length of 635 to 650 nanometer. In contrast, CD players use infrared laser with a longer wavelength of 780 nanometer	8	8	8
IX.a)	**Draw block diagram of topologies-** In Computer Networking "topology" refers to the layout or design of the connected devices. Network Topologies can be physical or logical. Physical Topology means the physical design of a network including the devices, location and cable installation. Logical Topology refers to the fact that how data actually transfers in a network as opposed to its design. • bus• star• ring• mesh• Tree.Hybrid networks are the complex networks, which can be built of two or more above mentioned topologies	7	7	7
b)		3	3	

	The OSI Model is a theoretical model.The OSI Model is not a protocol.The OSI Model is not a program or software.The OSI Model sorts network communication functions into seven layers. Layer functions are not specified and should be transparent to other layers. Layer Communications are specified in the model. Layer behavior should be invisible to other layers. This model is called the Open Standards Interconnect (OSI) Model. The OSI model is designed with seven layers:Application,Presentation,Session,Transport,Network,Data Link,Physical.Physical Layer.	5	5	8
X.a)	The Internet has become such an integral part of our lives, with such powerful capabilities, The Internet workings include a technical design and a management structure. The management structure consists of a generally democratic collection of loosely-coupled organizations and working groups with mostly non-overlapping responsibilities. The Internet's architecture is described in its name, a short from of the compound word "inter-networking". This architecture is based in the very specification of the standard TCP/IP protocol, designed to connect any two networks which may be very different in internal hardware, software, and technical design.	8	8	8
b)	VPN is an acronym for the term "virtual private network." These networks allow individuals and companies to share and access information from any computer anywhere. The networks are private because access to them is restricted to specified users. They are considered to be virtual networks because they use the Internet to connect users, rather than a direct connection. Benefits,Types,Features.	7	7	7