


CMR INSTITUTE OF TECHNOLOGY		USN								
Internal Assessment Test - 3										
Sub:	Emerging Exponential Technologies						Code:	20MBA301		
Date:	08-03-2023	Duration:	90 mins	Max Marks:	50	Sem:	III	Branch:	MBA	
SET - 1								OBE		
								Marks	CO	RBT
Part A - Answer Any Two Full Questions (2* 20 = 40 marks)										
1 (a)	<p>What is AR?</p> <p>Answer: Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.</p>						[03]	CO4	L1	
(b)	<p>Predict the role of Augmented Reality in future education system.</p> <p>Answer:</p> <p>Technologies and science have opened the floodgates of opportunities for humanity. It has made our lives more convenient, comfortable, and easy by offering brilliant applications in healthcare, retail, communication, learning, and education.</p> <p>One such technology that has become a game-changer in the education sector is Augmented Reality. Augmented Reality and Virtual Reality are already making noises in manufacturing, engineering, space, ecommerce, and healthcare. Yet, even in the education sector, these technologies are being used to facilitate students with new, highly functional, and scalable learning solutions.</p> <p>The AR technology uses mainly four components to show superimposed images of the existing environment- camera and sensor, processing, projection, and reflection.</p> <p>All these four components have different roles to play.</p> <p>For example, if you want to check out the depth of an image or an object, you can use cameras and sensors. Projection helps users to see any virtual information over the actual view.</p>						[07]	CO4	L3	
(c)	<p>Unlike augmented reality, a semi-digital experience, or virtual reality, a fully digital experience, mixed reality gives users the best of both worlds - Support the statement with five real-time examples.</p> <p>Yes, Mixed Reality is the future, because of its hybrid nature of having VR and AR qualities. Virtual Reality (VR) has been the “next big thing” for several years, but its time has finally come as a way to generate realistic images, sounds, and other sensations that put you smack in the middle of a spectacular imaginary</p>						[10]	CO3	L5	

	<p>world. Augmented Reality (AR), which adds virtual stuff to your real world environment, is contributing to the buzz, and both technologies should become a big part of our future. With Mixed Reality (MR), you can play a virtual video game, grab your real world water bottle, and smack an imaginary character from the game with the bottle. Imagination and reality have never been so intermingled.</p> <p>So much is happening so fast that the differences between VR, AR, and MR can seem a little puzzling at first. Each of these spellbinding technologies are accessible to almost everyone, but before you throw down your hard-earned money for the latest head-mounted display, let's take a closer look at what you'll need for an amazing VR, AR, or MR experience.</p>			
2 (a)	<p>Define Ethics in Technology.</p> <p>Answer: Technology ethics is the application of ethical thinking to the practical concerns of technology. The reason technology ethics is growing in prominence is that new technologies give us more power to act, which means that we have to make choices we didn't have to make before.</p>	[03]	CO1	L1
(b)	<p>Mixed reality is a blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions. – Explain.</p> <p>Answer: Mixed Reality is a blend of physical and digital worlds.</p>	[07]	C03	L4
(c)	<p>Select few emerging technologies and explain its role in tomorrow's business.</p> <p>Answer:</p> <p>Mixed reality (MR) is a user environment in which physical reality and digital content are combined in a way that enables interaction with and among real-world and virtual objects. Unlike virtual reality (VR) which immerses the end user in a completely digital environment, or augmented reality (AR) which layers digital content on top of a physical environment, mixed reality blends digital and real world settings. Mixed reality is sometimes considered a type of augmented reality (AR), but its capacity for interactivity between real-world and digital elements places it further along the virtuality continuum, which has physical reality at one extreme and immersive virtual reality at the other.</p> <p>Mixed reality is sometimes also referred to as hybrid reality or extended reality (XR). A headset form factor follows the user's gaze and maps the user's physical surroundings and software then uses deep learning algorithms to align digital content with specific areas of the map. MR programming allows digital objects to interact with physical objects and people to interact with digital objects as if they are physical. The result is that an ordinary desktop can turn into an interactive computer touch screen or an MR-generated film character can sit on the homeowner's couch.</p> <p>Although mixed reality is still in the early stages, it is already being used in many industries for educational purposes. For example, aircraft manufacturers are using MR as a cost-effective way to train repair technicians. Instead of pulling an engine out of an aircraft to conduct a training session, technicians wearing special headsets can view a holographic image of an</p>	[10]	CO4	L5

	engine and use gesture, gaze and voice user interface (VUI) commands to interact with the hologram, changing perspectives and extracting meaningful information, layer by layer.			
3 (a)	<p>Define Cyber Security.</p> <p>Answer: Cyber security refers to every aspect of protecting an organization and its employees and assets against cyber threats. As cyberattacks become more common and sophisticated and corporate networks grow more complex, a variety of cyber security solutions are required to mitigate corporate cyber risk.</p>	[03]	CO4	L1
(b)	<p>Analyze the role of ethics in information technology.</p> <p>Answer:</p> <p>Ethics are defined as moral principles that govern a person’s behavior or conduct of a certain activity. Our ethics influence the way we interact with others and the world around us. While we all have our personal beliefs regarding ethics, employees are expected to follow those established by employers and businesses. Some businesses have a code of conduct to help ensure that others can trust and rely on how a service is performed.</p> <p>Ethics in information technology (IT) has gained significant attention in recent years. Technology is almost everywhere, and most people depend on it in their personal and professional lives. Information technology plays a vital role in storing, using, and transferring information across various computer systems. Individuals rely on IT in crucial industries such as healthcare, banking, education, and more. It is important to understand why ethics are important in information technology.</p> <p>Ethics and Information Technology</p> <p>For individuals interested in an IT-related career, it is valuable to understand the role ethics plays in this industry. There are different types of ethics to consider, defined and outlined by both individuals and public policy. These decisions can influence key components of IT, such as risk management, privacy rights, and the collection and security of private information for various industries and institutions.</p> <p>Technology is growing at an ever-evolving rate. For those entering the field of IT, there should be an understanding that we may reach a point where the ability to control technology will drastically diminish. That is why constant monitoring and adjusting are key to help ensure that technology will follow fair practice standards and remain guided by established ethics.</p>	[07]	CO3	L4
(c)	<p>Explain the role of AR systems in education and medical field.</p> <p>Answer: Educational technology and more specifically augmented reality (AR) has the potential to offer a highly realistic situated learning experience supportive of complex medical learning and transfer. AR is a technology that adds virtual content to the physical real world, thereby augmenting the perception of reality.</p>	[10]	CO4	L5

	<p>Learning in the medical domain is to a large extent workplace learning and involves mastery of complex skills that require performance up to professional standards in the work environment. Since training in this real-life context is not always possible for reasons of safety, costs, or didactics, alternative ways are needed to achieve clinical excellence. Educational technology and more specifically augmented reality (AR) has the potential to offer a highly realistic situated learning experience supportive of complex medical learning and transfer. AR is a technology that adds virtual content to the physical real world, thereby augmenting the perception of reality. Three examples of dedicated AR learning environments for the medical domain are described. Five types of research questions are identified that may guide empirical research into the effects of these learning environments. Up to now, empirical research mainly appears to focus on the development, usability and initial implementation of AR for learning. Limited review results reflect the motivational value of AR, its potential for training psychomotor skills and the capacity to visualize the invisible, possibly leading to enhanced conceptual understanding of complex causality.</p>			
	Part B - Compulsory (01*10=10 marks)			
4	<p style="text-align: center;">Case Study – AR the future of Smart Class Room</p> <p>With classrooms and all of the education shifting to studying from home during the pandemic, augmented reality has changed the world of education. Students can now use AR to visualize anything from the solar system to scientific procedures right onto a screen. Also, anatomic experiments that could earlier be done physically, can now be immensely visualized using AR. Add to this the ability of AR to transform a student’s environment can even facilitate the learning of historical events.</p> <p>Q. Recognize different AR Applications exist in education sector and explain its advantages and different ethical issues involved.</p> <p>AR will play crucial role in education sector. It helps the teacher to create simulations easily in the class rooms for better understanding the real time world outside Different AR Applications are: AR techniques are used in almost every education field [9], such as engineering, medical education, surgical training, arts, designing, and language learning. Using AR based learning techniques, students are highly motivated for learning activities, and their learning capabilities are significantly enhanced</p> <p>Advantages and Ethical Issues</p> <ul style="list-style-type: none"> - Easy to understand the concept - Teaching and Learning will be fun - Reuse <p>Ethical Issues:</p> <ul style="list-style-type: none"> - Copy right issues - Misuse of technology - Pressure on eyes - Screen time will be more 	[10]		CO4 L6

Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5
CO1:	Identify different emerging technologies	2a				
CO2:	Select appropriate technology and tools for a given task					
CO3:	Identify necessary inputs for application of emerging technologies		1c, 2b, 3b			
CO4:	Understand the latest developments in the area of technology to support business	1a, 3a	3c			1b, 2c, 4

Cognitive level	KEYWORDS
L1 - Remember	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where, etc.
L2 - Understand	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss
L3 - Apply	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
L4 - Analyze	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
L5 - Evaluate	asses, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
L6 - Create	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

PO1–Theoretical Knowledge; PO2–Effective Communication Skills; PO3–Leadership Qualities; PO4 –Sustained Research Orientation; PO5 –Self-Sustaining Entrepreneurship

CI

CCI

HOD