**Emerging Technologies- IoT, Augmented Reality, Virtual Reality**

**September 2021 Examination**

**1. a) Describe the characteristics of big data for which IoT is the source?**

**Answer**

**Introduction:**

An extensive data set collects various data from an organization, which can be both structured and unstructured in some cases. Information about customers is gathered from multiple sources, including order and purchase data, servers, financial transaction data, customer profile information, employee records, search history, and a ledger. An organization uses this information to gain insight into the company.

**b) How does IoT and AI supplement each other? Enlist at least 3 applications of AI in IoT platforms? (10 Marks)**

**Answer:**

**Introduction:**

**Internet of things:**The Internet of Things (IoT) is a network of various devices that connect to and exchange data with other systems on the Internet through software, sensors, chips, and other similar devices (such as cameras).

**Artificial Intelligence:**A system that simulates human intelligence processes with the assistance of machines such as computer systems, robots, and other similar devices is referred to as

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**2. a) What are the benefits in smart city project from integrating the technologies of SMAC stack framework?**

**Answer:**

**Introduction:**

**SMAC Stack:**SMAC Stack (Social, Mobility, Analytics, and Cloud): SMAC is an abbreviation for the SMAC stack. Customer experience is simplified by using social interactions, mobile technology, cloud computing, big data analytics, and the enhancement of the company's overall productivity. The proper application of these innovations allows an organization to improve its

**b) Discuss the use of augmented reality (AR) in healthcare sector? (10 Marks)**

**Answer:**

**Introduction:**

**Augmented Reality (AR):**Augmented Reality (AR) is a technology that uses sound, digital visual elements, and other sensory stimuli to provide viewers with an enhanced version of the natural world's improved performance of the real world. Augmented Reality technology is primarily used in businesses that have business applications and that use mobile computing technology

**3. Case study:**

**‘Connected Care Test Bed’ – An IoT based healthcare initiative by Infosys and**

**Massachusetts General Hospital.**

**Infosys along with Massachusetts General Hospital launched the ‘Connected Care Test Bed’ to overcome the challenges faced by healthcare industry. Massachusetts General Hospital is the largest teaching hospital located in Boston, Massachusetts. This hospital is of Harvard Medical School and a biomedical research facility. Infosys Limited is an Indian multinational company, headquartered in Bengaluru, India. It provides information technology, business consulting, and outsourcing services. Infosys is a member of IIC.**

**There was challenge laid down by the ‘Industrial Internet Consortium’ (IIC). As the life span of the world’s population has extended, the burden on healthcare systems has increased. It is found that out of the total older adults, up to 80% have chronic diseases (at least 1) and which requires continuous monitoring and treatment.**

**It is very unfortunate that today medical errors that can be prevented are very common in hospitals. Considering the US scenario, the statistics show that in the U.S. alone, there are around 200000 to 400000 deaths in the hospitals per year due to medical errors that could have been prevented. Moreover the present hospital environment has become too complicated. Efficient retrieval and sharing of the patient health information have also become a challenge. By observing the above scenario, Infosys and Massachusetts General Hospital decided to provide a tool that:**

**- Reduce patient readmissions and improve patient health.**

**- Enable patients to receive personalized medical care while staying at home.**

**Help to improve the patients follow up of treatment routines. Provide a better access to health related information to all the concerned i.e. patient, their family and their care takers.**

**- Provide an open ecosystem around IoT. Make Remote Patient Monitoring and Clinical Data to be accessible via a single management system, and an analytics platform.**

**- Track assets and manage it.**

**With advancement in technology and its increased accessibility and the recent implementation of IoT-based solutions, now the health care professionals can do remote patient monitoring and can provide better health care at affordable cost and within time. Thus more lives can be saved by providing timely medication and avoidance of preventable medical errors. So we can say that IoT has potential to transform the way healthcare analysis is done and given a better quality of life.**

**a: Discuss the scenario of taking the Connected Care Test Bed initiative? (5 Marks)**

**Answer:**

**Introduction:**

**Connected Care Testbed:**An unified, connected care testbed is a tool that facilitates the development of an open ecosystem around the Internet of Things. When a patient's treatment regimen is followed up properly and thoroughly, it aids a healthcare institution in providing better patient care. In other words, it enables the consolidation of patient monitoring data into a single

**b. Discuss the benefits to be achieved by Connected Care Test Bed? (5 Marks) Answer:**

**INTRODUCTION:**

**Connected Care Testbeds:** A connected care testbed is a tool that can assist a healthcare institution in providing better healthcare facilities to patients while they are still at home. It is a type of connected care testbed that can be used to test new technologies. Infosys Limited, a multinational Indian corporation, and Massachusetts General Hospital, a Boston-based healthcare institution, joined