

1. Abdul wahab
2. 16907
3. Bs(S'E)
4. 6-7-2020
5. ICT

Question 1=

Watch animated movie “Incredible 1” and discuss the technologies used by characters of the movie. Further, take note of the technologies used in making of this movie?

Answer=

Skeleton and Muscles:

The Skelton and it’s surrounding musculature is where all human motion begins, so this obviously was where the pixer team started it began with the body of Bob Part, Mr.Incredible, and literally created him from the inside out.

“Bob was definitely the toughest character for us to model and rid because he is such a muscular guy” says Rick Sayre, the films supervising technical director. “As we began to create him, we develop a completely new and different approach for his Skelton the the way muscle, skin, bones, and fat would attach to it. We used a fantastic New technology called 'goo' which allows the skin to react to the muscle the sliding and sticking underneath in a very true fashion.”

This changed the entire animating process. Animators are not so much technicians as they are artists actor or puppeteers who creatively choreograph the characters movement and expression through specially programmed

computer control. Now the animators had more control of the characters than ever before.

“ you may have noticed that it is very hard to get a convincing shoulder motion in CG animation,” Sayre says “ This is why you often see animated characters that have shoulders that are too broad we wanted to make a shoulder breakthrough on this film so to speak.

Once Bob was completely modeled he served as template for the skeleton of the other characters. “ With Bob, we really concentrated on achieving a high level of complexity in body motion,” Says character supervisor Bill Wise. “Once we were able to rig his movement, we were able to use that same articulating Skeleton for the other characters. With some changes, of course A female character, for example, isn’t going to have as defined a deltoid that pulls down over the top of the humerus there still a collarbone there and so you could reshape that same rig to fit any character.”

### Skin and Hair:

The qualities that truly create realism in a character are the appearance of skin and hair. There is where Pixar made of it’s most important breakthrough with new approach to lighting and shading the skin and sculpting hairstyle. Pixar came up with a new technology called “ subsurface scattering” which gave more translucency seem alive with hairstyle ranging from Helens short, well manicured coif to violet long free-flowing locks new program and approaches were also required to sculpt the tops of the characters heads.

The most difficult character to animate from hair standpoint was violet. She remained an “unsolved research project” well into the production of the film, due to her long, flowing hair- the bane of an had ever animated this kind of hair before for a CG film. Henne and his team came up with with five different sculpted hairstyle for violet for the different phase on the film. Each of these style could then be modified to reflect the various environmental condition she encounter including rain, wind and the zero gravity of her own force field eventually Violet hair became one of the films triumphs

### Clothing:

Evin in regarded to wardrobe. "The Incredibles" was more complicated than any animated film in history and more akin to an epic costume drama more than 150 garments had to be specially designed and tailored to fit the lead and background characters.

The director didn't simply want great looking clothes for his character he wanted clothes that would move like actual fabric.

Pixar came up with a new technology called "subsurface scattering" which gave more translucency to the skin and made the characters seem alive.

Faced with the challenge of moving the characters in a realistic fashion, the technical team decided to literally get physical copies of the classical model school book. "Gray's Anatomy" were given to all the digital sculptors and the rigging team to help them understand how the body moves during species action walking and moving also helped team animated muscles, skin, hair, and clothes.

**Question (2): Write a note on the following embedded technologies in detail?**

**Answer=**

**(a)Machine learning:**

Machine learning is an application of artificial intelligence that provides system the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focus on the the development of computer program that can access data and use it learn for themselves.

The process of learning begins with observation or data, such as example direct experience or instructions in order to look for pattern in the future based on the example that we provided. The primary aim to allow the computer learn

automatically without human intervention or assistance and adjust action accordingly.

### (B)5G Technology:

Fifth generation (5G) wireless broadband is the latest advance in cellular technology. 5G will greatly increase the speed and responsive of wireless network and expand them to enable hundred of thousands of connection. 5G offer greater capacity higher data rates and much lower latency and will support further innovation such as the internet of the things and network slicing creating a smarter more connected world.

### (C)Virtual Reality:

The definition of virtual reality comes naturally from the definition for both virtual and reality. The definition of virtual is near and reality is what we experience as human beings so the term virtual reality basically means near reality. This could of course mean anything but it usually refers to a specific type of a reality emulation.

We know that world through our senses and perception system. In school we all learned that we have five sense. Taste, touch, smell, sight, and hearing. These are however only our most obvious sense organs.

### (D) Robotics:

Robotics is an interdisciplinary research area at the interface of computer science and engineering. Robotics involves design, construction, operation, and use of robots. The goal of Robotics is to design intelligent machine that can help and assist humans in their day to day lives and keep everyone safe. Robotics draws on the achievement of information engineering, computer engineering, mechanical engineering, electronic engineering and others.

Robotics develops machine that can substitute for humans and replicate humans action. Robots can be used in many situations and for lots of purposes, but today many are used in dangerous environments (including inspection of radioactive material,

bomb detection and deactivation ) manufacturing process or where humans cannot survive ( e.g. in space, underwater, in high heat and clean up.)

Question 3(A): Write note on prevailing generation of computer in use and discuss it's characteristics in detail?

Answer=

First generation ( 1940-1956)

The first generation of computer used vacuum tubes as a major piece of technology. Vacuum tubes were widely used in computer from 1940 through 1956. Vacuum tubes were larger components computer being quite large in size, taking up a lot of space in a room. Some of the first generation computer took up an entire room.

The ENIAC is great example of a first generation computer. It considered of nearly 20,000 vacuum tubes as well as 10, 000 capacitors and 70,000 register. It weight over 30 tons and took up a lot of spce, reguring a large room to house it.

Second generation (1956-1963):

The second generation of computer saw the use of transistor instead of vacuum tubes. Transistor were widely used in computer from 1956 to 1963. Transistor

were smaller than vacuum tubes and allowed computer to be a smaller in size, faster in speed and cheaper to build.

The first computer to use transistor was the TX-0 and was introduced in 1956. Other computer that used transistor include the IBM 7070, Philco Transac S-1000 and RCA 501

### Third generation (1964-1971):

The third generation of computer introduced the use of IC in computer. Using ICs in computer helped reduce the size of computer even more compared to second generation computer, as well as make them faster. Nearly all computer since the mid to late 1960s have utilized ICs while the third generation is considered by many people to have spanned from 1964 to 1971, ICs are still used in computer today.

### Fourth generation (1972-2010):

The fourth generation of computer took advantage of the invention of microprocessor, more commonly known as a CPU.

Microprocessor along with integrated circuits, helped make it possible.

For computer to fit easily on a desk and for the introduction of laptop.

Some of the earliest computer to use a microprocessor include the. Altair 8800, IBM 5100, and Micral. Today's computer still use a microprocessor, despite the fourth generation being considered to have ended in 2010.

### The fifth generation (2010 to present):

Fifth generation of computer is beginning to use AI( artificial intelligence) an exciting technology that has many potential application around the world leaps have been Made in AI technology and computer, but there is still room for much improvement.

Question 3(b): Multiply the given binary number 10001001 with 10010011?

Answer=

100111010101011.