

Code No: 07A70506

**R07****Set No. 2****IV B.Tech I Semester Examinations, November 2010****VIRTUAL REALITY  
Information Technology****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions  
All Questions carry equal marks**

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1. Discuss about the following in detail.
  - (a) Sensing glove technology
  - (b) Head-mounted displays. [8+8]
2. (a) Draw and explain about the class diagram of Lathe3D.  
(b) Give a brief note on Add ons for Gaming. [8+8]
3. Explain in detail about approximate and exact collision detection methods. [16]
4. By means of block diagrams, write short notes on the working of a Pinch Glove. [16]
5. State and explain different guidelines suggested for proper VR usage. [16]
6. (a) What is the relationship between HMD field of view and resolution, and why is it important? Explain.  
(b) What is a Boom 3D display, and how does it work? What advantages does it have compared to an HMD? [10+6]
7. (a) What are the advantages of VR based rehabilitation.  
(b) Describe in detail about the SIMNET Internal architecture. [4+12]
8. (a) With proper sequence of code, explain the process setting a pose for a 3D sprite.  
(b) Explain the process moving and zooming of a third person camera. [8+8]

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1. (a) With example code, explain about creating Rhodonea shape using Lathe?  
(b) Discuss in detail about adjusting a model's shape attributes using any java 3D technology. [10+6]
2. What is a tracker? Write short notes on working and performance of various trackers. [16]
3. Explain in brief about different aspects involved in creating a simple 3D sprite applications. [16]
4. (a) What is force smoothing?  
(b) What is force shading?  
(c) What is the purpose of changing the direction of feedback force? Make a diagram and explain.  
(d) With the aid of appropriate diagrams, explain how to change the direction of feedback force. [3+3+4+6]
5. (a) Describe the functioning of 3D audio chips. Make a drawing and explain.  
(b) Explain how speaker-based 3D audio systems work? [8+8]
6. Write short notes on the following:  
(a) Sensorial illusion  
(b) Direct effects of VE immersion  
(c) Findings of proprioception adaptation study. [5+5+6]
7. (a) By considering relevant examples describe VR in terms of functionality.  
(b) What was NASA's role in the development of VR technology? [8+8]
8. (a) Explain about VR based DRE training system for prostate palpation.  
(b) How did NASA use VR and what are the results? [8+8]

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1. Explain in detail about the first commercial VR products. [16]
2. What are the two different techniques available for creating a full screen display in Java3D? Explain each in detail. [16]
3. Write short notes on the following:
  - (a) Loading a model
  - (b) LoaderInfo3D
  - (c) Java3D Loader for games. [6+6+4]
4. (a) Give examples of VR use in Robot programming.  
(b) How did NASA used VR and Why? [8+8]
5. (a) Explain in detail about static LOD management.  
(b) What are the problems that can be solved by it in comparison with static LOD management? Explain [8+8]
6. (a) What was the task chosen in the UK study of the influence of force feedback made on task completion time and why?  
(b) What direct effects can VE immersion have on users? [6+10]
7. Compare and contrast the performance and working of various large-volume display devices. [16]
8. (a) Consider an I/O device that allow either absolute or relative position control of the simulation, and explain the working of that device with a neat diagram.  
(b) Consider an interface that allow navigation in relative coordinates, and explain its sensing mechanism with a neat diagram. [8+8]

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**R07****Set No. 3****IV B.Tech I Semester Examinations, November 2010****VIRTUAL REALITY  
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1. Write short notes on the following displays
  - (a) DMD displays
  - (b) Workbench displays. [8+8]
2. Discuss in detail about the functionality of ultrasonic trackers. [16]
3. (a) Describe the three I's of virtual reality.  
(b) Discuss about the early commercial VR technology. [6+10]
4. (a) Discuss about strengths of Java 3D.  
(b) Explain the process of creating elliptical shape using Lathe shape object. [8+8]
5. (a) Why the conventional endoscopic examination trainings are not giving good results.  
(b) Discuss about VR based Leadership training.  
(c) Write about VR based close range naval artillery training. [4+6+6]
6. What are the steps involved in adding an obstacle to a 3D application. Explain with an example. [16]
7. (a) With neat diagrams explain bounding box collision detection method.  
(b) Explain Multibody collision detection algorithm.  
(c) What is surface deformation? Explain [6+6+4]
8. Write short notes on the following in the context of human factors study.
  - (a) Task completion time
  - (b) Cumulative force feedback
  - (c) Variable set by an experimental protocol. [6+5+5]

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