

Code No: 07A80507

**R07****Set No. 2**

IV B.Tech II Semester Examinations, April/May 2012

**VIRTUAL REALITY****Computer Science And Engineering****Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Write short notes on the following:
  - (a) Updating the sprites in Java3D
  - (b) Behavior class in Java3D
  - (c) Animation sequence. [4+6+6]
2. Write in detail about the use of VR in the field of military training. [16]
3. What is virtual reality? Explain the three I's of virtual reality? [16]
4. What is a VR system's responsiveness? Explain about the influence of system responsiveness on user performance. [16]
5.
  - (a) What is touch feedback and force feedback?
  - (b) Discuss about the requirements that are to be met while designing a good haptic feedback interface.
  - (c) Describe the human haptic system. [4+4+8]
6.
  - (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]
7.
  - (a) Give a detailed overview of Loader3D.
  - (b) Write about modifying a model's configuration at runtime. [6+10]
8. What is the difference between an absolute and a relative position input device? With relevant examples discuss in detail. [16]

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**R07****Set No. 4**

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1. Explain in detail about scene illumination. [16]
2. Write in detail about the use of VR in the field of Navy and Air force. [16]
3. (a) Create a scene using any of Java3D API's.  
(b) Write about displaying model in Java 3D. [8+8]
4. Explain in detail about any three force feedback interfaces. [16]
5. What are the essential classes required for creating and manipulating particle systems in Java3D? Explain each in brief. [16]
6. (a) Explain in your own words how VR is interactive, immersive and imaginative.  
(b) What is telepresence? Explain how it is different from VR. [8+8]
7. 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]
8. (a) Explain in detail the effect of metals and interfering fields on electromagnetic trackers.  
(b) Discuss in detail about the cubic-mouse based interaction in virtual environments. [8+8]

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**R07****Set No. 1**

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**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain the process of showing a full scene display using fixed size window that fills the screen.  
(b) How is an animation operation performed? Explain with example. [8+8]
2. (a) Why are the human factors studies important to VR.  
(b) What variables are measured in a typical human factors study and why? What is the meaning of standard deviation? [6+10]
3. Write short notes on the following displays  
(a) DMD displays  
(b) Workbench displays. [8+8]
4. Discuss in detail with sample code about creating and manipulating curves using any of java3D objects. [16]
5. (a) Write about the use of VR in case of robot teleoperation with time delays  
(b) Write about VR based psychological and cognitive rehabilitation. [8+8]
6. (a) Explain the working of Didji Glove.  
(b) Compare its functionality with 5DT data glove. [10+6]
7. What is level of detail management? Explain in detail how it can be used to improve the graphics pipeline throughput. [16]
8. Discuss about the technological advances occurred in the area of VR I/O interfaces. [16]

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**R07****Set No. 3**

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All Questions carry equal marks**

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1. By means of neat diagrams, explain human visual system. [16]
2. (a) Define Virtual Reality.  
(b) Discuss about the early sensing glove technology [2+14]
3. Write short notes on the following:  
(a) VESUB simulator  
(b) Virtual cock pit trainers  
(c) Intravenous Procedures. [6+6+4]
4. Write short notes on the following in the context of human factors study.  
(a) Effects on User's auditory system  
(b) Feedback multimodality  
(c) Direct effects of VE immersion. [5+5+6]
5. Explain in detail about the management of model complexity based on cell segmentation? [16]
6. Write short notes on tracker-based navigation/manipulation interfaces. [16]
7. (a) Explain the process of creating a scene graph using Loader3D.  
(b) Write about modifying a model's configuration at runtime. [6+10]
8. Write in detail about the process of creating a particle system using quads in Java 3D. [16]

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