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| **Register No.** |  |  |  |  |  |  |  |  |  |  |

**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – II/Evaluation form**

**Academic Year: 2017-2018**

**Program offered: B.Tech (CSE) Year / Sem:iv / vii**

**Max. Marks: 100 Duration: 3 hrs Date of Exam:30-10-2017**

**Course Code and Title: cs1117 Virtual Reality**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PURPOSE** | | To acquire the knowledge about the basic concepts of virtual reality and its applications, system functions and design considerations | | | | | | | |
| **INSTRUCTIONAL OBJECTIVES** | | | **STUDENT OUTCOMES** | | | | | | |
| At the end of the course, student will be able | | |  |  |  |  |  |  |  |
| 1. | Learning to animate the virtual environment | | a | c |  |  |  |  |  |
| 2. | Applications of Virtual Environment | | a | h |  |  |  |  |  |
| 3. | Various types of hardware and software in Virtual Reality Systems | | a | h |  |  |  |  |  |

**At the end of the course, the student will be able to:**

a. Create a Virtual Environment

c. Animate the objects in the Virtual World

h, know Hardware, Software and applications of VR

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Question**  **No.** | | **Reference to**  **IO** | **Reference to**  **Outcome** | **Marks Allotted**  **(Total 50)** | **Marks Scored** | **Outcomes**  **Met Yes / No** |
| 1. | | 3 | a, c | 1 |  |  |
| 2. | | 3 | a, c | 1 |  |  |
| 3. | | 3 | a, c | 1 |  |  |
| 4. | | 3 | a, c | 1 |  |  |
| 5. | | 3 | a, c | 1 |  |  |
| 6. | | 3 | a, c | 1 |  |  |
| 7. | | 4 | a, h | 1 |  |  |
| 8 | | 3 | a, c | 1 |  |  |
| 9 | | 5 | a, h | 1 |  |  |
| 10 | | 5 | a, h | 1 |  |  |
| 11 | | 5 | a, h | 1 |  |  |
| 12 | | 5 | a, h | 1 |  |  |
| 13 | | 5 | a, h | 1 |  |  |
| 14 | | 4 | a, h | 1 |  |  |
| 15 | | 5 | a, h | 1 |  |  |
| 16 | | 5 | a, h | 1 |  |  |
| 17 | | 5 | a, h | 1 |  |  |
| 18 | | 5 | a, h | 1 |  |  |
| 19 | | 4 | a, h | 1 |  |  |
| 20 | | 4 | a, h | 1 |  |  |
| 21 | | 3 | a, c | 4 |  |  |
| 22 | | 3 | a, c | 4 |  |  |
| 23 | | 3 | a, c | 4 |  |  |
| 24 | | 5 | a, h | 4 |  |  |
| 25 | | 4 | a, h | 4 |  |  |
| 26 | | 4 | a, h | 4 |  |  |
| 27 | | 4 | a, h | 4 |  |  |
| 28 | (a) | 3 | a, c | 12 |  |  |
| (b) | 3 | a, c | 12 |  |  |
| 29 | (a) | 3 | a, c | 12 |  |  |
| (b) | 5 | a, h | 12 |  |  |
| 30 | (a) | 5 | a, h | 12 |  |  |
| (b) | 5 | a, h | 12 |  |  |
| 31 | (a) | 5 | a, h | 12 |  |  |
| (b) | 5 | a, h | 12 |  |  |
| 32 | (a) | 4 | a, h | 12 |  |  |
| (b) | 4 | a, h | 12 |  |  |
| **Total** | | | | **100** |  |  |

**Faculty Name: Signature:**

|  |  |  |  |  |  |  |  |  |  |  |
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| **Register No.** |  |  |  |  |  |  |  |  |  |  |

**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – II/Question paper**

**Academic Year: 2017-2018**

**Program offered: B.Tech(CSE) Year / Sem: II/III**

**Max. Marks: 100 Duration: 3 Hrs Date of Exam: 30-10-2017**

**Course Code and Title: 15CS328E Virtual Reality**

**SET - A1**

**PART A**

1. When a particle strikes a rigid surface which are all influenced by the coefficient of restriction?
2. Moment & Inertia (b) Distance and Angle

(c) Separation Speed and Angle (d) Velocity and Length

1. The acceleration produced by the restoring force of a simple pendulum is given by?
2.  (b)  (c)  (d) 
3. The practical way of minimizing temporal aliasing is?

(a) Sample Rate ` (b) Time

(c) Cycle Period (d) Quality of Samples

1. \_\_\_\_\_\_\_\_\_\_\_\_ interpolation involves in the evaluation of cosine function?

(a) Quadriatic (b) Cubic (c) Linear (d) Non Linear

1. \_\_\_\_\_\_\_\_\_\_\_\_ technique is used for modelling and animating objects?

(a) Free Form Deformation (b) Inbetweening

(c) Particle Systems (d) Linear Translation

1. The moment of particle is constant when there is no external forces? What is the law behind the statement

(a) Newton’s First Law (b) Gauss Law

(c) Newton’s Third Law (d) Coulumb’s Law

1. Of the following which does not support stereo graphics?

a) VPX (Dual) (b) VZX (c) VRX (d) VPX (Single)

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used by animators to form flexible objects

(a) Restitution (b) Free Form Deformations

(c) Simple Pendulums (d) Elastic Structure

1. How many layers are present in the retina of the human eye?

(a) 7 (b) 3 (c) 2 (d) 10

1. \_\_\_\_\_\_\_\_\_\_\_\_\_ photoreceptors are responsible for day vision

a) Rods (b) Cornea (c) Cones (d) Iris

1. What technique employs a single point sound field microphone to record 3D sound fields

(a) Ambisonics (b) HRTF’s (c) Acoustic Scenario (d) Pitch

1. Which senses are concerned with monitoring the static and dynamic position of the body

(a) Visceral Sensations (b) Deep Sensations

(c) Proprioceptive Sensations (d) Exteroceptive Sensations

1. \_\_\_\_\_\_\_\_\_\_\_\_\_ plays back two sounds (wave files) and allows the user to locate them anywhere in the 3D space

(a) Convolvotron (b) Beachtron (c) Acoustetron (d) Alphatron

1. Which of the following is not included in standard elements of VR Toolkit

(a) VCObject (b) VCAudio (c) VCVirtual (d) VCVisual

1. The non-evasive technique used for obtaining real time view of the interior parts of a human body is

(a) Phobia (b) Virtual Therapy (c) Ultra Sound Echography (d) Telepresence

1. The language used for controlling the objects within a virtual environment is

(a) VRML (b) SCL (c) Java (d) Python

1. Pacinian sensors respond to frequencies in the range of

a) 30-700 Hz (b) 30-70 Hz (c) 3-700 Hz (d) 3-70 Hz

1. The tactile feedback device that provides a sense of contact when activated is

(a) Power Stick (b) Force Arm Master (c) SAFiRE (d) Touchmaster

1. The relative velocity after an impact is equal to the relative velocity before impact multiplied by the coefficient of restitution is

(a) Principle of Conservation (b) Principle of Relative Motion

(c) Principle of Interpolation (d) Principle of Non-Linearity

1. The device that measures absolute position and orientation using ultrasonic speakers and microphones is

a) Dextrous HeadMaster (b) Logitech Head Tracker

(c) Spaceball (d) Biomouse

**PART B**

Answer **Any 5** questions **5\*4=20**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 21 | State Newton’s laws of motion. | a, c | Knowledge | 4 |
| 22 | Outline the techniques used to speed up the process of creating artwork. | a, c | Knowledge | 4 |
| 23 | Paraphrase the term Persistence of vision | a, h | Comprehension | 4 |
| 24 | Analyze how tracking sensors are a central requirement of any immersive VR system. | a, h | Analysis | 4 |
| 25 | Justify the need of VR as an application in Architecture | a, h | Evaluation | 4 |
| 26 | Debate on whether a VR system must be immersive or not | a, h | Analysis | 4 |
| 27 | Explain briefly about Games Systems in VR. | a, h | Comprehension | 4 |

**PART B**

Answer All the questions 1**2\*5=60**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 28. | a) Illustrate how linear and non linear interpolation can be applied to various animation scenarios  (Or)  (b) Discuss in detail about Shape and Object inbetweening. | a, c  a, c | Application  Comprehension | 12 |
| 29. | (a) Describe animation of objects. Explain non linear translation in detail  (Or)  (b) Write short notes on the following:   1. Simple Pendulums 2. Springs | a, c  a, h | Comprehension  Knowledge | 12  6  6 |
| 30. | (a) Explain how the Ear provides a VR user with another interpretation of the physical world  (Or)  (b) Write short notes on the following:   * 1. Integrated VR Systems   2. VRML | a, h  a, h | Comprehension  knowledge | 12  6  6 |
| 31 | (a) Write short notes on the following:   * 1. Boom Devices   2. VR Toolkit   (Or)  (b) Design a first order simple aircraft model and explain the various parameters involved in the design | a, h  a, h | Knowledge  Synthesis | 6  6  12 |
| 32 | (a) List down and explain in detail the various factors of human factor modelling  (Or)  (b) Analyze the various design factors involved in Aero Engine design and Submarine design. | a, h  a, h | Knowledge  Analysis | 12  12 |