

Total No. of Questions – 06

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G.R. No.	
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**DECEMBER 2021 – END SEM EXAM**  
**FINAL YEAR B. TECH. (COMPUTER ENGINEERING)**  
**(SEMESTER - I)**  
**COURSE NAME: PROFESSIONAL ELECTIVE-IV**  
**VIRTUAL AND AUGMENTED REALITY**  
**COURSE CODE: CSUA40181D**  
**(PATTERN 2018)**

Time:[1 Hr]

Max.Marks:[30]

**Instructions to candidates:**

- 1) Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

- Q1 a Discover idea behind haptic interface in virtual reality applications. [4]  
Q1 b Elaborate the principle of touch and force feedback with example. [6]  
OR  
Q2 a Compare Active and Passive haptics with example. [4]  
Q2 b Justify “Haptic feedback is playing vital role in enhancing immersion, interaction and imagination of virtual reality systems”. [6]  
Q3 a Distinguish between Vega and Java3d. [4]  
Q3 b Identify different characteristics of any visualization development toolkit for real-time simulation. [6]  
OR  
Q4 a List out various features of Google Cardboard. [4]  
Q4 b Differentiate between Unity and Unreal Engine. Justify which one is better for virtual reality application development. [6]  
Q5 a Mention the key technologies used to achieve augmented reality. [4]  
Q5 b Justify the application of Augmented reality in Education sector. [6]  
OR  
Q6 a List out the various advantages and disadvantages of augmented reality. [4]  
Q6 b Draw the system structure of augmented reality and write down its hardware and software components. [6]