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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Advanced Game Programming Algorithm   **Semester: V**
Program: B.TECH CSE GG   **Time 03 hrs.**
Course Code: CSGG4007   **Max. Marks: 100**

Instructions:

SECTION A		
		(5Q X 4M = 20 Marks)
S. No.	**Question**	**CO**
Q 1	What do you understand by a game loop?	**CO 3**
Q 2	Differentiate between Game time and Real time.	**CO 4**
Q 3	What are the advantages of using double buffering instead of a single-color buffer?	**CO 5**
Q 4	What is the difference between a tile map and tile set?	**CO 2**
Q 5	What is input lag, and how does a multithreaded game loop contribute to it?	**CO 1**
SECTION B		
		(4Q X 10M = 40 Marks)
Q 6	*"A game object is anything in the game world that needs to be updated, drawn or both updated and drawn on every frame".* Comment on the statements with appropriate examples.	**CO 5**
Q 7	For animated sprites, why is it preferable to have the animation FPS as a member variable?	**CO 1**
Q 8	What is a good rule of thumb for whether or not a particular vector should be normalized? OR Why are the "just pressed" and "just released" events necessary, as opposed to simply querying the state of the device?	**CO 2**
Q 9	When deciding on the position of the listener in a third-person action game, what problems must be taken into consideration?	**CO 3**
SECTION-C		
		(2Q X 20M = 40 Marks)

Q 10	Answer the following with respect to sound in Game Programming:
	  a. What is digital signal processing? Give examples of three different audio DSP effects.
	  b. Why is it useful to be able to mark regions where DSP effects should be played?
		CO 2

	c. What drawback does using a convex polygon have for DSP regions? d. Describe the Doppler Effect. **e.** What are the differences between sound occlusion and sound obstruction?	
Q 11	Explain a game scenario of your choice and write a detailed algorithm for the explanation of the game programming concepts involved in the game programming. Or Design an algorithm for a combat game with AI enabled opponents.	**CO4**