Name: **Enrolment No:**	

UPES

End Semester Examination, December 2023

Course: STELLAR EVOLUTION
Semester: V
Program: B.Sc (H) Physics **Time : 03 hrs.**
Course Code: PHYS 3024 **Max. Marks: 100**

Instructions: 1. All questions in Section A are mandatory, while question # 9 and 11 of Sections B and C, respectively, have internal options.

2. Give deserving descriptions too to questions in Section A

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	What are the main 2 forces acting on a star on main sequence?	**4**	**CO1**
Q 2	What are the preceding stages of its development before a star is born?	**4**	**CO1**
Q 3	Why, do you think, is convection important in a star?	**4**	**CO1**
Q 4	What are AGNs? Give the full form of the acronym and describe them.	**4**	**CO2**
Q 5	Supernova is well heard of! What is Nova?	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	One of the ends of a star is the white dwarf stage. And even amongst the white dwarfs there are differences. Explain what and how.	**10**	**CO1**
Q 7	Explain what solar wind is. Evaluate the effects it has had and still makes on the solar system since its formation.	**6+4**	**CO2**
Q 8	There is interstellar dust and then there is interstellar gas. Are they different? Describe both and their relation, if any.	**2+8**	**CO3**
Q 9	Describe the nuclear reactions that take place in the core of a Sun like stars. **OR** The energy production in the Sun happens only at its core. Hence, the temperature falls off radially outwards. Till this region is arrived at! Which one? And why this rise?	**10** **3+7**	**CO2**

SECTION-C (2Qx20M=40 Marks)			
Q 10	Stars are formed from giant clouds in space. Appraise how such clouds are maintained before the collapse sets in. What is the single most property which determines the evolution of a star? In to how many classes are the stars binned according to this property?	**16+2+2**	**CO3**
Q 11	Analyze the evolution of a high mass star. Divide this evolution into discrete phases and make this analysis. Do highlight the underlying Physics in the different phases. **OR** a. Apprise what degeneracy means. Discuss the phenomenon of electron degeneracy in stellar evolution. b. Appraise the state of a neutron star with the rich Physics involved.	**20** **10** **10**	**CO1**