JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-6 Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 23B1WHS632 (3) MAX. MARKS: 25

COURSE NAME: History and Philosophy of Science and Technology

COURSE INSTRUCTORS: Dr. Ranjith Kallyani MAX. TIME: 1 Hour 30 Min

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	"There are strong historical and philosophical reasons against Structural Realism", Justify this statement based on Aristotelian law of violent motion and the second law of Newtonian physics. Hint Aristotelian law of violent motion: If the force (F) is greater than the resistance (R) then the object will move with a velocity (v) proportional to F/R. Otherwise the object won't move. Newton's second law of motion: The acceleration (a) of a body is proportional to the net force (F) acting on the body and is inversely proportional to the mass (m) of the body (a=F/m).	CO1	6
Q2	In contemporary biology, the accepted theory of evolution is the modern synthesis; it has been accepted since the middle of the twentieth century. Two central sub-theories of the modern synthesis are "evolution results from changes in gene frequencies in populations of organisms," and "populations adapt to their environments by natural selection." Within the last 30 years or so, even strong proponents of the modern synthesis have begun to agree that these two sub-theories are inadequate, and that the modern synthesis struggles to account for well-known biological phenomena (such as epigenetics, niche construction, and phenotypic plasticity). Despite this building dissatisfaction, however, the modern synthesis remains the accepted theory in contemporary biology. Why? Which law of scientific change would explain this? (See the next page for hint) **PTO**	CO5	6

	Hint 3rd Law: Method Employment 2nd Law: Theory Acceptance 1st Law: Scientific Inertia 0th Law: Compatibility		
Q3	What is your take on Entity Realism? Explain based on phlogiston theory. Hint Combustion in contemporary chemistry: a substance composed primarily of carbon, hydrogen, and oxygen (the firewood) combines with the atmospheric oxygen, producing carbon dioxide and water vapor.	CO4	6
Q4	"All non-sciences are not pseudoscience whereas all pseudo-sciences are non- science" Justify this statement. Why do you think that it is important to differentiate science from non-science/pseudo-science?	CO-3	7