

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2023)

CLASS: BTECH
BRANCH: BT/CHEMICAL/MECH/EEE/ECE

SEMESTER : VI
SESSION : SP/2023

TIME: 02 Hours
SUBJECT: PH320 ATMOSPHERIC PHYSICS

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	In dry and moist adiabatic lapse rate which one have lower value and why?	[2] 1	1
Q.1(b)	What are the different components of planetary boundary layer, explain each component briefly.	[3] 1	1
Q.2(a)	Why sea breeze flow from ocean to land, explain with proper diagram.	[2] 1	1
Q.2(b)	What do you understand by the potential temperature? If an air parcel is at a pressure level of 900hPa where the air temperature is 300K, then what will be the value of potential temperature?	[3] 1	1
Q.3(a)	What is the scale analysis?	[2] 2	1
Q.3(b)	What centrifugal and Coriolis forces are called apparent forces? If the air parcel moves from east to west, in what direction Coriolis force will be acting, explain in both hemispheres.	[3] 2	1
Q.4(a)	What do you understand by surface and body forces?	[2] 2	1
Q.4(b)	Develop the expression for continuity equation.	[3] 2	3
Q.5(a)	What is a blackbody and in what manner wavelength of emitted radiation shifts with the temperature change?	[2] 3	1
Q.5(b)	State and prove the Kirchhoff's law of radiation.	[3] 3	5

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