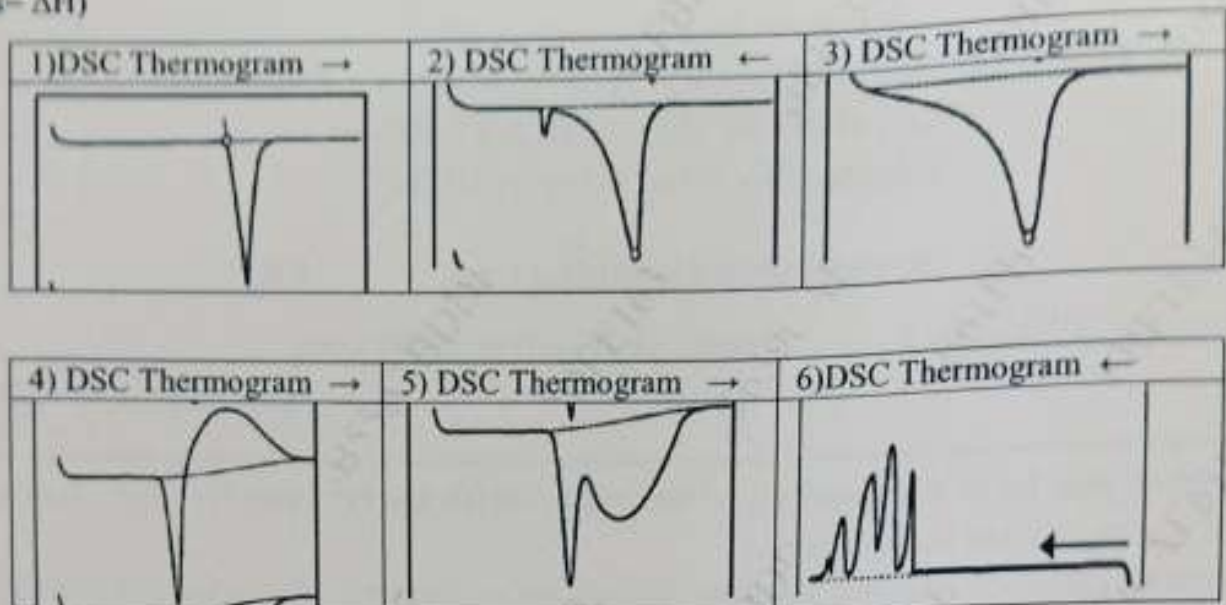**B)** Draw following DSC thermograms and Identify Name of Thermal event of each DSC thermograms (Arrow in the diagram indicate direction of change X axis= Temperature and Y Axis= ΔH)

1) DSC Thermogram →
2) DSC Thermogram ←
3) DSC Thermogram →
4) DSC Thermogram →
5) DSC Thermogram →
6) DSC Thermogram ←

Q4 A) A fuel containing 85% Carbon, 4% Hydrogen, 1% Sulphur and 2% Oxygen, Calculate Higher and Lower calorific value using Dulong"s formula

B) Draw neat label diagram for Bomb Calorimeter

· · · · · *End of question paper* · · · · ·

WALCHAND COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)

Visharambag, Sangli – 416415

First Year B.Tech. All Branch

ESE , ODD SEMESTER, AY 2023-24

Engineering Physics (6PH101)

ESE

PRN: _____

& Date: Wednesday, 20/12/2023   Time : 10.00 am to 12 noon

Max Marks: | 50 |

IMP: Verify that you have received question papers with correct course code, branch etc.

Instructions
a) All questions are compulsory.
b) Writing question number on answer book is compulsory otherwise answers may not be assessed.
c) Assume suitable data wherever necessary.
d) Figures to the right of question text indicate full marks.
e) Mobile phones, smart gadgets and programmable calculators are strictly prohibited.
f) Except PRN anything else writing on question paper is not allowed.
g) Exchange/Sharing of stationery, calculator etc. not allowed.

Text on the right of marks indicates course outcomes (Only for faculty use)   Marks

			Marks	CO
1	A)	Draw a neat circuit diagram of Magnetostriction oscillator explain its working.	6	CO2
	B)	Derive expressions of de-Broglie's wavelength in terms of momentum, kinetic energy and potential difference.	5	CO2
	C)	Distinguish between Zone plate and Convex lens.	4	CO1
2	A)	What is semiconductor? Explain with neat diagram, classification of solid on basis of band theory.	6	CO3
	B)	Explain with neat diagram of N-type & P-type semiconductor.	5	CO2
	C)	In a solid, consider the energy level lying 0.01eV below Fermi level. What is the probability of an energy level being occupied by an electron at 27°C? (Given: kT= 0.026eV at 27°C)	2	CO3
3	A)	Explain how the nanoparticles are prepared by ball milling method.	5	CO2
	B)	Define carbon nanotube. State its types.	4	CO1
	C)	State any three applications of nanomaterials.	3	CO3
4	A)	What is the Seeback effect? Explain any three laws of Thermocouple.	5	CO1
	B)	Explain any three characteristics of Transducer.	3	CO1
	C)	Explain Primary and Secondary transducer with suitable example	2	CO1