ANJUMAN-I-ISLAM'S

KALSEKAR TECHNICAL CAMPUS, NEW PANVEL

School of Engineering & Technology

Symbol of Secularism & National Integration

DEPARTMENT OF MECHANICAL ENGINEERING

CLASS:- **S.E.M.E -1 & S.E.M.E -2**	SEM:- **III**
SUBJECT:- **THERMODYNAMICS**	DATE:- **24 / 10 / 2016**
DURATION:- **60 min.**	MARKS:- **20**

CLASS TEST 02

		Marks	CO
Q.01 Attempt any two: (08 Marks)			
a)	Define Joule-Thompson coefficient and state its significance.	04	CO-4
b)	State Maxwell relations.	04	CO-4
c)	Define (i) Sensible heat of water (ii) Latent heat of vapourisation (iii) Dry saturated steam (iv) Superheated steam.	04	CO-10
Q.02 Attempt any two: (12 Marks)			
a)	Steam at 20 bar, 350°C is expanded in a steam turbine to 0.1 bar. It then enters condenser where it is condensed to saturated liquid water. The pump feeds back the water into the boiler. Find Rankine efficiency and specific steam consumption.	06	CO-9
b)	In an air standard diesel cycle, compression ratio is 15.Pressure and temperature at the start of compression stroke is 100 KPa, 300 K. For a peak temperature of 1600 K, determine cycle efficiency and mean effective pressure.	06	CO-6
c)	Show that efficiency of dual cycle is given by, $\eta_{dual} = 1 - \frac{1}{r_c^{\gamma-1}} \left[\frac{r_p . \rho^{\gamma-1} - 1}{(r_p - 1) + \gamma . r_p(\rho - 1)} \right]$	06	CO-6