



MGM's College of Engineering and Technology  
Kamothe, Navi Mumbai-410209  
Department of First Year Engineering AY. 2015-16

Unit Test II  
Sub: API

[F E Semester I]-CBGS  
Marks: 15

Q.1	Attempt any one	3
a)	State direct and inverse piezoelectric effect.	
b)	Calculate the decrease in the acoustic intensity level when the sound intensity reduced to half of its original intensity.	
Q.2 a)	State acoustic requirements of a good auditorium. Explain how these requirements can be achieved. OR	6
a)	Explain the principle and working of p-n junction diode as a Solar cell.	6
b)	State the Sabine's formula. A classroom has dimensions $20 \times 15 \times 10 \text{m}^3$ ; the reverberation time is 3sec. Calculate the total absorption of its surfaces and average absorption coefficient. OR	6
b)	Find the natural freq. of vibrations of a quartz plate of thickness 1.8mm. Given, $Y=8 \times 10^{10} \text{N/m}^2$ and density $=2650 \text{kg/m}^3$ . Also calculate the change in the thickness required if the same plate is to be used to produce ultrasonic of freq. 2MHz.	6