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Name of the College (Please tick, symbol is given)	:	**COES**	✓	**CMES**		**COLS**	
Program/Course	:	**B. Tech Material science and Nano Technology**					
Semester	:	**VIII**					
Name of the Subject	:	**Tribology**					
Subject Code	:	**MTEG451**					
Name of Question Paper Setter	:	**Santosh Kumar Kurre**					
Employee Code	:	**40000635**					
Mobile & Extension	:	**8126718619**					
Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":							

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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April, 2017

Program/course: B. Tech Material science and nanotechnology **Semester – VIII**
Subject: Tribology **Max. Marks : 100**
Code : MTEG451 **Duration : 3 Hrs**
No. of page/s:01

Section A (5x4=20)

Q1. Explain the effect of the surface contaminant on metal friction.

Q2. Explain the adhesion term in friction of elastomers.

Q3. Explain the pitting wear of metal.

Q4. Explain the boundary lubrication of elastomers.

Section B (10x4=40)

Q5. Explain the abrasive wear in metal and elastomers.

Q6. Differentiate the sliding contact bearing and rolling contact bearing.

Q7. Explain the viscosity and viscosity index of a lubricant.

Q8. Explain the effect of temperature and sliding speed on metal friction.

OR

Explain the fatigue wear in the metal.

Section C (20x2=40)

Q9. Derive the Reynolds equation for viscous thin film in hydrodynamic lubrication.

Q10. Explain the wear resistant material and methods to make surfaces of metal to be wear resistant.

OR

Derive the petroff's equation for coefficient of friction in journal bearing. Also explain the Mckee's investigation .