

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2019**

**Course: Material testing and evaluation**  
**Program: B Tech Civil Engineering**  
**Course Code: CIVL 2012**

**Semester: III**  
**Time 03 hrs.**  
**Max. Marks: 100**

**Instructions:**

**SECTION A (Answer all questions)**

S. No.	Question	Marks	CO
Q 1	Illustrate the properties of good brick earth.	5	CO1
Q 2	List the field tests conducted after opening a cement bag.	5	CO1
Q 3	Differentiate between brittle and quasi-brittle nature.	5	CO2
Q 4	Explain the application of IZOD test on mild steel specimen.	5	CO3

**SECTION B (Answer all questions)**

Q 5	Describe the functions of paints based on the raw material used in their manufacture.	10	CO1
Q 6	Explain the properties of mild steel generally used for construction.	10	CO2
Q 7	Describe the concept of plastic deformation. Also, mention its variation for different metals.	10	CO2
Q 8	How ferrous and non-ferrous metals named depending on the chemical properties they possess? (OR) How do you ascertain toughness of coarse aggregate? Explain the specifications used in the procedure of the same.	10	CO3

**SECTION-C (Answer any two)**

Q 9	Compare the properties of PCC, RCC, FRC, LWC, and HPC and explain their merits and demerits.	20	CO1
Q 10	Appraise the use of temperature transition approach used for metals, ceramics and high strength metals to understand fracture toughness.	20	CO2
Q 11	Explain the procedure for measuring tensile properties and toughness properties for ferrous and non-ferrous metals.	20	CO3