

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Backlog End Term Examination, May 2019

B. Tech. in All Branches, Semester II

Roll No.....

CM 101: Elements of Engineering

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Objective type multiple choice questions (10 questions @ 1 mark) 10

- i. In a four stroke engine, the number of revolutions of the crankshaft for completion of working cycle is (a) one (b) two (c) three (d) four
- ii. The circle passing through the top of the teeth of gear is known as (a) inner circle (b) base circle (c) addendum circle (d) dedendum circle
- iii. In an isolated system, transfer of ----- takes place (a) mass (b) energy (c) both mass and energy (d) neither mass nor energy
- iv. The ratio of two specific heats of air is equal to (a) 0.17 (b) 0.24 (c) 0.1 (d) 1.4
- v. Which of the following is compressed in a Diesel engine cylinder? (a) Air alone (b) Air and fuel (c) Air and lubricating oil (d) Fuel alone
- vi. V belts are usually used for (a) long drives (b) short drives (c) long and short drives (d) none of these
- vii. In diesel engine, the compression ratio in comparison to petrol engine is (a) More (b) Less (c) Same (d) None of these
- viii. In Otto cycle and Diesel cycle, heat is rejected at (a) constant pressure (b) Constant volume (c) Constant temperature (d) Constant enthalpy
- ix. In Diesel engine, the air-fuel ratio in comparison to petrol engine is (a) More (b) Less (c) Same (d) Variable
- x. The air-fuel ratio of the Diesel engine is controlled by (a) Fuel pump (b) Injector (c) Governor (d) Carburetor

Q.2 Short answer type questions (4 questions @ 2.5 marks) 10

- i. Define enthalpy for a thermodynamic system.
- ii. Define First law of thermodynamics with suitable example.
- iii. Differentiate between two stroke and four stroke petrol engine.
- iv. Define the swept volume and clearance volume for I.C. engine.

Q.3A Differentiate between internal combustion engine and external combustion engine. 5

OR

Q.3A Discuss the different types of gears used in power transmission. 5

Q.3B	Discuss dry manufacturing process of cement.	5
Q.4	Discuss the structural components of timber with neat and clean diagram.	10
OR		
Q.4	Give the name of important constituents of cement and state the role of each in achieving its properties.	10
Q.5	Describe the working of four stroke Diesel engine with neat sketch.	10
Q.6	Discuss the rope brake type dynamometer used in I.C. engines.	10
Q.7	What are the merits and demerits of belt rope and chain drive?	10
Q.8	Define following terms with respect to gear through a sketch. (i) module (ii) pressure angle (iii) pitch point (iv) pitch circle	10
Q.9	Explain the role of transportation in national development. Discuss the role of civil engineer in society.	10
Q.10	What is Rigid pavements? Explain flexible pavements with neat and clean diagram.	10

-----ALL THE BEST-----