

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), November 2016

B. Tech (ECE/EE/CSE), Semester I

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. **The first law of thermodynamics is the law of**
(a) Conservation of mass
(b) Conservation of energy
(c) Conservation of momentum
(d) Conservation of heat
- ii. **One barometric pressure or 1 atmospheric pressure is equal to**
(a) 1 kgf/cm² (b) 1.033 kgf/cm² (c) 0 kgf/cm² (d) 1.0197 kgf/cm²
- iii. **Total heat of a substance is also known as**
(a) Internal energy (b) Entropy (c) Thermal capacity (d) Enthalpy
- iv. **The ratio of two specific heats of air is equal to**
(a) 0.17 (b) 0.24 (c) 0.1 (d) 1.41
- v. **Which of the following medium is compressed in a Diesel engine cylinder?**
(a) Air alone (b) Air and fuel (c) Air and lub oil (d) Fuel alone
- vi. **The power actually developed by the engine cylinder of an I.C. engine is known as**
(a) Indicated power (b) Actual power (c) Theoretical power (d) None of these
- vii. **The air-fuel ratio in petrol engines is controlled by**
(a) Controlling valve opening/closing (b) Governing (c) Carburetion (d) Injection
- viii. **The working cycle in case of four stroke engine is completed in following number of revolutions of crankshaft**
(a) 1/2 (b) 1 (c) 2 (d) 4
- ix. **V-belts are usually used for**
(a) long drives (b) short drives (c) long and short drives (d) none of these
- x. **The power transmitted by means of a belt depends upon**
(a) Velocity of the belt (b) Tension under which the belt is placed on the pulleys
(c) Arc of contact between the belt and the smaller pulley (d) All of the above

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

10

- A. The crank radius of the a single cylinder IC engine is 60 mm and the diameter of the cylinder is 80 mm. the swept volume of the cylinder in cm³ is
- B. What do you mean by plastering?
- C. Explain the purpose of Surveying.

D.	Write the dimension of a standard brick. Define frog.	
Q.3A	Write short note on impact of infrastructure development on the economy of the country.	05
Q.3B	Explain the formation of lime?	05
Q.4A	Distinguish lime and cement mortar? State the ingredients of good concrete.	2.5+2.5
Q.4B	Explain the importance of transportation on industrial development.	05
Q.5A	What are the plumbing services required in a building. Define plinth and lintel.	2.5+2.5
Q.5B	Explain structural Engineering and Hydraulics, Water Resources and Irrigation Engineering.	2.5+2.5
Q.6A	What is roof structure? State its main important and type.	05
Q.6B	Discuss the provision of opening in walls.(in terms of door and window)	05
Q.7A	Define steel. Write the types of steel according to percentage of carbon.	05
Q.7B	Write the advantages and uses of R.C.C?	05
	OR	
Q.7B	Explain the properties of good brick?	05
Q.8A	What are the basic types of structure? Explain any one them along with figure and label it.	2+ 8=10
Q.9A	What is meant by creep, shrinkage and compressive strength of concrete?	2.5+ 2.5+ 5
Q.9B	Write the characteristics of steel?	10
	OR	
Q.9B	What do you mean by M 20? Where M 20 is generally used? Define workability of concrete.	3+ 2 +5 =10