ROLL NO.	
ID NO.	

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 80 Max Time: 120 Mins Weightage: 40 %

END TERM FINAL EXAMINATION

I Semester AY 2017-2018 Course: **MEC 101 Elements of Mechanical Engineering** 29 DEC 2017

Instructions:

i. Start answering each part from a fresh page. All questions of a part should be answered together.
ii. Write legibly.
iii. Scientific and non-programmable calculators are permitted.

Part A

[4Q x 5M= 20 Marks]

1. Define the following

a) Addendum b) Pitch circle c) Flank of the tooth d) Pitch e) Face Width

2. Differentiate between open belt drive and cross belt drive with sketch.

3. Draw pressure-velocity diagram for impulse and reaction turbine.

4. Explain briefly the working of open-cycle gas turbine with the neat sketch.

Part B

[3Q x 10M= 30 Marks]

5. List any three advantages and disadvantages of chain drives and gear drives.

6. Give any five differences between

a) Soldering and brazing.

b) Impulse and reaction turbines.

7. Explain the working of electric arc welding with the neat sketch.

Part C

[2 Q x 15 M= 30 Marks]

8. Explain the following with neat sketch.

a) Knurling b) Counter sinking c) Slot milling

9. With the help of neat sketch explain the construction and working of pelton wheel.

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Max Marks: 40 | Max Time: 60 Mins | Weightage: 20 %

TEST 2

I Semester AY 2017-2018 Course: **MEC 101 Elements of Mechanical Engineering** 26 OCT 2017

Instructions:

i. Start answering each part from a fresh page. All questions of a part should be answered together.
ii. Write legibly.
iii. Scientific and non-programmable calculators are permitted.

Part A

(5Q x 2M= 10 Marks)

1. Draw pressure volume diagram of four stroke petrol engine with naming of all processes.
2. Classify IC engine according to the method of ignition and cycle of combustion.
3. What are the function of piston rings in IC engine?
4. Define compression ratio and clearance volume related to IC engine.
5. Give four difference between two stroke and four stroke IC engine.

Part B

(5Q x 2M= 10 Marks)

6. Define Ton of refrigeration and (TR) Coefficient of Performance (CoP)
7. Draw schematic diagram of vapour compression refrigeration cycle with naming of all units.
8. Give four difference between vapour compression and vapour absorption refrigeration cycle.
9. Name any two refrigerants and give any two properties of each.
10. Draw schematic diagram of vapour absorption refrigeration cycle with naming of all units.

Part C

(1 Q x 5 M= 5 Marks)

11. Differentiate between SI engine and CI engine.

Part D

(1 Q x 15 M= 15 Marks)

12. Describe the operation of a four stroke cycle Diesel engine with a Pressure-Volume (PV) diagram and necessary sketches of all stroke.

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Max Marks: 40 | Max Time: 60 Mins | Weightage: 20 %

TEST 1

I Semester 2017-2018 | Course: **MEC 101 Elements of Mechanical Engineering** | 18 SEPT 2017

Instructions:

i. Write legibly.
ii. Start answering each Part from a fresh page. All questions of a Part should be answered together.
iii. Scientific and non-programmable calculators are permitted.

Part A

(5Q x 2 M= 10 Marks)

1. Define vacuum pressure and give its unit.
2. Define efficiency and give its unit.
3. Define specific heat and give its unit.
4. If you do 100 joules of work in one second. How much power is used?
5. How much work(in joule) is done when a force of 5 kN moves a body from its point of application 600mm in the direction of the force.

Part B

(5 Q x 2 M= 10 Marks)

6. Identify whether it is boiler's mounting or accessory and explain in brief.
   a) Blow-off cock(valve)
   b) Dampers
   c) Fusible plug
   d) Steam separator
   e) Safety valve

Part C

(1 Q x 5M = 5 Marks)

7. Differentiate between renewable and non-renewable energy sources.

Part D

(1 Q x 15 M= 15 Marks)

8. Describe with a neat sketch "Babcock and Wilcox boiler".