KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2025

Marks Scored:

Level : B.E.
Year : I

Course : MEEG 112
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 15 APR 2025

SECTION "A"
[20Q. × 1 = 20 marks]

Choose the most appropriate answer and **encircle**.

1. The process of removing air from the brake system is known as
   a. Energization b. Bleeding c. Self-energizing d. Servo action

2. Which is a false statement in the context of the parts of an I.C. Engine.
   a. The piston is connected to the small end of connecting rod by a gudgeon pin.
   b. The crankshaft provides the power and direct to the suction and exhaust valve.
   c. Crank pin connects the big end of connecting rod and crank arm
   d. The reciprocating motion of the piston is converted to the rotary motion by the connecting rod and crank mechanism.

3. The Rolls Royce Merlin engine working on an air standard Otto cycle has the following particulars: Piston diameter = 13.7cm, Stroke length = 13 cm, and clearance volume = 280 cm^3. The compression will be
   a. 7.35 b. 7.85 c. 7.95 d. 8.35

4. What is the primary function of a differential in an automobile?
   a. Increase engine power
   b. Reduce vehicle weight
   c. Allow wheels to rotate at different speeds
   d. Improve fuel efficiency

5. The motion of the cam is transferred to the valves through
   a. pistons b. camshaft pulley c. rocker arms d. valve stems

6. A compression ignition engine working on an air standard Diesel cycle has the following operation specification:
   Cylinder bore = 15cm, Stroke length = 2 cm, and clearance volume = 400 cm^3. The fuel injection takes place at a constant pressure for 5% of the stroke. The cut of ratio will be about
   a. 1.33 b. 1.44 c. 1.55 d. 1.66

7. In Battery coil ignition system, the correct sequence of flow of current is
   a. Battery – Ammeter – Distributor – Ignition coil – Spark plug
   b. Battery – Distributor – Ammeter – Ignition coil – Spark plug
   c. Battery – Ammeter – Ignition coil – Distributor – Spark plug
   d. Battery – Ignition coil – Ammeter – Distributor – Spark plug

8. Which device reduces harmful emissions from an automobile's exhaust?
   a. Turbocharger b. Silencer
   c. Fuel Injector d. Catalytic Converter

9. Carbon monoxide is produce primarily due to
   a. High temperature and rich mixture
   b. Low temperature and rich mixture
   c. High temperature and lean mixture
   d. Low temperature and lean mixture

10. What does ABS stand for in automobiles?
   a. Anti-Brake System
   b. Automated Braking System
   c. Anti-lock Braking System
   d. Advanced Brake System

11. The combustion process in a diesel engine is
   a. Isothermal process
   b. Adiabatic process
   c. Constant volume process
   d. Constant pressure process

12. During charging the specific gravity of the electrolyte of a lead acid battery
   a. Decreases b. Increases c. Becomes zero d. Remains the same

13. In a single dry plate clutch, torsional vibrations are absorbed by
   a. Central hub
   b. Clutch pedal
   c. Cushion springs
   d. Coil springs known as torsional springs

14. Two advantages of using helical gears rather than spur gears in a transmission system are
   a. Strength and cost
   b. Noise level and strength
   c. Noise level and economy
   d. Strength and less end thrust

15. An automobile engine has 4 cylinders, each with a bore (diameter) of 70 mm and a stroke (length of piston movement) of 75 mm. Calculate the engine's CC (cubic centimeters).
   a. 1000 CC b. 1200 CC c. 1500 CC d. 2000 CC

16. In gear systems, speed reduction means torque
   a. Increase b. Reduction c. Stabilization d. Destabilization

17. In a two-stroke engine, how many revolutions of the crankshaft are required to complete one power cycle?
   a. One revolution b. Two revolutions c. Four revolutions d. Half revolution

18. Which of the following is a major advantage of a four-stroke engine over a two-stroke engine?
   a. Higher power output per cycle
   b. Lighter engine weight
   c. Better fuel efficiency
   d. Simpler construction

19. An antifreeze mixture is used to achieve
   a. Freezing point depression
   b. Boiling point elevation
   c. Driving stability
   d. Freezing point depression and boiling point elevation

20. Exhaust gas recirculating system reduces
   a. Hydrogen b. Nitrogen c. Carbon dioxide d. Nitrogen dioxide