UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 6 Examination in Engineering: May 2026

Module Number: MN 6303 **Module Name: Engineering Knowledge (Motor) II (C18)**

[Three Hours]

[Answer **All Questions**, each question carries **14 Marks**]

This question paper contains **Five (05)** questions in **Two (02)** pages.

Start your answers to each question on a fresh page.

[Provide sketches where necessary, make reasonable assumption and state them clearly]

Q1 (a) Describe the safety device fitted to an air compressor while explaining why it is fitted.

[04 Marks]

(b) Discuss the effect of using inter and after coolers for air compressors with use of a PV diagram.

[04 Marks]

(c) What is volumetric efficiency?

[02 Marks]

(d) Discuss the factors affecting volumetric efficiency.

[04 Marks]

Q2 (a) Explain with aid of a sketch, a droop governor.

[05 Marks]

(b) Explain the terms "speed droop", "hunting" and "stability".

[06 Marks]

(c) Explain why a speed droop governor is used in a Generator Engine.

[03 Marks]

Q3 (a) Explain turbocharger surging and discuss the causes of turbocharger surging.

[07 Marks]

(b) List down the symptoms of turbocharger surging.

[03 Marks]

(c) What maintenance practices are required to avoid turbocharger surging?

[04 Marks]

Q4 (a) Explain the process of scavenging in a two-stroke diesel engine.

[03 Marks]

(b) Compare the different methods of scavenging.

[03 Marks]

(c) Analyze the impact of good scavenging on engine performance.

[02 Marks]

(d) Define supercharging and explain its purpose in diesel engines.

[03 Marks]

(e) Describe the different methods of supercharging.

[03 Marks]

Q5 (a) Sketch a fuel injector which is fitted to a main engine and label the main components of it.

[06 Marks]

(b) Describe the terms of "atomization", "penetration" and "turbulence".

[06 Marks]

(c) Explain the purpose of injector cooling.

[02 Marks]