**Subject : Gas Turbine Engine Part A**
**Theory**

| Topics | Level |
|---|---|
| 15.1 Fundamentals<br>Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;<br>The relationship between force, work, power, energy, velocity, acceleration<br>Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop. | 2 |
| 15.2 Engine Performance<br>Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust,<br>thrust horsepower, equivalent shaft horsepower, specific fuel consumption;<br>Engine efficiencies;<br>By-pass ratio and engine pressure ratio;<br>Pressure, temperature and velocity of the gas flow;<br>Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating,<br>limitations. | 2 |
| 15.3. Inlet<br>Compressor inlet ducts<br>Effects of various inlet configurations;<br>Ice protection. | 2 |
| 15.4 Compressors<br>Axial and centrifugal types;<br>Constructional features and operating principles and applications;<br>Fan balancing;<br>Operation:<br>Causes and effects of compressor stall and surge;<br>Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator<br>vanes, rotating stator blades;<br>Compressor ratio. | 2 |