**Demo PDF file. This file includes questions: 10 from 206. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page**

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# MEWB - Gas Turbine Plants

### 1. Compared to other types of engines, what is the biggest advantage of a gas turbine engine?

- Simplicity of installation
- Simplicity of the control circuits
- Low power-to-weight ratio
- **Highest power-to-weight ratio**

Note:
*Gas turbine engines offer the highest power-to-weight ratio compared to other engine types, delivering significant power with minimal weight.*

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### 2. The term "divergent" is best described as which of the following?

- Maintaining an equal distance between edges.
- Approaching nearer together, as the inner walls of a tube that is constricted.
- **Moving away from each other, as the inner walls of a tube that flare outward.**
- Thermal and kinetic energy being converted to mechanical energy.

Note:
*Choice C is correct; 'divergent' describes elements moving away from each other, as seen in a tube flaring outward. This contrasts with convergence (moving closer) or unrelated concepts like energy conversion. Divergence indicates a spreading apart from a common point, unlike parallel or converging structures.*

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### 3. Which of the following terms refers to axial compressor stator blades?

- Roots
- Nozzles
- Shrouds
- **Vanes**

Note:
*Axial compressor stator blades are correctly termed vanes, which direct airflow between rotating blade rows. Rotor blades are the moving components, while shrouds support blade tips and nozzles direct gas flow in turbines or exhaust systems. The blade root is the attachment point to the disk, not the stator blade itself.*

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### 4. What are the two common forms of axial compressor rotor blade roots?

- Fir tree and key
- Sawtooth and knob
- Grub and bulb
- **Fir tree and bulb**

Note:
*Fir tree and bulb roots are the standard shapes for axial compressor rotor blade attachments due to their ability to distribute loads and provide secure fastening to the rotor disc.*

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### 5. In the operation of a marine propulsion gas turbine, kinetic and thermal energy required to drive the main propeller shaft are extracted by which of the following?

- Combustor.
- Exhaust gas.
- Multi-stage compressor.
- **Power turbine.**

Note:
*The power turbine directly drives the propeller shaft and extracts remaining kinetic and thermal energy from the gas stream to produce shaft power.*

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### 6. Which of the following conditions permits a gas turbine to produce 100% power?

- Maximum fuel flow
- **Minimum air inlet temperature**
- Maximum combustion temperature
- Minimum air mass/weight flow

Note:
*Minimum air inlet temperature increases air density, allowing for greater air mass flow and fuel combustion without exceeding temperature limits, enabling the gas turbine to reach 100% power.*

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### 7. How do the high-velocity high-temperature gases cause the gas turbine rotor to rotate?

- By increasing the velocity of the gases.
- By creating a low-pressure area before the rotor.
- **By transferring velocity energy and thermal energy to the turbine blades.**
- By converting the high-velocity gas to low-velocity gas.

Note:
*The gas turbine rotor rotates due to the transfer of velocity and thermal energy from the high-velocity, high-temperature gases to the turbine blades, generating a force that drives the rotation.*

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### 8. In a gas turbine, the air charge is permitted to be compressed adiabatically by what factor, process, or condition?

- Low-compression ratio
- **Speed of the process**
- Rapid heat transfer
- Interstage cooling

Note:
*Adiabatic compression occurs rapidly, minimizing heat transfer. Therefore, the speed of the process is the condition that permits adiabatic compression in a gas turbine.*

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### 9. An open cycle gas turbine engine is best described by which of the following statements?

- Working fluids are taken in, transformed, and then recuperated.
- **Working fluids are taken in, transformed, and then discarded.**
- Energy is added externally.
- Energy is neither created nor destroyed and the cycle is therefore perpetual.

Note:
*In an open-cycle gas turbine, the working fluid is drawn in, processed, and then exhausted to the atmosphere; recirculation does not occur.*

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### 10. The Brayton Cycle is a series of events best described by which of the following statements?

- Intake, pressurization, ignition, exhaust
- Intake, decompression, combustion, expansion, exhaust
- **Intake, compression, combustion, expansion, exhaust**
- Intake, compression, combustion, explosion, exhaust

Note:
*The Brayton cycle describes a gas turbine process involving intake, compression, combustion, expansion, and exhaust. This sequence accurately represents the thermodynamic cycle used in gas turbine engines, where air is compressed, fuel is burned, hot gases expand to produce work, and then are exhausted.*

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