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Courses » IC Engines and Gas Turbines

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## Unit 13 - Week 10: Components of Brayton Cycle Based Power Plant

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Certification exam

### Course outline

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### Assignment 10

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-04-10, 23:59 IST.**  
assignment.

1) Outlet blade angle of a centrifugal compressor, with backward vanes, is **1 point**

- (a) Equal to 90 degree  
 (b) Less than 90 degree  
 (c) Greater than 90 degree  
 (d) None of above mentioned

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(b) Less than 90 degree*

2) For a large mass flow rate requirement of an engine, which of the following compressor is **1 point**  
generally preferred?

- (a) Centrifugal compressor  
 (b) Multistage centrifugal compressor  
 (c) Axial compressor  
 (d) Reciprocating compressor

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(c) Axial compressor*

3) Stage pressure rise in centrifugal compressor with aluminum alloy vanes is approximately **1 point**

- (a) 4 times its initial pressure  
 (b) Greater than 4 times its initial pressure

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## Analysis of Brayton Cycle

### Week 9: Introduction to Various Aircraft Engine and Performance Parameters

### Week 10: Components of Brayton Cycle Based Power Plant

Lec 1: Euler Turbomachinery Equation

Lec 2 : Introduction and Flow Analysis of Centrifugal Compressors

Lec 3 : Thermodynamics Analysis of Centrifugal Compressors

Quiz : Assignment 10

### Week 11: Components of Brayton Cycle Based Power Plant

### Week 12: Components of Brayton Cycle Based Power Plant

(a) 4 times its initial pressure

4) In case of centrifugal compressor with inlet guide vanes, the flow enters to the inducer with **1 point**  
a blade angle of

- (a) less than 90 degree  
 (b) greater than 90 degree  
 (c) 90 degree  
 (d) Can't comment

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(c) 90 degree

5) In case of Centrifugal compressor, which of the following vane gives high stage pressure rise for same work input **1 point**

- (a) Inlet guide vanes  
 (b) Backward vanes  
 (c) Radial vanes  
 (d) Forward vanes

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(d) Forward vanes

6) In case of centrifugal compressor, the exit total temperature at the impeller exit is ..... **1 point**  
exit total temperature of the diffuser.

- (a) less than  
 (b) greater than  
 (c) equal to  
 (d) None of them

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(c) equal to

7) In thermodynamic analysis of centrifugal compressor with Inlet Guide Vanes, the static temperature of flow through inlet guide vanes is **1 point**

- (a) increases  
 (b) decreases  
 (c) remains constant  
 (d) Can't comment

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(b) decreases

8) Pressure coefficient for centrifugal compressor is defined as **1 point**

- (a) Compressor stage work/ blade velocity  
 (b) Compressor stage work/ square of blade velocity

- (c) Exit whirl velocity / square of blade velocity
- (d) None of the above

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(b) Compressor stage work/ square of blade velocity*

9) Flow coefficient is defined as

**1 point**

- (a) Exit relative velocity/ blade velocity
- (b) Blade velocity / Exit whirl velocity
- (c) Exit whirl velocity / blade velocity
- (d) Inlet absolute velocity / Exit whirl velocity

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(a) Exit relative velocity/ blade velocity*

10) Slip factor for centrifugal compressor is defined as

**1 point**

- (a) Exit relative velocity/ blade velocity
- (b) Inlet absolute velocity / Exit whirl velocity
- (c) Blade velocity / Exit whirl velocity
- (d) Exit whirl velocity / blade velocity

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(d) Exit whirl velocity / blade velocity*

11) Centrifugal compressors are not preferred for the aircraft engines with requirement of large pressure ratio because **1 point**

- (a) High frontal area of centrifugal compressor.
- (b) less pressure rise in one stage than axial compressor.
- (c) It is difficult to design the compressor blade than axial compressor.
- (d) Can't comment

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(a) High frontal area of centrifugal compressor.*

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