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reviewer4@nptel.iitm.ac.in ▾

**NPTEL** (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Introduction to Aerospace Engineering/Flight**  
(course)

Announcements (announcements)    **About the Course** ([https://swayam.gov.in/nd1\\_noc19\\_ae05/preview](https://swayam.gov.in/nd1_noc19_ae05/preview))

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## Unit 9 - Week 7

### Course outline

How to access the portal?

Preliminaries for the Course

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

- Lecture 37 : Introduction to Propulsion (unit? unit=37&lesson=53)

- Lecture 38 : Gas Turbine Engine Types: Part I

## Assignment 7

The due date for submitting this assignment has passed. **Due on 2019-09-18, 23:59 IST.**  
As per our records you have not submitted this assignment.

The following questions **may have more than one correct answers**  
Read and analyse the question carefully before selecting the answer (s).  
Marks will be awarded only if all the correct answers are selected.  
No partial marks will be awarded.

1) The bypass ratio is the ratio of

**1 point**

- mass flow rates of two streams
- pressure ratio of inlet and exit
- volume flow rate of inlet and exit
- none of the mentioned

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*mass flow rates of two streams*

2) A turbojet engine is operating with afterburner off. If the afterburner is switched on, then **1 point**

- Both Thrust and SFC decreases
- Thrust increases but SFC decreases
- Thrust decreases but SFC increases
- Both Thrust and SFC increase

No, the answer is incorrect.  
Score: 0

(unit?  
unit=37&lesson=54)

Lecture 39 : Gas Turbine Engine Types: Part II (unit?  
unit=37&lesson=55)

Lecture 40 : Introduction to Electric Propulsion and Ion Propulsion (unit?  
unit=37&lesson=56)

Quiz : **Assignment 7 (assessment? name=111)**

Weekly Feedback (unit?  
unit=37&lesson=120)

Assignment 7 Solutions (unit?  
unit=37&lesson=137)

**Week 8**

**Week 9**

**Week 10**

**Week 11**

**Week 12**

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Accepted Answers:  
*Both Thrust and SFC increase*

3) Air enters an aircraft engine at a velocity of 180 m/s with a flow rate of **1 point** 94 kg/s. The engine combustor required 9.2 kg/s of air to burn 1 kg/s of fuel. The velocity of gas existing from the engine is 640 m/s. The momentum thrust (in N) developed by the engine is

- 43241  
 45594  
 47940  
 49779

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*49779*

4) An aircraft with a turbojet engine flies at a velocity of 100 m/s. If the jet exhaust velocity is 300 m/s, the propulsive efficiency of the engine, assuming a negligible fuel-air ratio is, **1 point**

- 0.33  
 0.50  
 0.67  
 0.80

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*0.50*

5) An aircraft with a turboprop engine produces a thrust of 500 N and flies at 100 m/s. If the propeller efficiency is 0.5, the shaft power produced by the engine is **1 point**

- 50 kW  
 100 kW  
 125 kW  
 500 kW

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*100 kW*

6) Which of the following power plant type is preferred for a subsonic passenger transport airplane to ensure low specific fuel consumption (SFC)? **1 point**

- Turbojet with afterburner  
 Ramjet  
 Turbofan  
 Turboshift

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Turbofan*

7) Thrust available from a Turbojet engine **1 point**

- Increases as altitude increases

- Increases up to the tropopause and then decreases
- Remains constant at all altitudes
- Decreases as altitude increases

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Decreases as altitude increases*

8) Which of the following statement(s) is/are TRUE with respect to a Turbofan engine? **1 point**

- A low bypass engine has higher power-to-weight ratio
- A high bypass engine generates higher noise level
- A low bypass engine has higher fuel efficiency
- A high bypass engine has higher engine diameter

No, the answer is incorrect.

Score: 0

Accepted Answers:

*A low bypass engine has higher power-to-weight ratio*

*A high bypass engine has higher engine diameter*

9) Which of the following statement(s) is/are TRUE with respect to Gas Turbine engines : **1 point**

- Compressed air is used to increase combustion efficiency
- Density of the air is increased using a Turbocharger
- The Turbine is driven by some stage of the Compressor
- A starter is needed to run the engine

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Compressed air is used to increase combustion efficiency*

*The Turbine is driven by some stage of the Compressor*

*A starter is needed to run the engine*

10) Which of the following statement(s) is/are TRUE for a propeller engine aircraft, as its altitude of operation increases: **1 point**

- The maximum Power Available reduces
- The variation of Power Required with forward velocity undergoes a downward rotation about origin
- The maximum True Air Speed that it can attain reduces
- The difference between maximum Power Available and minimum Power required reduces

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The maximum Power Available reduces*

*The maximum True Air Speed that it can attain reduces*

*The difference between maximum Power Available and minimum Power required reduces*

