

## Unit 4 - Week 3

### Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

Forces-Gravitational Force

Forces - Viscous Force

Forces-Coriolis Force

Coriolis Force and Curvature Effect

Hydrostatic Equation

Quiz : Assignment 3

Assignment 3 solution

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

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## Assignment 3

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-02-19, 23:59 IST.**

1) Excessive friction takes place, when the viscosity is

1 point

- Too high  
 Too low  
 Moderate  
 Zero

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Too high

2) Which one of the following is not a unit of dynamic viscosity?

1 point

- Pa-s  
 N-s/m<sup>2</sup>  
 Poise  
 Stokes

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Stokes

3) Which of these is/are not surface force?

0 points

- Gravitational Force  
 Friction Force  
 Viscous Force  
 Pressure Gradient Force

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Gravitational Force

4) Apparent forces in earth's atmosphere are -

1 point

- Coriolis Force  
 Centrifugal Force  
 Effective Gravity  
 Pressure Gradient

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Coriolis Force  
Centrifugal Force  
Effective Gravity

5) If the earth were to cease rotating about its axis what will be the change in the value of g at 45°N assuming the radius of the earth is 6380 Km.

1 point

- 1.22 cm/SEC<sup>2</sup>  
 1.68 cm/SEC<sup>2</sup>  
 3.23 cm/SEC<sup>2</sup>  
 1.11 cm/SEC<sup>2</sup>

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1.68 cm/SEC<sup>2</sup>

6) The height(from earth's surface) above which half of the atmosphere(by mass) lies-

1 point

- 25 Km  
 26 Km  
 16 Km  
 5.5 Km

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
5.5 Km

7) The angular velocity of the earth and does speed of earth's rotation changes with latitude are-

1 point

- $7.27 \cdot 10^5$  rad/sec, yes  
  $7.29 \cdot 10^4$  rad/sec, no  
  $7.27 \cdot 10^{-5}$  rad/sec, yes  
  $7.29 \cdot 10^{-5}$  rad/sec, no

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $7.27 \cdot 10^{-5}$  rad/sec, yes

8) Pressure in the atmosphere and ocean decreases monotonically with height. The height dependence is almost \_\_\_\_\_ in the atmosphere and \_\_\_\_\_ in the ocean.

1 point

- linear,exponential  
 exponential, linear  
 linear, linear  
 exponential, exponential

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
exponential, linear

9) Assuming an exponential pressure and density dependence with  $H = 7.5$  km, the heights in the atmosphere at which the air density is equal to  $1 \text{ kg/m}^3$  and the height at

0 points

- 1.7 Km and 52 Km  
 0.7 Km and 12 Km  
 3.2 Km and 1.7 Km  
 1.2 Km and 32 Km

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1.7 Km and 52 Km

10) Find the magnitude and direction of Coriolis force that acts on a 800 kg van running due north at 144 Km/hr at a place where latitude is 30°N.

0 points

- 1.7 Newton towards east  
 7 Newton towards east  
 9.1 Newton towards west  
 7 Newton towards west

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
7 Newton towards east