

# Unit 8 - Week 7

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## Assignment 7

The due date for submitting this assignment has passed. **Due on 2020-03-18, 23:59 IST.**  
 As per our records you have not submitted this assignment.

1) The equation for calculating the first gear in a multispeed gearbox is obtained from the criterion of 1 point

gradeability.  
 maximum speed.  
 maximum acceleration.  
 fuel economy.

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: gradeability.

2) The equation for calculating the highest gear in a multispeed gearbox is obtained from the criterion of 1 point

gradeability.  
 maximum speed.  
 maximum acceleration.  
 fuel economy.

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: maximum speed.

**Questions 3-7:** A vehicle weighing 12 kN needs to be equipped with a 4 speed manual gearbox. The engine develops a maximum torque of 100 Nm. The vehicle should reach its maximum speed of 100 km/h when the engine is running at 3000 rpm. The vehicle should have a gradeability of 20 %. It is also required that the fourth gear correspond to a direct drive. Take the radius of the wheel as 0.3 m and the transmission efficiency to be 90 %. The value of wheel slip ratio can be taken as 0.05 and neglect rolling resistance for obtaining the first cut values of the gear ratios.

3) The ratio of two successive gear ratios is 1 point

0.35  
 0.53  
 0.66  
 0.74

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 0.74

4) The gear ratio of the final drive is 1 point

2.71  
 2.95  
 3.22  
 3.86

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 3.22

5) The value of the first gear ratio is 1 point

2.43  
 2.75  
 2.98  
 3.16

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 2.43

6) The value of the second gear ratio is 1 point

1.43  
 1.62  
 1.81  
 1.97

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 1.81

7) The value of the third gear ratio is 1 point

1.15  
 1.34  
 1.47  
 1.64

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 1.34

**Questions 8-13:** A vehicle weighing 12 kN needs to be equipped with a 5 speed manual gearbox. The engine develops a maximum torque of 100 Nm. The vehicle should reach its maximum speed of 100 km/h when the engine is running at 3000 rpm. The vehicle should have a gradeability of 20 %. It is also required that the fourth gear correspond to a direct drive. Take the radius of the wheel as 0.3 m and the transmission efficiency to be 90 %. The value of wheel slip ratio can be taken as 0.05 and neglect rolling resistance for obtaining the first cut values of the gear ratios.

8) The ratio of two successive gear ratios is 1 point

0.8  
 0.72  
 0.6  
 0.54

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 0.8

9) The gear ratio of the final drive is 1 point

3.65  
 3.34  
 4.02  
 3.86

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 4.02

10) The value of the first gear ratio is 1 point

2.24  
 1.95  
 2.68  
 2.07

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 1.95

11) The value of the second gear ratio is 1 point

1.71  
 1.45  
 1.84  
 1.56

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 1.56

12) The value of the third gear ratio is 1 point

1.17  
 1.25  
 1.32  
 1.44

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 1.25

13) The value of the fifth gear ratio is 1 point

0.8  
 0.72  
 0.6  
 0.54

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: 0.8

14) An example of a brake in which the friction element moves radially inwards and contacts the external surface of a rotating element is 1 point

disc brake.  
 drum brake.  
 band brake.  
 wedge brake.

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers: band brake.