PRINCE SULTAN UNIVERSITY
جامعة الأمير سلطان

Department of Mathematics and General Sciences

Physics 1 (PHY105)
First Major Exam

First Semester, Term 162
Date: SUN. March.26, 2017

Student Name:		
ID number:		
Circle your Section Number:	431,	435.
Class Time:	9-10 AM	8-9AM

Important instructions:

1. Examination time: 1 hour.
2. Write your namenow before starting with the questions.
3. Switch off your mobile phone and put any books and notes away.
4. Check that you have 6 pages in total, including this cover page and a scratch paper.
5. You may use a calculator but you may *not* borrow one.

Good Luck!

	Mark
Part 1	
Part 2	
Total	

SCECTION I (6 Marks): Circle the letter of the correct answer. Use $g = 9.8\ m/s^2$

Q. 1.

Which of the following quantities is a Scalar quantity.

A) Weight B) Acceleration C) Displacement D) Time

Q. 2.

"Action and reaction are equal but opposite in direction" This statement is Newton's

A) First Law of Motion. B) Second Law of Motion.
C) Third Law of Motion. D) None of the above.

Q.3.

A ball is thrown upwards with initial speed of 14 m/s. How high ball will go?

A) 5 m B) 7.4 m. C) 10 m D) 14 m

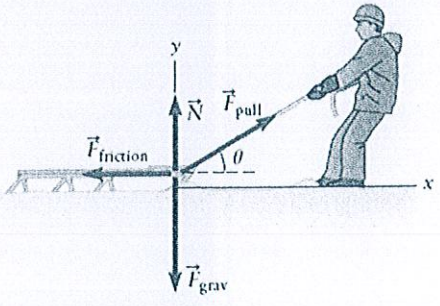
Q. 4.

A 1500 kg sports car is advertised to accelerate from rest to 126 km/h in 5 seconds. Its engine applies an average force of;

A) 1.05×10^4N. B) 2.3×10^4N. C) 3.3×10^4N. D) None of these

Q.5

A box of mass of 18 kg is pulled with constant speed on a level ground with a force "F" at an angle of 20^o from the horizontal. If the coefficient of kinetic friction between box and ground is 0.5, the force acting on the mass is;



A) 49.2N B) 59.5 N C) 69.3 N D) 79.5 N

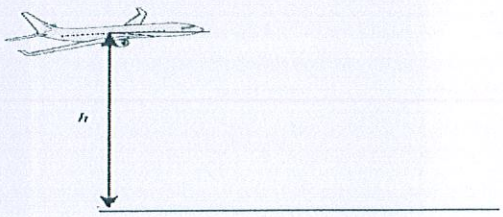
SCENTION II (8 marks): ANSWER COMPLETELY SHOWING ALL YOUR WORK.

Use $g = 9.8\ m/s^2$.

Q.1. (4 marks)

A plane drops a package of food to a party lost in desert. While releasing the package plane is flying horizontally at 40 m/s at a height of 100 m above the ground.

(a) Where does the package hits the ground relative to the point of release?



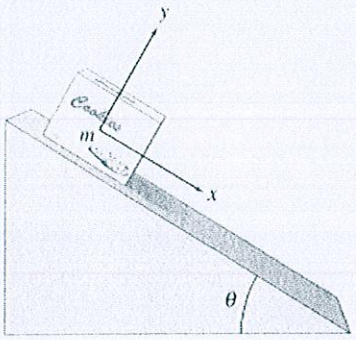
(b) What is the velocity vector of the package when it hits the ground?

(c) Speed of the package when it hits the ground?

Q2 (4 marks)

A worker places a metal box on an inclined surface that is inclined at 30°. If the box slides down along the incline plane with an acceleration of g/3.

(a) What is the coefficient of kinetic friction between the box and the surface?



(b) What is the speed of the box after sliding 1.4 meters along the incline plane?

(c) In case if incline surface is frictionless, what will be the speed of the box after sliding 1.4 m?

Scratch Paper (DO NOT REMOVE)