Scientific Aptitude

Force and Pressure

Check Your Concepts

Q.I. Match the following:

Directions: Given below are two columns - column I and column II. Match the two columns and write the correct answer in the given blank grid.

1. Match the following:

Column – I		Column – II	
(A)	Force responsible for attraction between two objects.	(i)	Weight
(B)	Force by which the Earth, the moon and other massive large objects attracts another object.	(ii)	Mass
(C)	Force applied by muscles of our body.	(iii)	Newton
(D)	Force exerted by a surface as an object moves across it.	(iv)	Muscular
(E)	The amount of substance contained in an object.	(v)	Magnetic
(F)	Units of weight.	(vi)	Gravitational
(G)	Force due to gravity is called.	(vii)	Frictional

Q.2. Fill in the blanks:

Directions: Complete the following statements with an appropriate word/ term to be filled in the blank space(s).

- **1.** ______ is a force that acts in the direction opposite to the movement of an object.
- **2.** _____ material can return to their orginal shape after force is removed.
- **3.** The ______ the mass of an object, the ______ is the weight of an object.
- **4.** ______ is the amount of force that gravity exerts on an object.
- 5. _____ and _____ can act on objects at a distance.
- **6**. ______ poles of magnets exert a force of repulsion on each other.

Q.3. Multiple choice questions:

Directions: Read the following questions and choose the answer that best answer the questions.

- **1.** With the increase in the weight of an object the pressure
 - (a) Increases (b) Decreases (c) Is not affected (d) None of these

- 2. Which of the following statements is incorrect about a force?
 - (a) It can be seen but it cannot be felt. (b)
- (b) It is needed to start an object moving.
 - (c) It can change the shape of an object.
 - object. (d) It can make a moving object stop.

3. Which of the following actions involves both pulling and pushing forces?

- (a) Squeezing toothpaste out of a tube. (b) Wringing a wet towel.
- (c) Closing a door (d) Typing a letter
- **4.** Which of the following statements about force is incorrect?
 - (a) A force can change the mass of an object
 - (b) A force can change the speed or direction of a moving object
 - (c) A force can change the shape and size of an object
 - (d) Forces can stop a moving object
- **5.** A disadvantage of friction is that
 - (a) It creates heat inside a car engine. (b) It prevents us from slipping when we walk.
 - (c) It allows us to hold things. (d) It allows us to write.

6. Pressure depends an <u>i</u> and <u>ii</u>. Which information completes the given?

(a) i - Mass ; ii - Force	(b) i - Mass ; ii - Volume
(c) i - Force ; ii - Area	(d) i - Force ; ii – Volume

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- 7. A sharp knife can cut food much more easily because
 - (a) It produces greater force than blunt knife. (b) Its mass is less as the blade is thinner.
 - (c) It produces greater pressure on the food. (d) Friction between the blade and food is reduced.
- **8.** Study the diagram given.



Why the given object does not move?

- (a) Force A is greater than force B.
 - the B. (b) Force B is greater than force A.
 - (d) Both forces are acting in opposite directions.
- (c) Both forces are equal.

9.	An action that involves pushing force is			
	(a) Dragging a bag on a floor.	(b) Lifting a book from a table.		
	(c) Lifting a pen off a table.	(d) Kicking a ball.		
Q .4.	Subjective questions:			
1.	Sanjana pushed a big table but it dic	l not move. Did she apply force. Explain		
Ans.				
2.	Drivers have to decrease their drivir	ng speed during rainy reason to prevent accidents from happening?		
	Can you give reason, why?			
Ans.				
3.	A person who weighs 55 kg on ear	th would weigh just over 9 kg on the moon. Give the reason why		
	there is a loss in weight on the moon?			
Ans.				
4.	(a) What is friction?			
	(b) How friction is harmful?			
	(c) Can you suggest ways to reduce t	friction.		
Ans.				
5.	Why the same soccer ball moves fast	ter on a concrete floor than on a grass field. Explain.		
Ans.				

6. The table shows the type of force(s) involved in action. You can tick ($\sqrt{}$) in the spaces correctly to show the type of forces involved. You may tick both 'pull' and 'push' if combinations of these forces are involved.

Actions	Push	Pull
Kneading dough.		
Closing a door.		
Wringing a shirt		
Opening a refrigerator door		
Stretching a piece of rubber band		
Pressing the button on a lift.		

7. Study the given figure and answer the following questions.



(a) The exerts a force on the sails of the boat to move the boat forward fast.

(b) Is the force in (a) a pulling or a pushing force?

Ans.

8. Complete the chart using the given words / terms.

<u>Gravity, Attracts metals, Attract, Opposes motion,</u> <u>Produces heat, Stretched, Original, Weight, Magnetic force</u>



9. (a) Study the given figure. What is producing the useful force in the figure.





Ans.	

(b) Can you name two events of nature that produce strong force and can cause great destruction?

Ans.