Force

Question and answer

1. What are the characteristics that magnetic, electrostatic and gravitational forces in common?

2. Two bodies have similar surfaces and same area of cross section. How ever weight of one body is more than the other. Which of the two offers more frictional force?

3. Define force

4. What is the relation between force and pressure?

5. State any two characteristics of pressure exerted by liquid

6. Give three effects of a force can produce and give an example of each

7. Which force is used by a doctor to remove a very tiny iron filling from the eye of a patient?

8. What is the unit of force?

9. Why is magnetic force a non- contact force? Illustrate your answer by giving a suitable example.

10. How will the value of atmospheric pressure change when

    a) Temperature is increased

    b) Humidity is increased

11. Define pressure

12. Sneha filled a balloon with air. She gently rubbed it against her hair for a minute. She observed that her hair got attracted to the balloon

    1.   Which type of force is acting in this situation?

    2.   Is it contact or non- contact force?

    3.   Explain why the hair get attracted to the balloon

13. What's happened when to the speed of a moving football when the player is stroking it

    a) In the direction of motion

    b) Opposite to the direction of its motion

14. Explain how a rubber sucker when pressed sticks to a smooth surface

15. Describe an experiment to show that how does pressure exerted by a liquid change with depth? Draw the diagram also.

16. Give an example of a situation in which the applied force causes a change in speed of a moving object

17. A metal scale is placed between two bricks. A force is applied on it by putting a weight at the center of the scale. How does this force affect the scale?

18. When the force applied on an object is doubled, how does the pressure exerted on the object change and why?

Give reason

1. We can't sip lemonade on the surface of moon

2. Skiers do not sink in snow

3. Why do heavy vehicles have broad tire?

4. It's difficult to breadth at higher

   Altitudes

5. School bags are provided with broad straps

6. The size of a bubble exhaled by a diver working under water increases as the bubble rise to the surface

7. A porter places a round piece of cloth on his head while carrying heavy load

8. It is easy to cut vegetables with a sharp knife

9. Leaves and fruits fall to the ground when they get detached

10. Why is it easy to walk on sand with flat shoes?

11. Deep sea divers wear special body suit

12. It is difficult to pull off rubber sucker once it is pressed hard to a surface

13. At higher altitudes, mountaineers suffer from nose bleeding

14. Bicycles have thin tires where ss trucks have thick tires

15. when we suck on a straw in a tetra pack juice container is crushed

16. Why is rear wheels of tractor made broad?

17. Fountain pens start leaking at higher altitudes

18. If you walk on the snow your feet will sink but if you put on skis you can move over the snow easily.

Differentiate between

1. Balanced and unbalanced force

2. Contact and non- contact force

Numerical

1. The length and breadth of a brick is 125 cm and 50 cm and its pressure is 25 Pascal. Find the force

2. A force of 400 N exerts pressure of 20 Pascal. What is the area on which the force acts?

3. A force of 20N is acting on a surface of area 10 meter square. Calculate the pressure exerted on the surface

4. Calculate the minimum pressure exerted by a block of wood weight 50 N of dimensions 10cm, 5cm, 2cm

5. Calculate the area over which a force of 72 N is applied, thereby exerting a pressure of 9pa

6. Calculate the pressure exerted if the force applied is 500 N and the area of cross section is 2 cm square.

7. A drawing pin is pushed against a wooden table with a force of 27N. Calculate the pressure exerted by the pin at a point on the table if the area of the point of the pin is 1mm square. Give your answer in SI unit

8. In a tug of war the members of team A pull with a force of 100N,105N, 135N.team B pulls with a force of 130N, 105N, 125N. Calculate the resultant force.

9. A force of 2.5N acts on an area of 50 cm square. Calculate the pressure.

10. Calculate the minimum pressure in pascal exerted by a block of weight 50N of dimensions 10cm*5 cm*2cm on ground.

Find the agent exerting force and the object on which force is applied

1. A man is blowing a balloon

2. A driver turning the steering wheel of a moving car

3. Pushing a box

4. A boy is lifting his school bag

5. A ball rolling on the ground coming to halt

6. Leaves fall on the ground when get detached

7. Earth revolving around Sun

8. Balloon sticking to the wall after being rubbed against dry hair

9. A player kicking football

10. A blacksmith hammers a hot piece of iron while making a tool

11. A goal keeper saves a goal

12. A car increases its speed on the road

13. Squeezing a piece of lemon between the fingers to extract its juice

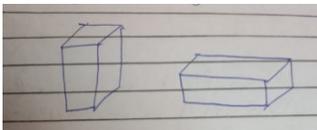14. Taking out paste from a toothpaste tube

Diagrams
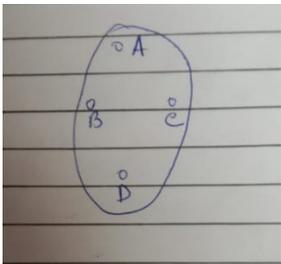
1. the balloon shown here is filled with water.

   Dhruv wants to make a hole in the balloon so that water comes out with maximum pressure. At which point should he make the holes?
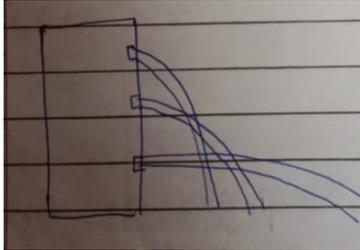
2. the surface area of the end of a brick is

   50 cm^2.The surface area of the base of the brick is 200cm^2.

Each brick weighs 50N. what pressure is each of the brick shown here exerting on the ground?
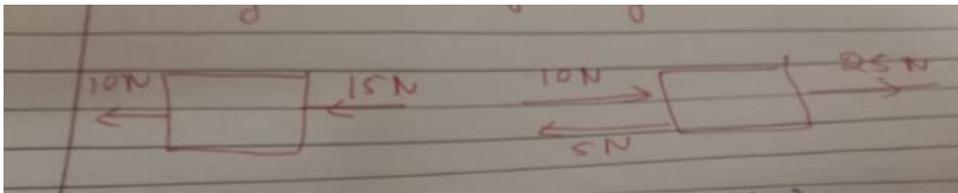
3.

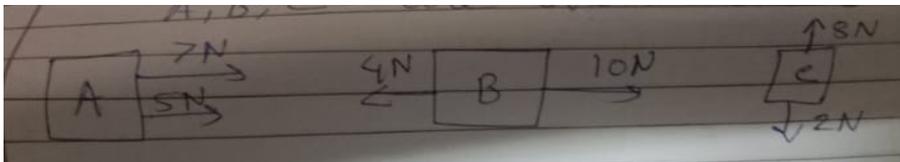At which point the pressure is the

maximum?

4.

find the resultant force acting on the body in the following cases and also mention the direction in which the body moves finally

5.

Write the direction in which the block A,B,C will move as a result of the forces being applied on them.