



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. What can a force change about an object?
2. Give examples of a push and a pull.
3. State the SI unit of force.
4. Is force associated with interaction between objects?
5. Two pushes of 8 N and 5 N act together in one direction. Find total.
6. Find resultant if they oppose each other.
7. Is friction a contact force?
8. Explain why friction opposes relative sliding.

B. Short answers / practice - 2 marks each

9. Is gravitational force a non-contact force?
10. Compare gravitational and magnetic forces.
11. What force pulls a dropped ball toward Earth?
12. Explain why a book at rest on a table does not fall through it.
13. Can a force act without touching an object?
14. Demonstrate this with a magnet and an iron object.
15. What happens when like magnetic poles are brought close?
16. What happens when unlike poles approach?
17. Can rubbing certain objects produce electrostatic attraction?
18. Describe a safe demonstration with a comb and small paper pieces.
19. A child pushes a wall but the wall does not visibly move. Is a force still applied?
20. Explain why force does not always produce visible motion.

C. Application / reasoning - 3 marks each

21. Name the force exerted by a stretched spring.

22. Describe how force can change an object's shape.
23. Two teams pull with equal opposite forces. Find resultant force.
24. Explain what happens if one team's pull becomes larger.
25. Does increasing surface roughness generally increase sliding friction?
26. State two useful and two unwanted effects of friction.
27. Forces of 15 N east and 9 N west act on an object. Find resultant.
28. Explain why rolling a suitcase is usually easier than dragging it.
29. Can an applied force compress a spring without permanently changing its shape?
30. A ball rebounds from a wall. Identify the change in its motion caused by the wall's force.
31. Compare muscular, frictional and electrostatic forces, with one example each.
32. Why do tyres have grooves?
33. Explain how lubrication reduces friction between machine parts.
34. Can a force change the direction of motion without increasing speed?
35. Design three demonstrations showing changes in speed, direction and shape due to force.

ANSWER KEY - Numerical / closed questions

- 1) Motion, direction or shape. 3) Newton. 4) Yes. 5) 13 N. 6) 3 N toward 8 N. 7) Yes. 9) Yes. 11) Gravity. 13) Yes. 15) Repulsion. 16) Attraction. 17) Yes. 19) Yes. 21) Elastic force. 23) 0. 25) Usually, for comparable dry surfaces. 27) 6 N east. 29) Yes, within its elastic range. 34) Yes.