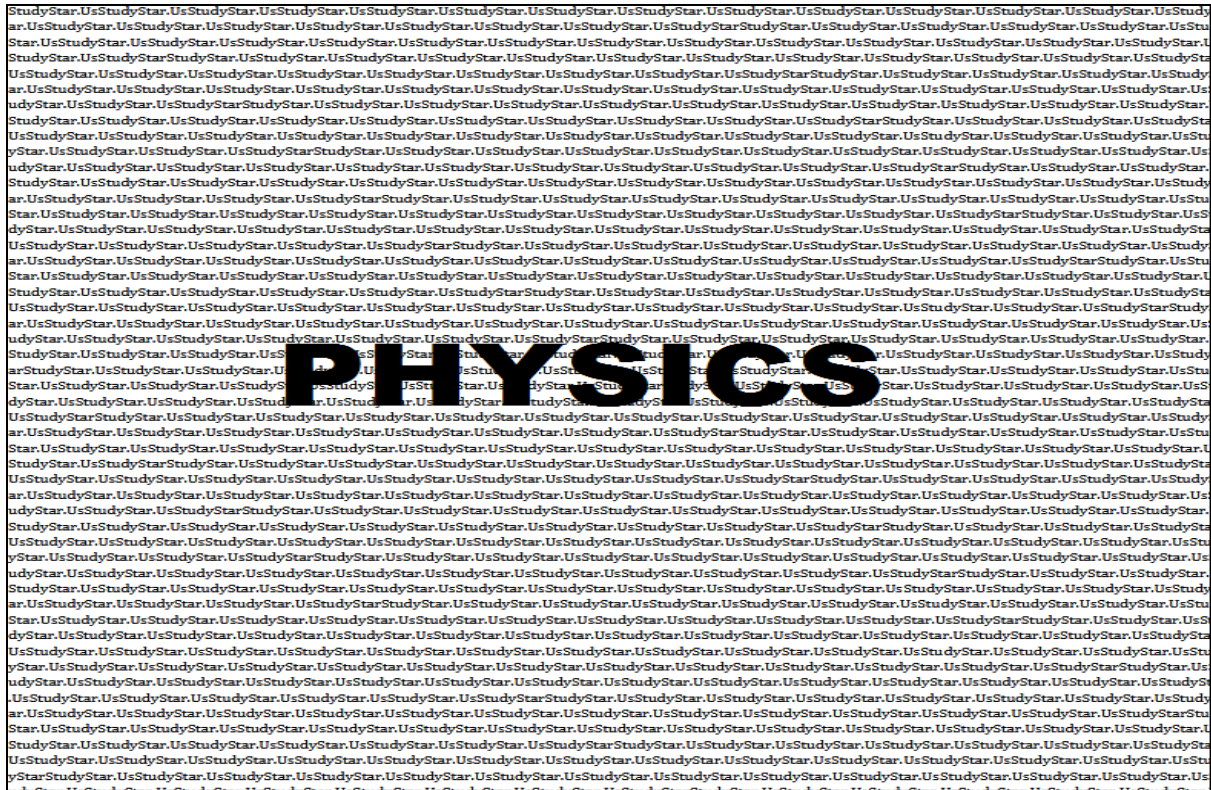




MECHANICS

Total Marks: 25

Duration: 0 hours, 25 minutes

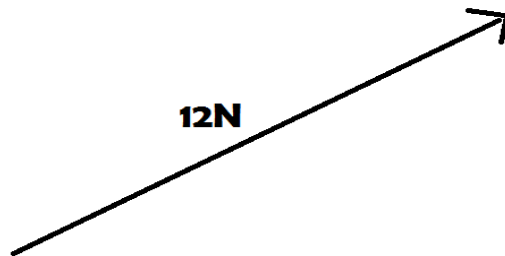
Instructions to test takers

1. Answer all the questions in this paper
2. All the answers for the questions in this paper will be found on **Study Star** (www.studystar.me)
3. Using the answers on the website, mark yourself truthfully and carefully.

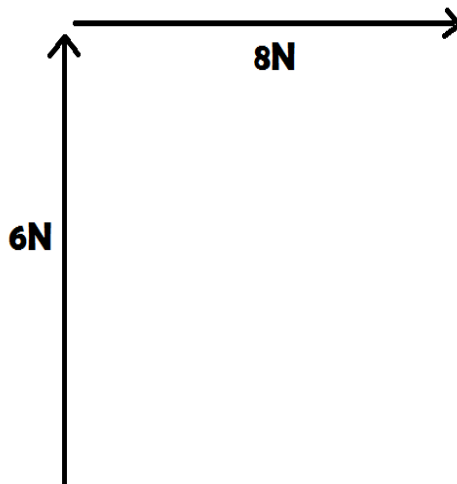
Turn this page, time yourself and begin the test

Section A [10 marks]

1. The diagram below shows a _____



- a. Vector
b. Scalar
c. Arrow
2. Study the diagram below and calculate its resultant force.



- a. 14N
b. 5N
c. 10N
3. A car travelling at 10 m/s accelerates at 2m/s^2 for 3s. What is its final velocity?
- a. 10 m/s

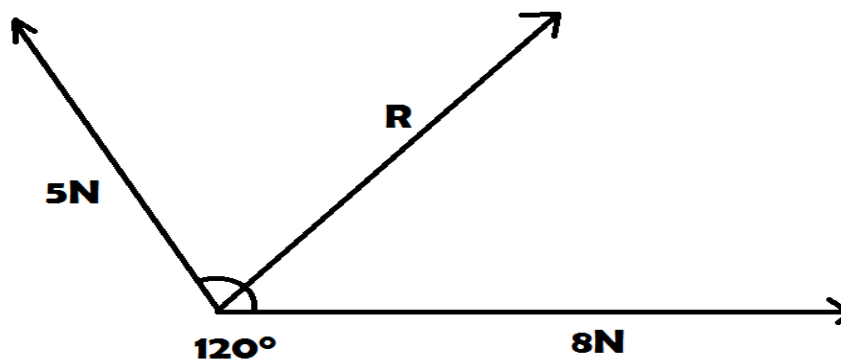
- b. 16 m/s
 - c. 6 m/s
4. A train starting from rest travels 36m in 6s. Find its acceleration.
- a. 1 m/s^2
 - b. 4 m/s^2
 - c. 2 m/s^2
5. A train travelling at 10m/s brakes uniformly and comes to rest in 5s. Find its acceleration.
- a. 2 m/s^2
 - b. -2 m/s^2
 - c. 4 m/s^2
6. A car is dropped from a helicopter and falls 405m before hitting the ground. Overlooking air resistance, calculate the time it takes to hit the ground.
- a. 3s
 - b. 81s
 - c. 9s
7. Calculate the speed of a car that travels 64m in 4s.
- a. 16m/s
 - b. -3m/s
 - c. 2m/s
8. It takes a car 3 seconds to travel 21m. What is the average speed of the car?
- a. 0.142 m/s
 - b. 7m/s
 - c. 12 m/s
9. A bicycle travelling at 30m/s brakes uniformly and comes to rest in 5s. Find its acceleration.
- a. 6 m/s^2
 - b. -6 m/s^2
 - c. 0.167 m/s^2
10. Which of the following is a set of scalar quantities?
- a. Mass, time and displacement
 - b. Pressure, speed and velocity
 - c. Temperature, pressure and length

Section B [5 marks]

11. Quantities that are specified by magnitude only are called _____
12. The distance travelled in a specific direction is called _____
13. A constant velocity at which a body moves when the air resistance balances the weight of a falling body is called _____
14. A force which opposes the motion of a falling object is called _____
15. The rate of change of velocity is called _____

Section C [10 marks]

16. Find the resultant force (R) in the following diagram.



17. A motor car starting from rest acquires a velocity of 72km/h in 5s. What is its acceleration? [3]
18. A ball is vertically thrown upwards at 20m/s. Calculate how high it gets. [2]
19. A body falls freely from rest neglecting air resistance. What is the velocity after 1 second? [2]
20. An object being thrown vertically upwards decelerates, this means that _____. [1]



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