## KERUGOYA BOYS’ HIGH SCHOOL

## FORM 4 PHYSICS SPEED TEST 3 FEBRUARY 2016

NAME.................................................. ADM NO............................... CLASS..................................

**Answer all questions:**

1. What is meant by the centre of gravity of a body (1 mark)
2. An object of weight 20N attached at the end of a spring causes an extension of 0.5cm on the spring.
3. Determine the spring constant of the spring. (3 marks)
4. Determine the weight of an object that would cause an extension of 0.86cm when attached at the end of the same spring. (1 mark)

3 (a) what is the difference between longitudinal and transverse waves. (1 mark)

(b) Calculate the wavelength of KBC FM radio waves transmitted at frequency of 95.6 mega Hertz (3 marks)

(c) Water waves observed as they pass a fixed point at a rate of 30 crests per minute. A particular wave crest takes 2s to travel between two fixed points 6m apart.

Determine for the wave

1. The frequency (2 marks)
2. The wavelength (3 marks)
3. A mine worker stands between two vertical cliffs 400m the nearest cliff. The cliff are X distance apart. Every time he strikes the rock once, he hears two echoes, the first one after 2.5s, while the second one follows 2s later. From this information, calculate:
4. The speed of the sound in air (2 marks)
5. The value of X (3 marks)
6. (a) state Bernoulli’s principle (1 mark)

(b) A pipe of radius 6mm is connected to another pipe of radius 9mm. If water flows in the wider pipe at the speed 2m/s, what is the speed of the narrow pipe? (3 marks)

1. A ball is thrown horizontally from the top of a vertical tower and strike the ground at a point 50m from the bottom of the tower. Given that the height of the tower is 45m, determine:
2. Time taken for the ball to hit the ground. (3 marks)
3. The initial horizontal velocity of the ball. (3 marks)
4. Vertical velocity for the ball just before striking the ground (take g=10m/s2). (3 marks)