

MAYOOR SCHOOL, AJMER  
Science and Technology/ IX/Annual Examination/ Thursday/ March 5<sup>TH</sup> 2009  
( Time Allowed: 2Hours 30 Minutes)

MM: 60  
VKS115

IX A- VKS, NRC, NSF  
IX B- SJR, RTC, RNY  
IXC- SDC,NRC,NSF

General Instructions

1. The question paper consists of two sections A and B Please make sure that this question paper consists of 4 printed sides.
2. All questions are compulsory.
3. Physics, chemistry and biology are to be attempted on separate answer sheets.

MM-18

PHYSICS

Q.1 Is it possible that a force is acting on a body but still the work done is zero?  
Give an example? (1)

Q.2 When the bus starts suddenly the passenger standing on it lean backward in the bus.?  
Name the law which explains this. (1)

Q.3 Why does a block of plastic released under water come up to the surface of water? (1)

Q.4 Give two difference between mass & weight? (2)

Q.5 Explain Newton's II law of motion with the help of two examples? (2)

Q.6 Figure shows a smooth metal blocks about to slide down BD. Along DE and up EF.  
BD and DE are friction free surface, but EF is rough. The blocks stops at F.

(a) Sketch the speed time graph for the journey from B to F. Label D, E and F on the graph. (1)

(b) The mass of the block is 0.2kg The vertical height of B above A is 0.6m. The acceleration due to gravity is 10m/s.

(i) Calculate the work done in lifting the block from A to B. (1)

(ii) At C the block is moving at a speed of 2.5m/s . Calculate the kinetic energy at C. (1)

Q.7 Given figure shows the velocity time graph for a bus during a test. At time  $t=0$ , the driver starts to brake

(i) How long the bus takes to stop (1/2)

(ii) State which part of the graph shows greatest deceleration (1/2)

(iii) Use the graph to determine how far the bus travels in first 2 seconds. (2)

Q.8(i) What is an Echo? Find the minimum distance required for Echo to be heard in a closed room.

(ii) A man standing in a gorge between two large cliffs Gives a short sharp shout. He hears two echoes the first after 1s and next after 1.5 s is  $340\text{ms}^{-1}$ . Calculate the distance of the man from each cliff and distance between the cliff.

(5)

OR

(i) How does the sonar work ? explain with the help of diagram?

(ii) A submarine emits a sonar pulse which returns from an underwater cliff in 2.04s. if the speed of sound in salt water is  $1531\text{m/s}$  how far away is the cliff ?

(5)