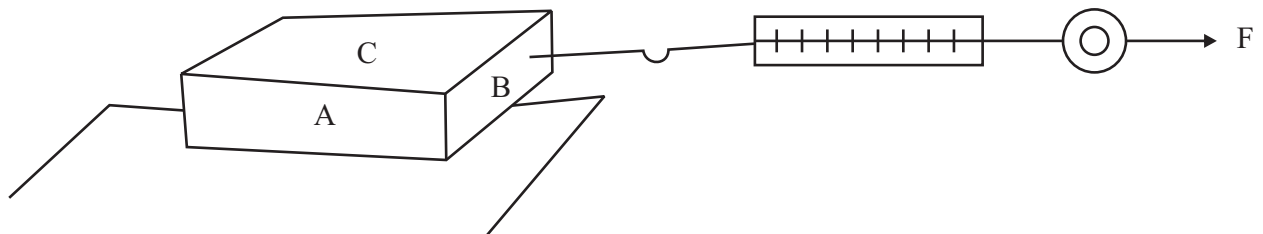

**Nalanda College - Colombo 10**  
**Unit Evaluation**  
**Grade 10 Science Unit 5 - Friction (Physics)**

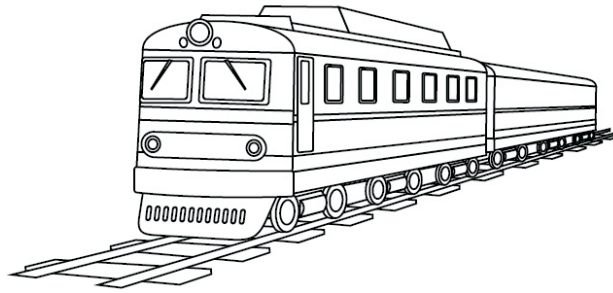
- 01 What is the example which frictional force is increased,
- (1) Fixing ball bearing
  - (2) Applying lubricators between the contact surface
  - (3) Fixing roller bearing
  - (4) Hawing grooves on shoe sole
- 02 A trolley on a smooth surface can be pulled slightly by a horizontal force of 400N. If the trolley is on a rough surface what can you say about the friction when applying same force 400N on,
- (1) Equal to 400N
  - (2) Great than 400N
  - (3) Less than 400N
  - (4) Can't be decided by given data above
- 03 Consider the statements given below about friction.
- A The frictional force exerted on the body before the motion starts is called dynamic friction.
- B Limiting frictional force increases when the normal reaction between the two forces increases.
- C The frictional force acting on a moving body is the dynamic friction
- The true statements from the above are,
- (1) only A and B
  - (2) Only A and C
  - (3) only A and C
  - (4) A, B and C
- 04 The factor not affect for the limiting frictional force,
- (1) roughness of the contact surface
  - (2) Area of contact forces
  - (3) perpendicular reaction in between surface
  - (4) Smoothness of contact surface
- 05 A block of wood with different surface area's is placed on a table as shown below. Then an unbalanced force F is exerted on it using a spring balance.



- (1) There is a maximum limiting frictional force when surface A contact with the table.
- (2) There is a maximum limiting frictional force when surface A contact with the table.
- (3) Cannot say anything about limiting frictional force as mass of the block of wood is given below.
- (4) The limiting frictional force is constant for all 3 surface containing with the table

**Structured Essay Question.**

01 The force exerted by a train engine traveling with a uniform velocity of 8000N.



- (i) What is the resultant force acting on the train engine at this moment?  
.
- (ii) Name one force acting on the train engine against its motion.  
.
- (iii) The mass of the train engine is 20,000Kg. The force exerted by the engine is increased from 8000N to 3500N.
  - (a) Name the law of motion which you used to find the acceleration of the train engine.  
.
  - (b) Calculate the value of acceleration.  
.
  - (c) Show roughly on a same velocity - time graph.

The above two instances of the motion of the engine namely the motion with uniform velocity and the motion with acceleration.

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**Essay Questions**

- 01 (i) Define "friction".
- (ii) What are the two main factors that limiting friction depends on?
- (iii) Write
- (a) two benefits of friction
  - (b) two disadvantages of friction
- (iv) Write
- (a) two methods used to reduce friction
  - (b) two methods used to increase friction.
- (v) It was required to drag a large block of wood along a flat, rough surface. State 2 different methods that can be used to reduce the friction between those surfaces.



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