අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය
கல்விப் பொதுத் தராதரப் பத்திர(உயர் தர)ப் பரீட்சை
General Certificate of Education (Adv. Level) Examination

භෞතික විද්‍යාව
பௌதிகவியல்
Physics

01 E II

2026 Paper - #01
1 ½ hours

Name : ....

....

School : ....

....

Stream : **MATHS** ☐ **BIO** ☐ **IT** ☐

Student's Signature	

CLASS :

Reiss	-	**Rawatawatta**	☐
Nenapetha	-	**Kesbewa**	☐
Gravity	-	**Nugegoda**	☐

Important :

- This question paper consists of 05 pages.
- This question paper comprises of 10 MCQs, one structured essay & one essay question.
- Use of calculators are not allowed.

For Examiners' Use Only

MCQ	/10	/50
Q1	/20	/50
Q2	/30	
Total		/100

PRAGEETH ARAVINDA

B.Sc. (University of Sri Jayawardenepura)

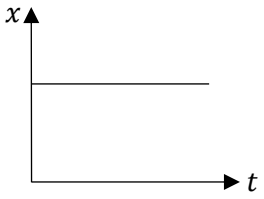
Part I

01. Which of the following is not a SI fundamental unit.

1) m 2) s 3) mol 4) J 5) A

02. Figure shows variation of quantity (x) with time t of a projectile. That quantity would be,

1) Acceleration
2) Displacement
3) Velocity
4) Horizontal component of velocity
5) Vertical component of velocity



03. Which of the following measurement were not taken by a meter ruler, Vernier caliper and micrometer screw gauge.

(A) $10.5cm$ (B) $2.235cm$ (C) $10.667cm$ (D) $20.57cm$

1) Only A and B
2) Only B and C
3) Only C and D
4) Only A and D
5) All A, B, C and D

04. A bird is flying horizontal at an altitude $180m$ when this bird is directly above his head a boy throws a stone at speed $120ms^{-1}$ and as it makes 30^0 with horizontal if this stone hits the bird, speed of bird should be,

1) $100ms^{-1}$ 2) $120ms^{-1}$ 3) $60ms^{-1}$ 4) $60\sqrt{3}ms^{-1}$ 5) $150ms^{-1}$

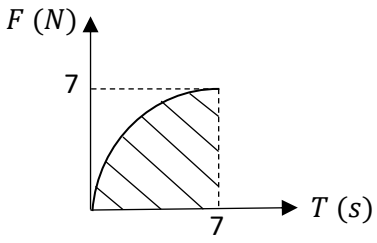
05. Consider the following statements made regarding a particle describes a projectile.

(A) Velocity is zero at the maximum height of its path.
(B) Total vertical displacement of particle is always zero
(C) It is subjected to constant acceleration

1) Only A
2) Only B and C
3) Only C
4) All A, B and C
5) All are incorrect

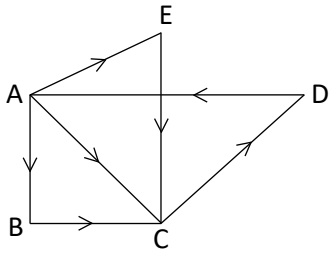
06. The graph depicts the variation of force on a mass $11kg$ which is initially at rest. What is the velocity of it at for $7s$ ($Take\ \pi = {}^{22}/_{7}$).

1) $3ms^{-1}$ 2) $3.5ms^{-1}$ 3) $8ms^{-1}$
4) $8.5ms^{-1}$ 5) $10ms^{-1}$



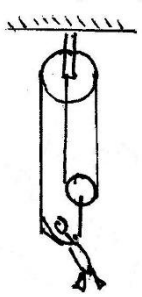
07. Figure show a system of vectors $\overrightarrow{AB}$, $\overrightarrow{BC}$, $\overrightarrow{CD}$, $\overrightarrow{DA}$, $\overrightarrow{AC}$, $\overrightarrow{EC}$ and $\overrightarrow{AE}$. The resultant of the system.

1) $\overrightarrow{BC}$
2) $2\overrightarrow{AE}$
3) $2\overrightarrow{AC}$
4) $3\overrightarrow{AC}$
5) Null vector



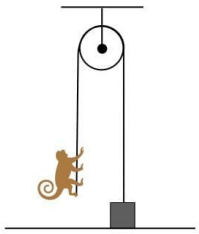
08. A boy of mass $60kg$ is in equilibrium by drawing the cable. Downward, which is going over two smooth pulleys. If he is free from floor, the force applied by boy on the cable is given by

1) $600N$
2) $450N$
3) $300N$
4) $200N$
5) $150N$



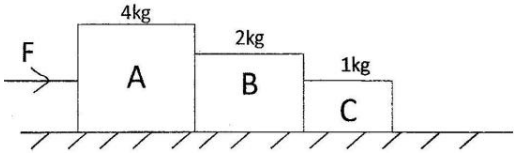
09. A $2kg$ monkey is climbing a light, inextensible rope that passes over a smooth pulley. A $3kg$ package is attached to the other end of the rope. The monkey wants to lift the package with an acceleration of $2ms^{-2}$. The acceleration of the monkey is?

1) $4ms^{-2}$
2) $6ms^{-2}$
3) $8ms^{-2}$
4) $10ms^{-2}$
5) $11ms^{-2}$



10. Three objects A, B and C of masses $4kg$, $2kg$ and $1kg$ respectively are placed in contact with each other and $3.5\ N$ force is applied on A. The force exerts on B by C is,

1) $1N$
2) $2N$
3) $3N$
4) $4N$
5) $6N$



Question Number	Answer
1	
2	
3	
4	
5	

Question Number	Answer
6	
7	
8	
9	
10	

Part II

1. A student decided to experimentally find the radius of curvature of a convex lens using a spherometer in the laboratory. Radius of curvature is given by the standard notation in the equation (R), $R = \frac{a^2}{6h} + \frac{h}{2}$.

   (a) Circular scale of the spherometer is divided into 50 equal divisions & it moves $1mm$ along the linear scale, once two complete rounds of the circular scale is rotated. Calculate the least count of the instrument.

   .....
   .....
   .....

   (b) i) What is the experimental step that should follow, before take measurements from the spherometer.

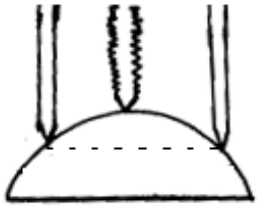
   .....
   .....
   .....

   ii) How the student can experimentally verify that the above mentioned step has correctly been done?

   .....
   .....

   (c) Then he plans to find h experimentally.

   i) Mark a & h, given figure in below.



   ii) Write down the two steps that should follow to bring the spherometer as shown in above figure, after the step b(i).

   1st step - .....
   .....

   2nd step - .....
   .....

   (d) i) What is the most suitable measuring instrument to find a.

   .....

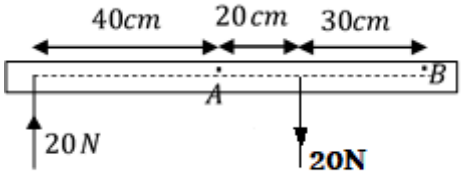
   ii) Briefly write down the way to obtain the measurement a using that measuring instrument.

   .....
   .....
   .....

   iii) Why should, the student must be concern about the accuracy of the measurement a.

   .....
   .....

2. (a) Below figure shows a situation how two forces acting on an object.

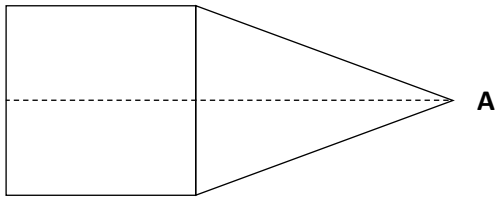


i) Calculate the effective moment of above given forces around the each points A & B separately.

ii) What is the conclusion reached, considering the answers obtained in above (i)?

iii) Write down three requirements of a system under couple of force.

(b) The compound object below consists of thin laminars of a square, having a side length of $4r$ and a triangle having a height of $3r$, base length of $4r$. (Mass of unit area is m)



i) Write down the principle of moment.

ii) Find the distance to the center of gravity of the compound object from apex A, in terms of r.

iii) Obtain a numerical value for the distance to the center of gravity from A, for the second decimal place, if $r = 14cm$.

iv) A circular disk of radius r is cutoff from the compound object in above (i) as shown in below figure. Obtain the distance to the center of gravity from A of the new object, in terms of r. $(Take\ \pi = 3)$