KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

MOI GIRLS ELDORET HIGH SCHOOL
232/1
PHYSICS
PAPER 1
MARKING SCHEME

1. 2.50+0.45=2.95mm   Reading ✓1

$$\frac{22}{7}\text{x}10\text{x}\left(\frac{0.295}{2}\right)^2 = 0.684. \quad ✓1$$

2. Large surface area exposed to the atmosphere leading to high evaporation rate <u>taking away latent hea of evaporation.</u>
        ✓1

3. Instantaneous velocity at any point is different thus acceleration while the distance covered by the body per unit time is constant (constant speed)

4. Cooling the two metals further (reducing the temperature).   ✓1

5. V.R   =4.

    M.A $= \dfrac{100\text{N}}{28}$ ✓1

    Efficiency $= \dfrac{\text{M.A}}{\text{V.R}} \text{x}100$

    $= \dfrac{100}{28} \div 4\text{x}100$ ✓1

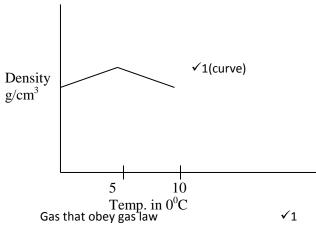 $= \dfrac{100}{28\text{x}4} \text{x}100 = 89.28\%$ ✓1

6. a)   The force of liquid surface that make it t behave like a thin stretched skin.   ✓1
    b)   The soap film behaves as if its surface is tightly stretched. As it tries to make its surface as well as possible it rises up the funnel.   ✓1

7. a) $M_1V_1 + M_2V_2 = MV$
          0.5x1.2+1.5x0.2=2v   ✓1
          0.6+ 0.3 = 2v

          V= $\dfrac{0.9}{2}$ =0.4m/s ✓1

8. Air molecules near the earth's surface are denser than the air molecules further above the earth. When heating by sun heat, they became lighter and move upward not downward.

9. -Mercury is highly denser than water hence require a small mercury column height.
    -Mercury doesn't wet glass (Any one)   ✓1

10. The care are made with a <u>heavy base</u>   ✓1   (low C.O.G)

11. Velocity ration = $\dfrac{14}{9}$ ✓1   =1.56 ✓1

12. a) V^2 = 2gs = 2x10x20 =400 ✓1
          V   =20m/s   ✓1

    b)   No viscous drug/zero air resistance   ✓1

13. Resultant force = 6-4 = Ma.   ✓1
                2a = 2
                a= 1m/s^2 ✓1

14.

Density g/cm^3

$\checkmark$1(curve)

5   10
Temp. in 0^{0}C

a)   Gas that obey gas law $\checkmark$1

b)   i) $$\frac{2.0\text{x}10^5 - .1.0\text{x}10^5}{2.4\text{x}10^6 \text{ x}1.2\text{x}10^6} = \frac{1}{12}\text{x}10^{-1}$$

=   0.0833pa m^3 Extract value from graph.

ii)   Operate the experiment at room temperature. $\checkmark$1
iii)   Reciprocal of pressure per unit volume. $\checkmark$1
iv)   The container to be thick enough to withstand the exerted pressure $\checkmark$1

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$ $\checkmark$1

$$\frac{4000}{310} = \frac{V_2}{340}$$ $\checkmark$1   V$_2$=4387.097litres $\checkmark$1

18)   a)   When a body is totally or partially immersed in a fluid, it experiences
up thrust force which is equal to the weight of the fluid displaced. $\checkmark$1

b)   i)   W = T + U $\checkmark$1
ii)   W =mg = evg $\checkmark$1 =10500 x 0.3 x0.2 x0.2 x 10$\checkmark$1

= 1260 N $\checkmark$1
iii)   weight of liquid = ev = 1200 x (0.3x0.2x0.2)x10
displaced (U)   =144N $\checkmark$1

iv)   T = W-U = 1260-144 =1116N $\checkmark$1
c)   Mass = 800 x 0.00001 $\checkmark$1
=0.008kg.

Density = $\dfrac{M}{V} = \dfrac{0.008\text{kg}}{50\text{x}10^{-6}} = \dfrac{0.008}{0.0005} = 16\text{kg}/\text{m}^3.$ $\checkmark$1.

19.   Angle in radians through a point as the object is.
a)   Rotated in a circular manner $\checkmark$1

b)   i)   w= $\dfrac{2\text{x}3.142\text{x}75}{60} =$ $\checkmark$1   7.855 rad/s $\checkmark$1

ii)   a = wr = 7.855 x0.14 $\checkmark$1 =1.0997 rad/s^2 $\checkmark$1

= $\dfrac{1}{50} = 0.02\,\text{sec.}$ $\checkmark$1

c)   i)   VAB   = $\dfrac{6\text{x}5}{0.02\text{x}3}$ =500cm/s=5m/s. $\checkmark$1

$$VB = \frac{6 \times 5}{0.02 \times 5}$$ =300cm/s =3m/s ✓1

ii) $\frac{300 - 500}{0.02 \times 8}$ or $\frac{3 - 5}{0.02 \times 8}$ ✓1

= -1250cm/s² or -12.5m/s² ✓1

20. a) Quantity of heat energy required to raise a unit mass of a substance a temperature by Kelvin. ✓1

b) i) Q = MCA$^\theta$ ✓1 = 3xc x (50-20) =1.25x1000x5x60 ✓1

c = 6250 J/kgk ✓1

ii) L=Ml = $\frac{1.25 \times 10 \times 60 \times 1000}{1000} = 750kj = 750,000 \, joules.$ ✓1

iii) 6250 x (90-50) x 3 = 1.25 x 1000 x t ✓1

t = 600sec = 10min ✓1

time taken =15+10 =25min.✓1

iv) Liquids have high specific heat capacity than solids ✓1

SECTION2.

15. a) Friction force
-Radius of the circular tack. } Any one ✓1.

b) Fr = $\frac{MV^2}{r}$ ✓1

$$6500 = \frac{1000 V^2}{25}$$ ✓1

$$V^2 = \sqrt{162.5} = 12.75m/s$$ ✓1

c) i) tension at bottom $\frac{MV^2}{r} + Mg$

$$10.5 = \frac{0.2V^2}{0.32} + 0.2 \times 10$$ ✓1

V = 3.688m/s ✓1

ii) Tension at top = $\frac{MV^2}{r} - mg$

$$\frac{0.2 \times (2.688)^2}{0.32} - 0..2 \times 10$$

= 8.5 – 2.0

= 6.5 ✓1

Smoke particle.

16. a) i)For visibility of air movement ✓1

ii)Lens -focus light to a point in the smoke cell ✓1

iii) Microscope. -magnification of smoke particles ✓1

b) Smoke particles observed moving at random ✓1

the smoke particles move at random due to the bombardment air molecules at random ✓1
(Brownian motion)

c)   The smoke particles movement is vigorous thus the air molecules   ✓1.