KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

AALLIANCE GIRLS HIGH SCHOOL
232/1
PHYSICS
PAPER 1
MARKING SCHEME

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 1

MARKING SCHEME

---

1. Vol of 4 drops = 4x0.5
   $=2.0cm^3$√
   New reading =30.0-2.0
   =28.0cm3 √
2. Taking moments about end A
   $T_A+T_B=150N$…….(i)
   $=T_B=150-T_A$
   c.m=150x2.5
   =375
   ACM=T_Ax2.0xT_Bx3.5
   $2T_A+3.5(150-T_A)=375$√
   $2T_A+525-3.5T_A=375$
   $1.5T_A=150$
   $T_A=100N$√
3. Terminal velocity is attained after a given time depending on the coefficient of viscosity of the fluid√
   Air has much smaller coefficient of viscosity compared to water √
4. Concentrating most of the mass close to the base
5. $\frac{v_1}{T_1}=\frac{v_2}{T_2}$ √

   $\frac{2000}{300}=\frac{2500}{T_2}$

   T_2= 375k√
   $=102^oC$
6. Ma= $\frac{mv-mu}{t}$

   $20a=\frac{90-60}{10}$ √

   a= $0.15m/s^2$√

7. (a) Eff = L/Ex100
   (b) Eff= $L/2E$ x100
   Efficiency of (a) is half that of (b) due to doubled velocity ratio√
8. Should have a wide range of temperature√
   Should expand and contract uniformly over a wide range of temperature
   Should be visible√ any 2
9. Temperature increase causes an increase of the kinetic energy of the gas particles√
   The number of collisions of the particles with walls increase hence the pressure√
10 Pressure in liquids increases with depth√
   Pressure at a point in a liquid is equal in all directions
11. Vol. of bottle =60 litres =60,000cm3
    Mass of empty bottle=10,000g
    ρ= m/v=m=ρxv√
    m=(0.72x60,000)g
    =43200g√
    Total mass =43200+10000
    =53200g
    =53.2kg√
    Section B
12. (a) W-Fluid reservours√
    X-release value√
    Y-Load piston√

(b)Effort applied downwards causes high liquid pressure below pump pistonV. This keeps valve A closed while B opens so that liquid flows to force up the load pistonV hence raising the loadV

(c)So as during upstroke atmospheric pressure causes valve A to open to let fluid into PV

(d) - Increasing the cross-sectional area of QV

- Reducing the cross sectional area of PV

(e) If force p is F1

Then P1= F1/A=F1÷ 5/ 100x100V

But this is the pressure transmitted to Q

∴ P at Q=F2/A

$$2000F_1 = \frac{1200x1000}{500}$$

F1=120N

13. (a) Quantity of heat energy required to change a unit mass of substance from solid to liquid without in temperature

(b) Pressure

-Impurities

(c) (i) amount of current

Voltage across the heater

Mass of water collected (any 2)

(ii) ammeter and variable resistor in series

Voltmeter across the heater V

- (iii) Switch on the current and start clock at the same time
- Record steady values of I and V
- Weight the melted liquid after given time
- Apply vit=mL_f

(d)(i) Power rating=VI

=1.25x6

=7.5W

(ii) Vit =ML_fV

7.5x5x60= 200/1000Lf

Lf=11250Jkg^{-1}

14. (a) When an object is partially or fully submerged in a fluid, it experiences an upward free equal to the weight of the fluid displacedV

(b)(i) Let downward force due to 25g be F

Fx40=2x30V

F=1.5g

But F= Mass-upthrust

∴ upthrust =25-1.5

=23.5g

=0.235NV

(ii) Vol of liquid displaced = vol of 25g of block

=0.025/200

=1.25x10^{-4}m^{3}V

ρ=m/v

$$= \frac{0.0235}{1.25x10^{-4}} \text{ V}$$

=188kg/m^3

15. Tension -downwardsV

Weight-downwardsV

Upthrust-upwardsV

(ii) Upthrust=weight+tensionV

(d) Mass of solid =ρxVV

=0.8x11.5

=9.2gV

Upthrust =weight of solid

=0.092NV

15. (a) The rate of change of angle subtended at the centre of circular pathV

(b)(i) Fc=$\frac{MV^2}{r}$

$$\frac{2x50x50}{0.8}$$

=6,250N

(ii) $T_A = \frac{mv^2}{r} - mg$

=6250-20√

=6230N√

(iii) A+B

$T_B == \frac{mv^2}{r} + mg$

6250+20√

=6270N√

(c) At point B√. This where there is greatest tension to cause the snap√