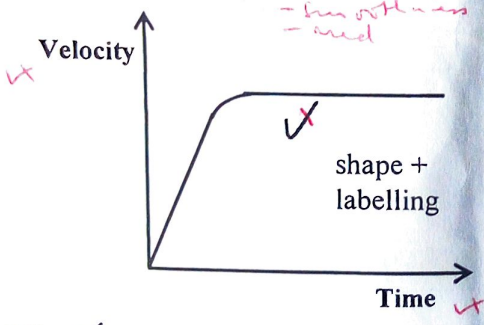
MUKASA JOSEPH 535/1

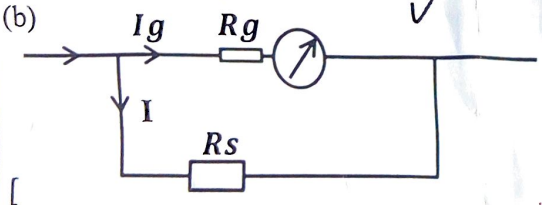
WAKISSHA JOINT MOCK EXAMINATIONS
MARKING GUIDE
Uganda Certificate of Education
UCE August 2019
PHYSICS 535/1

SECTION: A (40 MARKS)

1.B	11.D	21.C	31.C
2.C	12.B	22.B	32.A
3.A	13.B	23.A	33.C
4.D	14.C	24.D	34.A
5.A	15.A	25.D	35.D
6.B C	16.D	26.D B	36.B
7.D	17.D	27.A	37.B
8.C	18.B	28.D	38.A
9.C	19.C A	29.B	39.C
10. A	20.D	30.C	40.A

SECTION: B (40 MARKS)

41.	a.(i) Viscosity is force that opposes motion in fluids. ✓	01	- opposition set up to motion - frictional force that opposes - resistance to relative motion of object
	a.(ii)- Temperature ✗ -Surface area of body ✗ -Velocity of the body -Nature of the fluid/medium	½	Thickness/nature
	b.(i) 	½ ½	
	b.(ii) Oil ✗ Glycerine ✗	01	Allow honey and water
		04	
42.	(a) When a force is applied to a ~~fluid~~ liquid enclosed/confined in a vessel pressure created is equally transmitted throughout the fluid in all directions. ✓	01	or incompressible fluid non compressible flu

(b) (i)	(b)(i) MA$=\frac{Load}{Effort}$ $2=\frac{100}{Effort}$ Effort$= 50N$. $\frac{F1}{A1}=\frac{F2}{A2}$	01	
(ii)	50/0.02 = 100/A2 A2 = (100x0.02)/50 $= 0.04m^2$	02	
		04	
43.	(a) Internal resistance is the opposition of current within the cell. (b) Let the current $thru = I, Vp = IRp$ $Rp=\frac{(2\times6)}{(2+6)}=1.5\Omega$ $VP = IRp$ $3 = I \times 1.5$ $I = 2A$ Total resistance $R = Rp + 2.5$ $= 1.5 + 2.5$ $= 4.0\Omega$ $E = I(R + r)$ $E = 2(4 + 1)$ $= 10V$	01 ½ 01 ½ 01	
		04	
44.	Reverberation is the prolonged sound due to the combined of original sound and echo while Resonance is the vibration of a material with a natural frequency due to impulses of a nearby material vibrating at the same frequency. (b) $v = 2f(L_x - L_1)$ v = $2 \times 264\left(\frac{96.3}{100}-\frac{31.5}{100}\right)$ $=342.1ms^{-1}$	01 01 01 01	echo / multiple reflection - must
		04	
45	(a)It can measure both voltage and current It can measure very small current (b)  [P.d across galvanometer=P.d across shunt. $IgRg = IsRs$ $Is = (Io - Ig)$ $=> IgRg = (Io - Ig)Rs$ $=> Ig \times 5 = (10 - Ig)\ 0.002$ $5Ig = 0.02 - 0.002Ig$ $5Ig + 0.002Ig = 0.02$ $5.002Ig = 0.02$	01 01 01	

	$Ig = \frac{0.02}{5.002}$ $=0.004A$ $= 4mA$	01	
46.	(a) Dew point is the temperature at which the water vapor present in air is just enough to saturate it.	04 01	
	(b) (i) $Pxt = mc\,(\theta_2 - \theta_1)$ $P \times 60 = 0.5 \times 4200 \times (90 - 30)$ $60P = 126{,}000$ $P = 2100W$	02	
	(ii) -Temperature -Surface area.	01	
47.	(a) A yellow filter transmits yellow, green or red light.	04 01	
	(b) $n = \frac{1}{sinc}$ $1.5 = \frac{1}{1.5}$ $sinc = 0.6667$ $c = 41.8^0$	01	
	$r_1 + c = 60$ $r_1 = 60 - 41.8$ $= 18.2^0$	½	
	$n = \frac{sini}{sinr}$ $1.5 = \frac{sini}{sin18.2^0}$	½	
	$sini = 1.5\,sin18.2^0$ $i = 27.9^0$	01	
48	(a)A conductor is a material whose electrons are losely attached to the nucleus of an atom	04 01	
	while an insulator is a material whose electrons are firmly attached to the nucleus of the atom.	01	
	(b) (i) When rubbed it gains or loses electrons.	01	
	(ii) Charged bodies lose charge by corona discharge through water vapour.	01	
49	(a)Law of floatation state that a floating body displaces its own wait of the fluid in which it floats.	04 01	
	(b) Total mass $=mb + m_{H2} + m_{Load}$ $= 1.25 + V \times density\ (H2) + MLoad$ $= 1.25 + 10 \times 0.089 + ML$ $= 2.14 + ML$	01	
	Weight of air $= mg$ displaced$=v \times density \times g$ $= 10 \times 1.29 \times 10$ $=129N$	½	
	Using Law of floatation $up\ thrust = weight\ of\ Load$		

	$129 = (2.14 + ML)10$ $1.29 = 2.14 + ML$ $ML = 12.9 - 2.14$ $= 10.76kg.$	½ 01	
		04	
50.	(a)Mass number is the total number of protons and neutrons in the nucleus of an atom. ✓ (b) (i) $^{238}_{92}A \rightarrow {}^{234}_{92}B + \alpha + \beta$ $^{238}_{92}A \rightarrow {}^{234}_{92}B + x^{4}_{2}He + y^{0}_{-1}e$ Equating $238 = 234 + 4x$ $4x = 4$ ✓ $x = 1$ ✓ also $92 = 92 + 2x - y$ $0 = 2x - y$ $y = 2x$ $y = 2(1)$ $y = 2$ ✓ $no\ of\ \alpha\ particles = x = 1$ $no\ of\ \beta - particles = y = 2$ ✗ Alpha particles are positively charged while beta particles are negatively charged particles. ✗	01 01 01 01	
		04	

α	β
Heavy	light
- less penetrative	more penet
- more ionising	less
- less deflected towards -ve	more
- helium nuclei	elec
- short range in air	long range in air