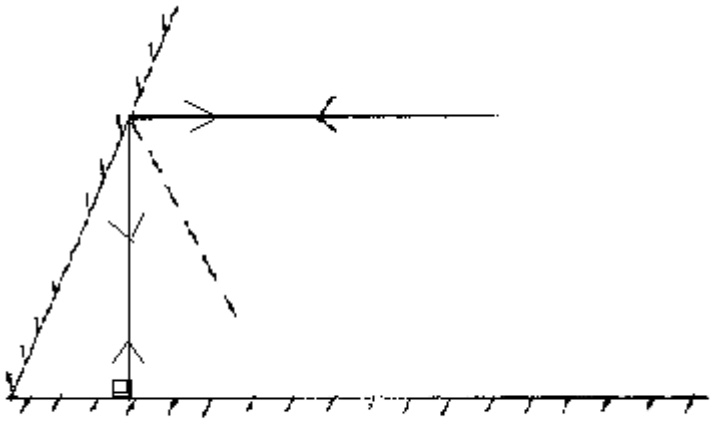
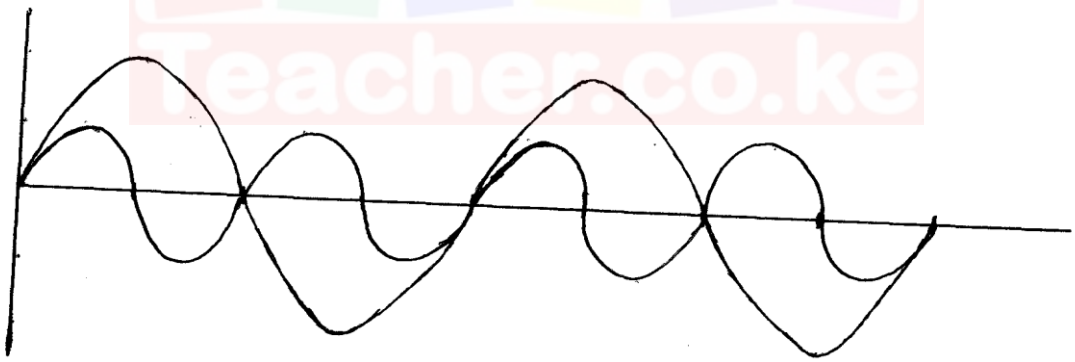
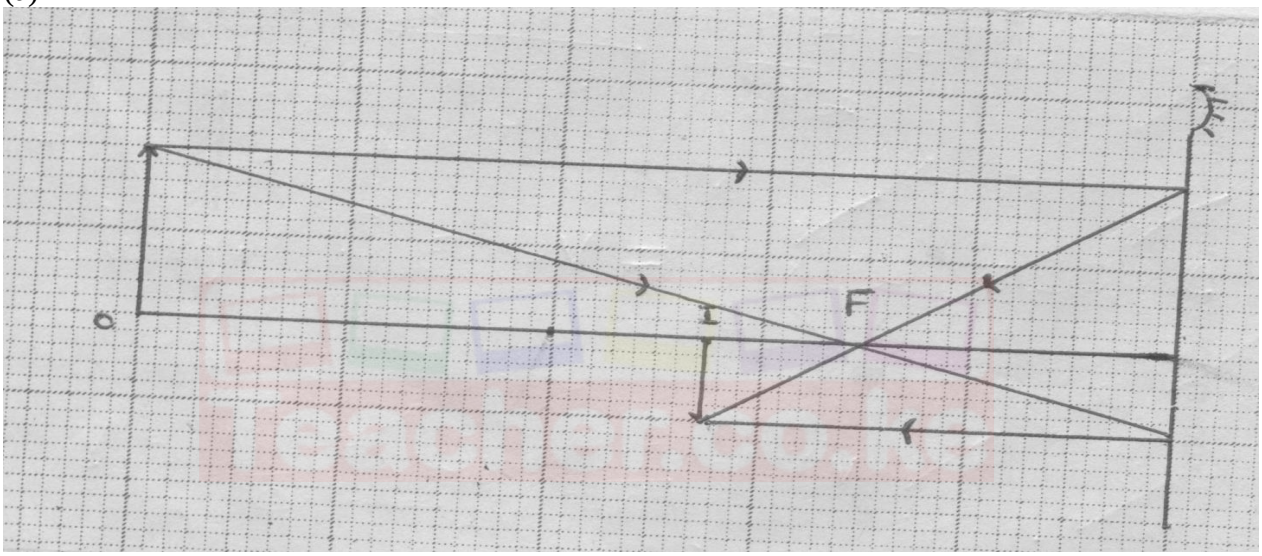
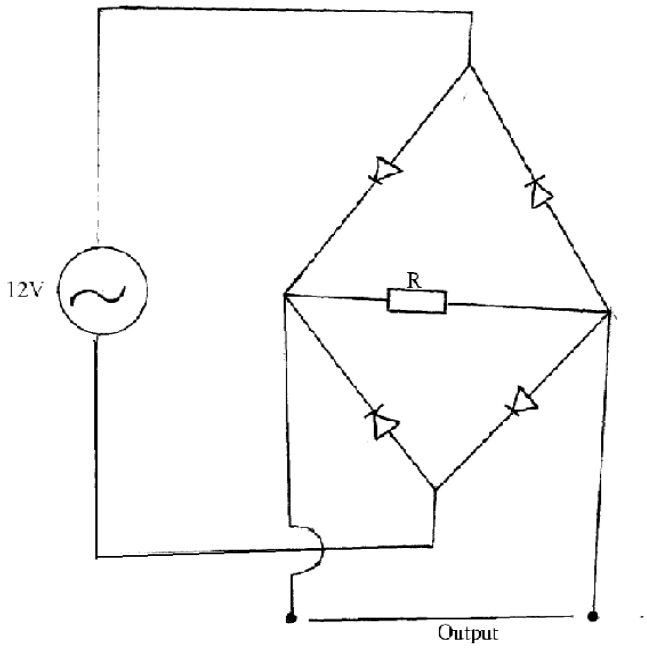
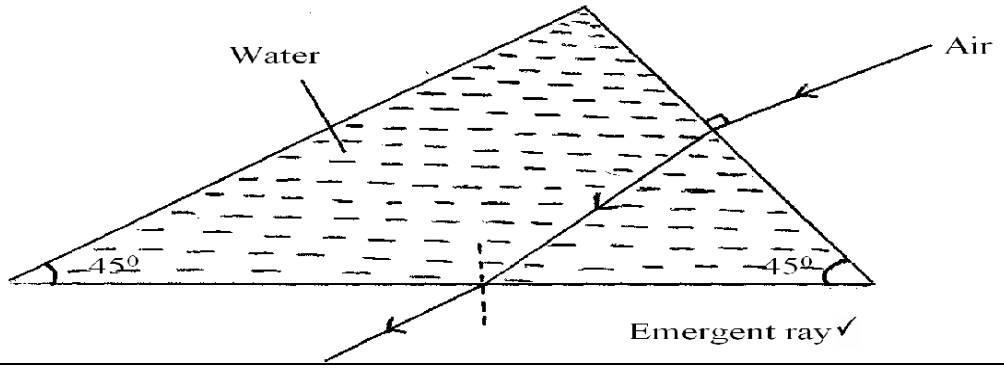
MURANG'A EAST SUB-COUNTY JOINT EVALUATION – 2025

232/2
PHYSICS
Paper 2
MARKING SCHEME

1.	
2.	X_____S ✓ Y_____S
3.	 Amplitude ✓ 1 Cycle Frequency ✓
4.	✓ ½ $V = \frac{d}{t} = \frac{17 \times 2}{0.1} = 340 ms^{-1}$ ✓ ½ ✓ ½
5.	$P = \frac{V^2}{R}$

	$= \frac{6^2}{4}$ **= 9 W** ✓1 mk
6.	Since the speech current is varying with time, it causes the current on the solenoid to vary, it causes the current on the solenoid to vary✓ this causes the force of attraction on the diaphram to vary with time causing the diaphram to vibrate.✓ This vibration is at the frequency of speech hence reproducing speech.✓
7.	Negative charge.✓
8.	1A ; ✓
9.	(a)  Correct rays with arrows.✓ F marked.✓ (b) 3×5=15✓

10.	 Ac source shown.✓ Arrangement of diode ✓(½ for each pair) Current position of R and output.✓
11.	A <u>Ultraviolet.</u>✓
12.	When current flows from P to Q a south pole is created which opposes the approaching the south pole OR Statement of Lenz's law.
13.	Deflection in TV is by magnetic fields.✓
14.	
15.	(a) Capacitance decreases because <u>area of overlap</u> decreases.✓ (b) (i)

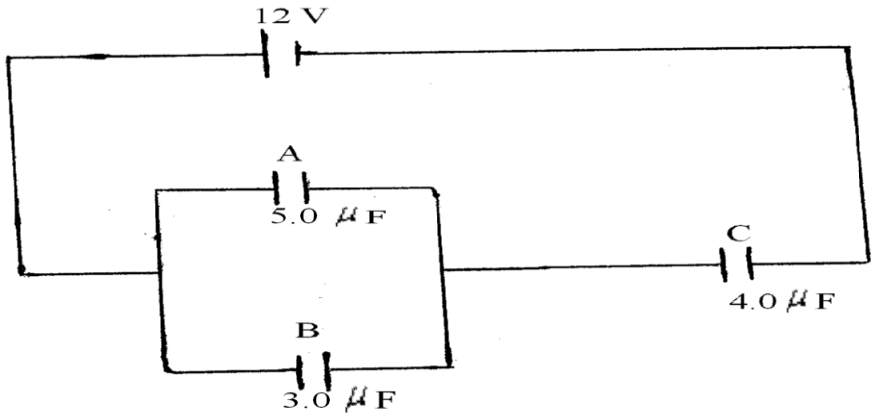


Figure 10

Parallel: $5+3=8\ \mu$ f ✓ ✓

Whole circuit C= $\frac{8\mu F \times 4}{12} = \frac{32}{12} = 2.67\mu F$ ✓ ✓

(ii) charge, Q=CV= $\frac{8}{3}\times 12 = 32\mu\xi\left(3.2\times10^{-5}c\right)$

(iii) $V_C = \frac{Q}{C} = \frac{3.2\times10^{-5}}{4\times10^{-6}} = 8V$ ✓ ✓

V_A=12-8=4V

16. (a) (i) UV light removes electrons on Zinc plate,✓ this lowers the excess charge(negative) on leaf leading to collapse ✓

(ii) Ejected electrons are re-attracted✓ and this keeps the charge constant✓

(b)

(i) frequency of incident light

energy of light or photon✓

Work function of surface ✓

(ii) I From Graph

KEmax =hf-ϕ, h is slope of graph. ✓

Slope= $\frac{(10-2.0)\times10^{-19}}{(2.6-1.4)10^{15}}$ ✓ ✓

h= 6.67 ×10^{-34} Js✓ $(6.4 \le h \le 6.8\times10^{-34}\ Js)$

At KEmax= 0, hf = ϕ

$f_o = 1.07\times10^{15}\ HZ\left(1.05\times10^{15} - 1.1\times10^{15}\ HZ\right)$

$\phi = hf_o = 6.67\times10^{-34}\times1.07\times10^{15}$

=7.4×10^{-19} J✓(7.1×10^{-19} J-7.5×10^{-19} J)

17.	(a) Radiation is β ✓ (b) Force is towards the centre (Fleming's left hand rule)✓ (i) α (alpha)✓ ii) $\begin{matrix} X & 88 \\ Y & 228 \end{matrix}$ ✓ (c) (i) Increase in thickness✓ (ii) Increase in thickness reduces the radiation reaching the Geiger-tube✓ (iii) Roller pressure should be increased✓ (iv) Increase in roller pressure squeezes metal sheet more reducing the thickness of the foil coming out of them.✓ (v) α -particle have little penetration ✓so will not pass through foil.✓
18.	(i) A Cathode ray or Electron Beam✓ B Anode (copper anode)✓ (ii) Change in p.d across PQ changes filament current.✓ This changes the number of electrons released by the cathode hence intensity of X-rays.✓ (iii) Most of the K.e of the electrons hitting target is converted to heat.✓ (iv) High density.✓ (c) Energy of electrons, E= QV or eV✓ $=1.6\times10^{-19}$ C×12000V✓ f= 2.9×10^{18}HZ✓ Energy of x-rays=hf✓ $=6.62\text{x}10^{-34}$Jsxf $6.62\text{x}10^{-34}$Jsxf=1.6×10^{-19} C×12000V✓ f=$2.9\text{x}10^{18}$Hz ✓
19.	(a) (i) P- Ring circuit✓ X- Neutral terminal✓ Y- Live terminal✓ Z- Earth termial✓ (ii) I. R is safety element in a cirtuit against excess current.✓ II. R is connected to Y but not to X to ensure that when it breaks the circuit any gadget/ applied connected doesn't remain alive.✓ (iii) To guard against electric shock✓ OR electrocution (b) 1.5Kw x30hx8ksh✓=Ksh 360✓ (c) High voltage implies low current✓ so reduces power loss✓