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	Name		Index No//////		
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	Paper2	Jisi .			
	July / August, 2012				
	Time: 2 Hours				
	TESO SOUTH DISTRICT JOINT EVALUATION TEST - 2012				
	LCS [®]	Kenya Certificate of Secondary Edu	cation – K.C.S.E		
	232/2				
ć	PHIYSICS				
	Paper2				
\$ ^O	July / August, 2012				
	Time: 2 Hours				

INSTRUCTIONS TO CANDIDATES

- 1. Write your name and Index number in the spaces provided above
- 2. This paper consist of **two** section **A** and **B**
- 3. Answer **ALL** the questions in section **A** and **B** in the space provided
- 4. **ALL** your workings **MUST** be clearly shown
- 6. Mathematics tables and silent Non-programmable electronic calculator may be used.

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SECTION	QUESTION	MAX SCORE	CANDIDATE SCORE
А	1-12	25	
В	13	13	
	14	13	
	15	07	
	16	10	
	17	12	
	TOTAL MARKS	80	

This paper consists of 12 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and that no questions are missing.

1. A pin-hole camera 200mm long produces an image of 2mm diameter of the sun. If the sun's distance from the Earth is about 1.5×40⁸ km, estimate the diameter of the sun. (2mks) *Learth Control of the sun of t*

2. The figure shows an image I formed by an object placed in front of a convex mirror C is the centre of curvature of the mirror.



On the diagram, drawn appropriate rays and locate the position of the object and hence determine the magnification of the image. (3mks)

3. State two factors affecting capacitance of a parallel plate capacitor. (2mks)

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7. The figure shows a magnet. Point A and B are in front of the magnet.



On the axes provided, sketch a graph showing how the magnetic field strength changes from A to B. (2mks)



- 8. Determine the angle of reflection r in the diagram below Reference reference for the state of the state o
 - 9. The apparent depth of a pond of water is 25% less than it's real depth when viewed normally.
 Calculate the refraction index of waters (3mks)

10. Determine the ammeter reading when a p.d of 30volts is applied across PQ in the figure below.

(3mks)

(3mks)



The figure below shows two identical pith balls A and B suspended with insulated threads .They are separated by an insulator X.A is positively charged while B is negatively charged. The quantity of charge on B is three times the quantity of charge on A



Sketch and explain on the space provided the final position of the pith balls after the insulation is removed. (2mks)

12.	Expla	blain why alpha particles are more ionizing than Beta particles.	
	•••••		
13.	(a)	State Snell'e law	(1mk)
	(b)	A coin is placed beneath a transparent block of thickness 10cm	and refractive index

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1.56.Calculate the vertical displacement of the coin.

(3mks)

- www.freekcset The speed of green light in a prism is 1.94×10^8 m/s (c)
 - (i) Determine the refractive index of the Prism material (speed of light in air =
 - Ŷ $3.0 \times 10^8 \text{m/s}$) (2mks)
- For Note Free KCSB past Determine the critical angle of the prism material (ii) (2mks)
 - (d) (2mks) State two advantages of using optical fibre in communication
 - The refractive indices of water and glass are $\frac{3}{2}$ and $\frac{4}{3}$ respectively. Find the value of θ in (e) the figure below. (3mks)



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(1mk)

(b) A wire was connected to a battery and was found that the energy converted to heat was 30J – When 20C of charge flowed through it in 5 seconds.
 Calculate

(i) \mathcal{P} .d between ends of the wire

 \mathbf{F}_{0} the true to the wire

(iii) Resistance of the wire

(c) If another wire has a diameter of 0.64mm, 64.3cm long and allows a current of 3.0A when a pd of 6v is maintained at its ends. Calculate:

(i) It's resistance (2mks)

(ii) It's resistivity

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(3mks)

(3mks)

(2mks)

(2mks)

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15. A clean zinc plate was charged and then placed on the cap of a positively charged electroscope as shown in figure below



- (a) State the charge on the plate before it was placed on the cap of the electroscope. (1mk)
- (b) What would happen to the leaf of the electroscope if ultraviolet light was made to fall on the zinc plate? Explain (2mks)
 (c) Why is the zinc plate cleaned (1mk)
 (d) A graph of kinetic energy of photoelectrons emitted by metal surface against the frequency of radiation used is shown in the graph below



16. (a) The following graph shows the variation of magnification,M,with image distance, v, for a concave mirror.



Determine

(i) The object position when the image position is 45cm

(4mks)

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			ast papers	
		(b) State one application of each of the following;		
	fre te	e ,	(i) Convex mirror	(1mk)
for No			(ii) Concave mirror	
			(iii) Parabolic Reflector	(1mk)
	 17.	(a)	State one difference between a transformer and an induction coil.	(1mk)
		(b)	State two energy losses in a transformer	(2mks)

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The focal length of the mirror

(ii)

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(3mks)

COTA	
(c) A transformer has 10.000 turns on it's secondary coil and 100 turns on it's punier co	
alternating current of 5.0A flows in the primary circuit when it is connected to a supply.	12v a.c
(i) State the type of transformer	(1mk)
(ii) eÉalculate the power input to the transformer	(2mks)
(iii) Calculate the E.M.F a cross the secondary coil	(2mks)
	A transformer has 10.000 turns on it's secondary coil and 100 turns on it's punier alternating current of 5.0A flows in the primary circuit when it is connected to a supply. (i) State the type of transformer (ii) State the type of transformer (iii) transformer (iii) Calculate the power input to the transformer (iii) Calculate the E.M.F a cross the secondary coil

(iv) Determine the maximum current that could flow in a circuit connected to the secondary coil if the transformer is 90% efficient (same E.M.F in secondary as you have calculated above)
 (3mks)

(v) In transmitting power why is it necessary to step it up before transmission.

Explain		(1mk)
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