**PHYSICS 2**

**PRE – MOCK 2018**

**MARKING SCHEME**

|  |  |  |
| --- | --- | --- |
| No | Answers | Remarks |
| 1 | White paper is not smooth√ therefore light reflected by the paper is to different directions (diffused reflection) therefore, no image seems to form √ | ½  ½ |
| 2 | (a) Y- Amplitude √α  (b) X-wavelength λ | 1  1 |
| 3 | Conditions necessary for sound production  Vibrations or oscillations√  Material medium √  Energy | Any two correct |
| 4 | X-carbon rod √  Y- act as a negative terminal  (also involved in the reaction to produce the e.m.f and gets eaten away with time | 1  1  1  1 |
| 5. | Suspend the magnet√ freely, away from a magnetic material. The magnet rest facing north –south earth’s magnetic field. The N-pole points in the earth’s north pole (geographical) | Suspend freely  1  1 |
| 6. | Distance = 100+100=200m  Time = |  |
| 7. | Let R be effect resistance  √1  ∴R= 56/15 n√1 =3.73η√1 |  |
| 8 | **45**  **45**  **90o**  **45**  **45** | Light at 90o to the prism |
| 9. | A driver in front will see the word ambulance (AMBULANCE) due to lateral inversion of mirrors hence give way√1 |  |
| 10. | **Eye**  **√1**  **√1**  **√1** | For the rays and where they meet |
| 11 | **i**  **Air (less dense)√1**  **C-critical angle √1 Glass (more dense )**  **Glass (more dense )**  **C**  **90o**  **i>c**      **r** |  |
| 12. | (a)   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Radio waves | Micro waves | Infra-red | visible | Ultra-violet | x-rays | Gamma rays |   √3  (a) Radio waves have the longest wavelength√  They less energetic and less penetrative  (c) The ionosphere is able to reflect radio waves to the receive and good reception  (d)f= 3x108 m/s = 200,000m  1500m  =2x 105m | For all in correct order  Any one mark |
| 13 | (i)   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 1/u | 0.050 | 0.040 | 0.033 | 0.025 | 0.200 | 0.014 | | 1/v | 0.050 | 0.050 | 0.667 | 0.075 | 0.08 | 0.086√3 |   (ii) Refer to graph A-1  S-1  P-2  L-2  (iii) The y-intercept is 10x10-2  f = 1 or 1  y-intercept x-intercept | For 1 mark for  getting the recipri  1 mark for ident inter |
| 14 | 60o  ө  r  C  Refractive index = √1  =3x108m/s  1.88x108m/s √1  =1.5958√1  (b) As indicated on the diagram  n= 1 = sin C = 1/n = 1/1.5957 =0.6266  sin C  =38.8o  (c) refractive index = sin i= 1.595 = sin ө  Sin r sin 21.2  =sin ө= 1.597x0.3616    i/v (cm-1) x 10-2  Sin ө = 0.577  Ө=sin -1 0.577 = 35.2o  (d) As indicated on the diagram  *Follow the indication of diagram* |  |
| 15. | Heat lost by the heater = heat gained by water  MC∆ө=p.t  c= p.t = 90 x 15x60  mx ∆ө 2x(30-10)  =81000J  20  =4050Jkg-1K-1  (b) effective capacitance = 3 x 10-6f+2x10-6f  =5x 10-6f√1  Q=VC V = Q/C= 1x 10-4  5x 10-6  =20V  (c) largest wavelength when the frequency is lowest  C=λf  Λ=c/f√1=330m/s  30Hz  =11m√1  (d) (i) Initially the polythene rod and cloth have same amount of charge √1  -when rubbed polythene acquire some of the charge (negative) from cloth hence excess negative charge √1  The cloth remain with excess positive charge hence positively charged  (ii) The brass is good conductor hence it quickly conduct the acquired charge through the hand which is also a good conductor of the charge hence it cannot be charged | Good conductor  Getting or discharges immediately |
| 16. | (a)    (b)  **moon √**  **Partial darkness √**  **Tip of umbra √**  **Sun √**   |  |  | | --- | --- | | pinhole | Lens camera | | (i) The image is always similar to the object  (ii) It can be larger same size or smaller | (i) Image can be distorted  (ii) is always smaller than the object |   (c) u=15cm, f=6cm V=?  1/f= 1/u+ 1/v= 1/6= 1/15+1/v√1  1/6- 1/15= 1/v 15-6 = 9  90 90  ∴V= 90= 10cm  9√1  (i) the image is 10cm from the concave mirror on the same side as object  Magn = image distance  Obj. dist  = 10cm  15cm√1  =0.667√1  Image is real  Inverted  Same side as the object | 1 rays  1 tip before earth  1 for correct positions |