**PHYSICS 232/2**

**MARCH 2020**

**MARKING SCHEME**

1. Increase the magnitude of the photocurrent √ 1
2. T = 2000 seconds

 F = 1 = 1

 T 2000 √ correct substitution

 F = 5.0 x 10 -4 HZ √

1. Ultra – violet rays √

X – rays Any 2

Gamma Rays √

1. Polarization – Using a depolarizer √

Local action – Amalgamation of the Zinc plate √

1. When current increases , the dipoles align themselves until all of them are in the same perfectly √ aligned direction i.e magnetic saturation √

The magnet force of attraction becomes constant √

1. Conducts in one direction with low resistance in the (forward bias) √

In the other directions it has very high resistance (reverse bias) √

1. Total capacitance in parallel CT = C1 + C2

 =30 +30

 = 60 µF √

 Series 1 = 1 + 1

 5 60 C2  √

 C2 = 1 - 1

 5 60 √

 C2 = 5.4545 µF √

1. Downwards √
2. X - Anode √

Y – Lead shield √

(ii) Conducting heat away √

1. (i) eV = ½ mv2 = K.E

 eV = 1.6 x 10 -19 x 25 x 10 -3  √

 = 4.0 x 10 -15 J √

(ii) K.E = ½ mv2 = 4.0 x 10 -15 J

 ½ x 9.0 x 10 x -31 x V2 = 4.0 x 10 -15 √

V = 4.0 x 10 -5 x 2

 9.0 x 10 -31

 V = 9.428 x 107 m/s√

1. 2d = s x t

d=330 x 0.1 √1 or T= 0.1 sec

 2 f= 1/0.1 = 10HZ

d=16.5m√1 OR

C =λf

330 = λ x 10

λ=330 = 33√

10

 2d = 33

 2 2

 d=16.5m√

1. Image is magnified √
2. (a) Slope = ∆y = (3.8 – 2.0)

 ∆x (76 - 38)

 = 1.8 / 38 √

 1/f = 0.04736 √

 √

 f = 21.11 cm √

 (b) (i) Long sightedness √

 (ii) When eye ball is stretched .

 Relaxation of the eye ball

 (iii)

I

2f

f

f

2f

**SECTION B** Vertical displacement

1. Refractive Index = Real depth

 Apparent depth = 10 -6.667√

1. 1.50 = 10 /x √

x = 10 / 1.5 = 6.667 = 3.333cm √

1. (i) The double slit allows for diffraction of light √ to occur creating an interference pattern on the screen

(ii) A series of dark and bright fringes are observed √

Decreasing in intensily from centre outwards√

The bright frings are due to constructive interference √

While dark fringes are due to destructive interference.√

(iii) When the slit separation B reduced , the distance between peaks on the interference patter inference pattern 1 increase √

 This is because of resolution power

1. (a) Slope = 0.5 – 0 = 0.5 = 1 = 0.1 √

 6-1 5 10

 RT = 1/ 0.1 RT = 10 Ω √

 1 = 1 - 1

 R2 10 50

 1 = 1 + 1

 RT R1 R2

 RT = 500 √ = 12.5 Ω

 40

1. (i) Current flowing through a conductor is directly propotional to the potential difference across it provided and other physical conditions are kept constant √

(ii) – Close the switch and read the correspond values of I and V√

Adjust the rheostat and record other corresponding values of I and V√

Plot a graph of V against I √

* Astraight line through the origin is obtained hence V and α I √
1. (a) Counts registered in the absence of a radioactive source √

(b) Mt = 2 / 24 = 1/8 √

 0.125 √

(c) (i) Adding small amount of impurities to a pure semi – conductor in order to enhance its conductivity. √

 (ii) Agroup 4 element i.e silicon is doped using trivalent element e.g Boron . These three electrons forms bonds to neighbor atoms but a positive hole is by the absence of an electrone to make a forth bond . the majority change cames in holes hence P – type.

1. Lenz’s law
2. Induced current is such as to oppose the change causing it.
3. When switch is closed , a magnetic field is developed in the coil √. On the left.

The changing magnetic flux is linked on the coil on the right hence inducing an electromotive force in it √ making current to flow in one direction when the switch B opened the magnetic field dies and in the process cuts the coil in the opposite direction √

1. 75 = 30 Pin put = 40w I = 40/12

 100 pinput√ Pin put = VI I = 3.333A

 40 = 12 x I

Pin put = 100 x 30

 75

1. (i) A - Slip rings √

 B –Carbon brushes.√

 (c)As the cell rotates the magnetic flux through it changes √

 The rate at whi ch the flux changes greatest where the coil is horizontal . the flux through the coil increases until the coil is vertical where induced e.m.f is zero. As the coil passes vertical line, the flux through it decreases generating an e.m.f in opposite directions √

The e.m.f reaches maximum when the coil is horizontal and moving in a negative direction