MATIGO EXAMINATIONS BOARD
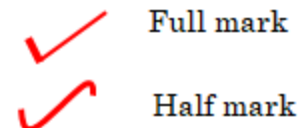
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PHYSICS

MARKING GUIDE 2023

PAPER 1

✔ Full mark

✔ Half mark
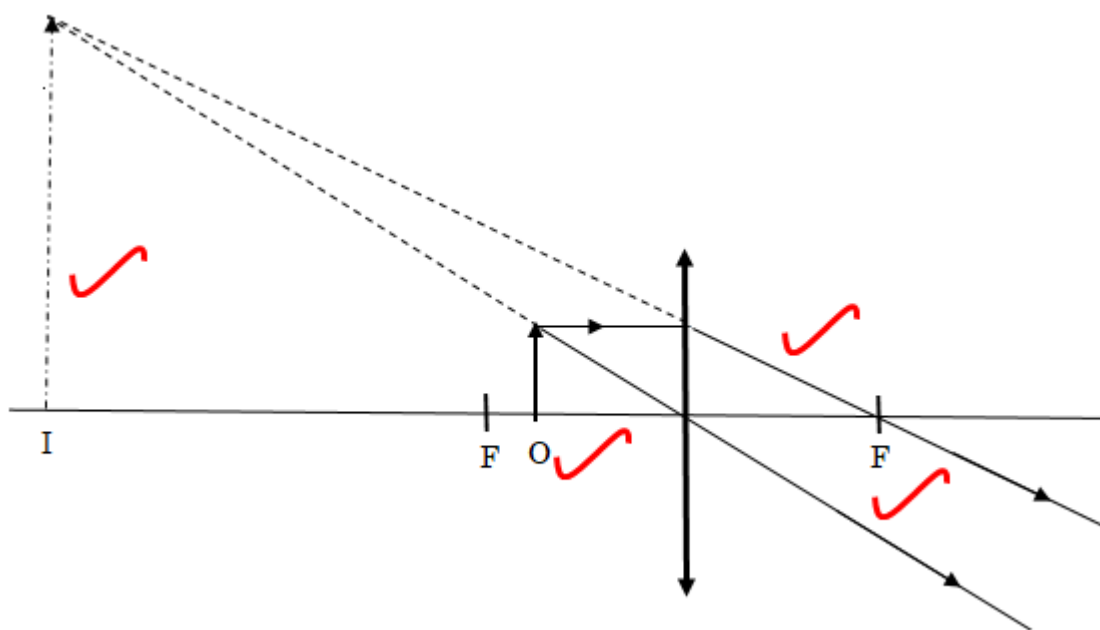
Qn	Answer	Marks
1	D	1
2	B	1
3	D	1
4	A	1
5	D	1
6	A	1
7	B	1
8	C	1
9	C	1
10	B	1
11	D	1
12	D	1
13	D	1
14	D	1
15	A	1

16	C	1
17	A	1
18	D	1
19	A	1
20	C	1
21	B	1
22	B	1
23	C	1
24	C	1
25	D	1
26	D	1
27	B	1
28	D	1
29	C	1
30	B	1
31	A	1
32	D	1
33	C	1
34	D	1
35	C	1
36	C	1
37	C	1
38	A	1
39	A	1
40	A	1

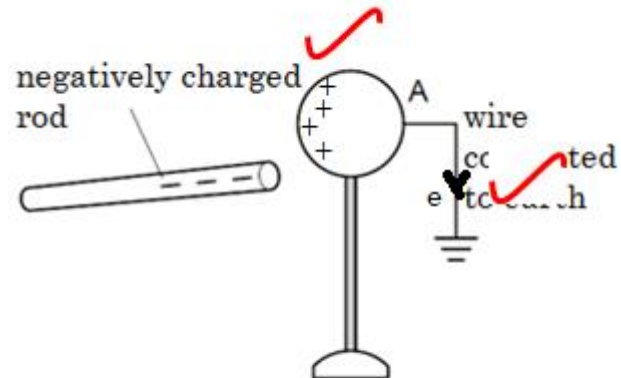| 41(a)(i)	Resonance is when a body is set into vibrations due to impulses received by one another near by a body vibrating at the same frequency.	1
(ii)	The two waves should be moving in opposite direction The two waves should have the same amplitude, frequency and wavelength	1
(b)	$$\lambda = \frac{v}{f}$$ $$= \frac{330}{125}$$ $$= 2.64m$$	2
42(a)	Latent heat of vaporization is the quantity of heat required to change a given mass of a substance from liquid to vapour at constant temperature	1
(b)(i)	$$M_S L_V = M_w C \Delta \theta$$ $$0.08 X 3.36 \times 10^5 = 3.0 \times 4200(\theta - 20)$$ $$22.13°$$	2
(ii)	By lagging the calorimeter By placing a heat shield	1
43(a)	Reflection is the bouncing off of light when incident on the reflecting surface While Refraction is the change in direction of light as it moves from one medium to another of different optical densities	2

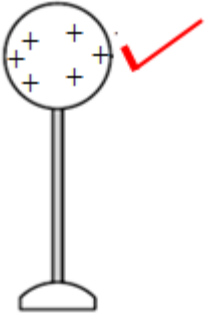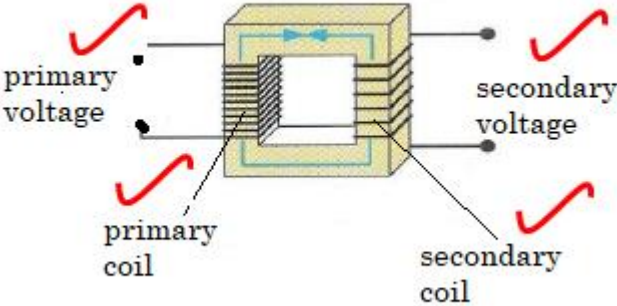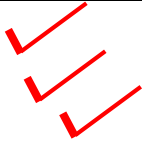| (b)		2
44(a)(i)	When sulphur is rubbed with cloth, heat generated leads to transfer of charge from the cloth and gained by sulphur hence both become charged with opposite charge	2
(ii)	When a metal is rubbed, it loses electrons and the cloth also loses electrons, the lost electrons are regained, so there is no net loss of charge	2
45(a)(i)	Atomic number is the number of protons in the nucleus of an atom	1
(ii)	Mass number is the sum of protons and neutrons in the nucleus of an atom	1
(b)	Alpha, beta particle or gamma rays (any two)	2
46(a)	The angle of incidence is greater than the critical angle for glass	1
(b)	$$nSini = constant$$ $$1.5Sin\ 15 = Sin\ X$$ $$x = 22.84°$$	2
(c)	Conveys a large volume with minimal loss	1
47(i)	Positive charge move to the side close to the rod and negative charges are repelled to the far end of the sphere from the rod	1

(ii)		1
(b)		1

(c)		1
48(a)	a transformer is a static device which steps up or down voltage ✓	1
(b)(i)	To step- down voltage for home consumption ✓	1
(ii)		2
49(a)	Ohm's law state that the current flowing in a conductor is directly proportional to the potential difference across it's ends provided temperature and other physical conditions are kept constant ✓	1
(b)	$$I = \frac{V}{R}$$ $$= \frac{4}{3}$$ $$1.33A$$	3

50(i)	A body uniformly decelerated from $20ms^{-1}$ to rest in 2 seconds and rested for another 2 seconds, finaly it uniformly accelerated to $20ms^{-1}$ in opposite direction	2
(ii)	Total displacement$=\frac{1}{2}bh + 0 - \frac{1}{2}bh$ $$\frac{1}{2}(2)(20) + 0 - \frac{1}{2}(2)(20)$$ $$= 0m$$	2

END

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