

BOARD OF INTERMEDIATE & SECONDARY EDUCATION, SAHIAL

SUBJECT: Physics EXAM 2nd Annual 2022 CLASS: XII
GROUP: II DATE: 13/12/22

(GENERAL INSTRUCTIONS FOR MARKING KEY)

vi- No, because heavy nucleus is not present in vacuum.

One mark for answer and one for explanation.

vii- Blue photon has most momentum and energy due to least wavelength and highest frequency as $p = \frac{h}{\lambda}$ or $E = \frac{hc}{\lambda} = hf$
 $= \frac{hf}{c}$

viii- Two marks for any two advantages

$$ix- V_n = \frac{2\pi ke^2}{nh} \Rightarrow V_1 = \frac{2\pi ke^2}{h} = 2.19 \times 10^6 \text{ m s}^{-1}$$

one mark for formula and one for calculation

Section C

Question No.5: (a) one for statement. one for diagram and three marks for deriving expression $E = \frac{\sigma}{2\epsilon_0} \hat{r}$

(b) one for data and formula

two marks for putting values and correct answer

$$R = \frac{\rho L}{A} = 1.1 \times 10^{-4} \Omega$$

Question No.6: (a) One for statement, one for diagram and mathematical form and three marks for derivation and explanation

(b) One for data and formula, two for putting values and

$$\text{Correct answer; } L = 46 \text{ m}^2 \text{ A l; } U = \frac{1}{2} L I^2 = 7.04 \times 10^{-2} \text{ J} \\ = 5.63 \times 10^{-3} \text{ H}$$

Question No.7: (a) One for definition, one for circuit diagram and three marks for correct derivation with explanation

$$A = - \frac{\beta R_c}{\beta + 1}$$

$$(b) \text{ One for data and formula; } f_r = \frac{1}{2\pi \sqrt{LC}} \Rightarrow C = \frac{1}{4\pi^2 f_r^2 L}$$

$$\text{two for putting values and answer } C = 5.09 \times 10^{-12} \text{ F} \\ = 5.09 \text{ pF}$$

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