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BIOLOGY

BOOKS - SURA BIOLOGY (TAMIL ENGLISH)

PROBLEMS-2 MARKS

Subjective Type Question

1. Two bulbs are having the ratings as 60 W, 220 V and 40 W, 220 V respectively. Which one

has a greater resistance?

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2. Calculate the coefficient of cubical expansion of a zinc bar whose volue is increased $0.25m^3$ from $0.3m^3$ due to change in its temperature of 50K.

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3. A source producing a sound of frequency 500 Hz is moving towards is listener with a velocity of 30 ms^{-1}. The speed of the sound is $330ms^{-1}$. What will be the frequency heard by listener?

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4. Calculate the number of molecules in 54 gm of H_2O?

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5. For a person with hypermeteropia, the near point has moved to 1.5 m. calculate the focal length of the correction lens in order to make his eyes normal.

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6. Find the mass of potassium chloride would be needed to form a saturated solution in 60 g of water at 303 K? Given that solubility of the KCl is 37/100 g at this temperature.

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7. Calculate the pH of 1×10^{-4} molar solution of NaOH.

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8. Identily A. B, C, and D from the following nuclear reactions.

(i) $_{13}Al^{27} + A \rightarrow {}_{15}P^{30} + B$

(ii) ${}_{12}mg^{24} + B \rightarrow {}_{11}Na^{24} + C$

(iii) ${}_{92}U^{238} + B \rightarrow {}_{93}Np^{239} + D$

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9. Calculate the velocity of a moving body of mass 5 kg whose linear momentum is 2.5 $kgms^{-1}$.

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10. Find the mass of 2.5 mole of oxygen atom .

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11. When an object is placed at 25 cm from a concave lens, a virtual image is produced at a distance of 10 cm. Calculate the magnification produced by the lens.

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12. Calculate the curren and the resistance of a 100W, 200V electric bulb in an electric circuit.

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13. Find the speed of sound in air at $23^{\circ}C$. (consider the speed of sound in air at $0^{\circ}C$ is $331.3ms^{-1}$).

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14. A person with myopia can see objects plaecd at a distance of 4 m. if he wants to see objects at a distance of 20 m, what should be

the focal length and power of the concave lens he must wear?

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15. The potential difference between two conductor is 110 V. How much work in moving 5 C charge from one conductor to the other ?

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16. A radon specimen emits radiation of $3.7 \times 10^3 GBq$ pe second. Convert this disintegration in terms of curie. (one curie $= 3.7 \times 10^{10}$ disintegration per second)

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17. At what speed should a source of sound move away from a stationary observer so that observer finds the apparent frequency equal to half of the original frequency?

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18. A 110 V light bulb takes 0.9 A current and operates 12h/day. Determine the energy consumed by the bulb for 30 days.

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19. Calculate the % of each element in calcium carbonate. (Atomic mass: C-12, O-16, Ca-40)

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20. A door is pusehd, at a point whose distance from the hinges is 90 cm, with a force of 40 N. calculate the moment of the force about the hinges.

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21. If 50 g was the loss in mass as a result of a fissionable reaction, how much energy will have been produced ?

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22. 0.3 mole of aluminium (Atomic mass of Al=27).

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23. Calculate the pH of a solution in which the concentration of the hydrogen ions is $1.0 \times 10^{-8} mol \ \ \text{litre}^{-1}$.

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24. The solubility of sodium nitrate at $50^\circ C$ and $30^\circ C$ is 114g and 96g respectively. Find the amount of salt that will be thrown out when a saturated solution of sodium nitrate containing 50 g of water is cooled from $50^\circ C$ to $30^\circ C$?

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25. If boiling point of water is $95^\circ F$. What will be the reading in kelvin scale?

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