Model Question of SSC Examination 2020 for All Board

Physics   Subject Code | 1 | 3 | 6 |

Time — 2 hours 35 minutes   **Creative Essay Type**   Full marks — 50

*[N.B. -The figures in the right margin indicate full marks. Answer any five Questions.]*

1. ▶ Two car start competition with $4ms^{-1}$ and $7ms^{-1}$ velocities respectively. Their accelerations are $0.5ms^{-2}$ and $0.4ms^{-2}$ respectively. The two cars reach at the first destination at the same time.

   a. What is motion?   1

   b. There is no change in acceleration without change in velocity– explain.   2

   c. How long time the card will take part in the competition for first destination?   3

   d. If the distance of the second destination is at 2000 m, then which car will reach this destination first? Explain mathematically.   4

2. ▶ Mr. Rahim has felt pain in his chest. He has gone to a doctor immediately. The doctor has told him to go for a test. The doctor has identified problem in his heart by seeing the graphical report. The doctor has suggested him for another test for identifying any blocked in blood-vein.

   a. What is CT scan?   1

   b. Human body sometimes behave as a machine– explain.   2

   c. Describe the procedure of the first test with figure.   3

   d. Compare the result, risks and side effects of both tests.   4

3. ★

12Ω   5Ω   4Ω

6Ω   9Ω

220V
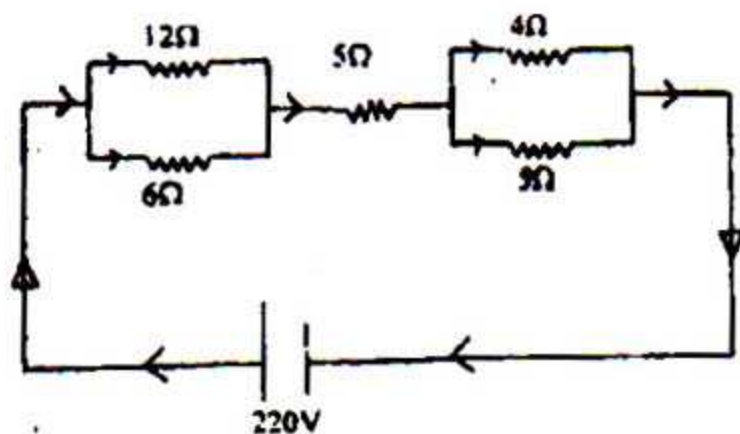
   a. What is called electromotive force?   1

   b. How are the area of cross section and resistance of conductor related? Explain.   2

c. Determine the potential difference to the two ends of resistance 12Ω of the above circuit.   3

d. How are the resistance of the circuit of stem rearranged so that the flow of current will be 12.98 A? Draw the circuit by analysing mathematically.   4

4. ▶ The area of bottom of a vessel is 10 m². Kerosene of 3m height is kept in the vessel. If a body of mass 200kg is immersed in the kerosene, then the height becomes 3.02m. [The density of kerosene is 800kgm^{-3}]

a. What is called buoyancy?   1

b. Why is it harmful for the ears to dive in deep water?   2

c. What was the magnitude of pressure at the bottom of the vessel before immersion of the body?   3

d. Will the body be sunk or floated when it is released in water at rest? Give your logic.   4

5. ⭐
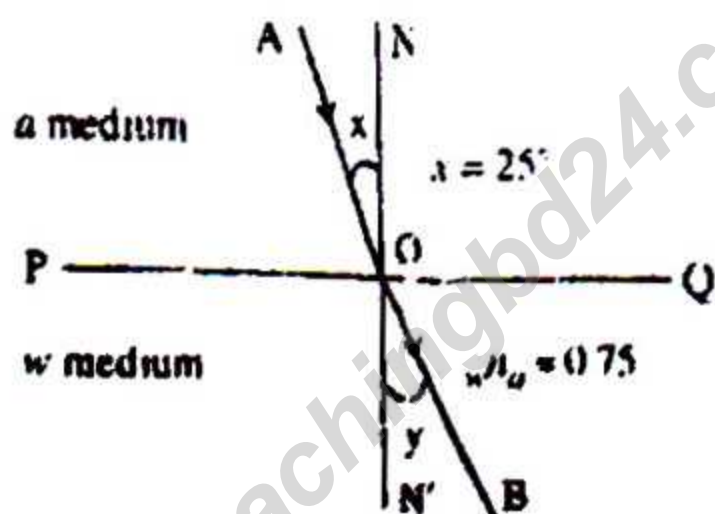
a. What is called principal focus of lens?   1

b. Explain the perception of coloured objects.   2

c. Calculate the value of y.   3

d. Will the total internal reflection be occurred when a ray of light incident at an angle 2x from 'w' medium to 'a' medium? Analyse with figure.   4

6. ⭐
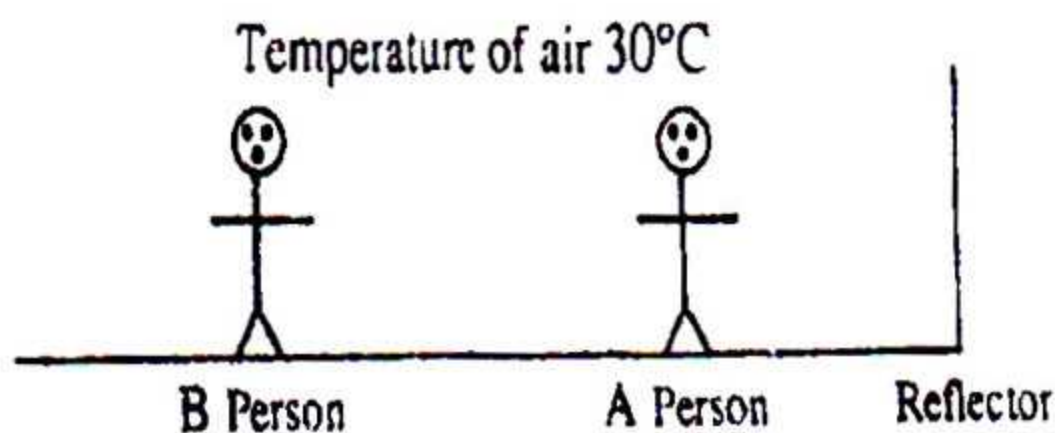
The wavelength of sound produced by B is 1.6cm

a. What is called the wave? 1
b. Why the velocity of sound in the air is more in summer than that of in winter? 2
c. What will be the minimum distance between reflector and the person A to hear an echo? 3
d. Will the sound be heard by the person A which is produced by the person B? Analyse. 4

7. ▶ The voltage of primary and secondary coil of a transformer are E_p and E_s respectively. The number of turns in the primary and secondary coils are N_p and N_s respectively. Here, $E_p = 500V$, $E_s = 220V$ and $N_p = 440$.

a. What is electromagnetic induction? 1
b. In a bulb it is written "220V-60W"—what is the meaning of this? 2
c. Determine the number of turns in the secondary coil. 3
d. What will be the change of number of turns in secondary coil to get 110V in secondary coil? Give mathematical explanation in favour of your answer. 4

8. ▶ Two charges of values +90 C and −10 C are placed at a distance 20 cm in vacuum. Consequently a force acts between them.

a. What is thunder bolt? 1
b. Why electric lines of force are both open and closed? 2
c. Determine the values of electric field intensity from 2 m and 3 m from the first charge and 10 m from the second charge. 3
d. If two charges are connected by a straight line, then at which point on the line the value of electric intensity will be zero? Calculate using mathematical analysis. 4

Time — 25 minutes   Creative Multiple Choice Questions   Full marks — 25

[Fill the circle completely (●) with the correct or most appropriate answer, corresponding to the question number. Make sure to use a ball point pen. Each question carries 1 mark.]

1. ★ The dimension of acceleration is
   (a) LT^{-1} (b) LT^{-2}
   (c) $L^{-1}T$ (d) LT

2. Refractive index depends upon —
   i. Density of the medium
   ii. Wave length
   iii. Optical density
   Which one is correct?
   (a) i   (b) i & ii
   (c) i, ii & iii   (d) ii & iii

3. Continious variable voltage or resustance is called
   (a) Analog signal   (b) Digital signal
   (c) Voltage   (d) Current

4. The unit of Resistance is
   (a) Ohm   (b) Ampere
   (c) Joule   (d) mho

5. To determine the depth of a well by using which one?
   (a) Refraction
   (b) Reflection
   (c) Echo
   (d) Refractive index

6. Which one of the following force is stronger?
   (a) Strong nuclear force
   (b) Gravitational force
   (c) Weak nuclear force
   (d) Electromagnetic force

7. In Which medium speed of light is maximum?
   (a) Solid   (b) Liquid
   (c) Gaseous   (d) Vacuum

8. ★ What is called the ratio of a stress and strain?
   (a) Hook's Law
   (b) Strain
   (c) Elasticity
   (d) Modulus of Elasticity

9. In which functions, electromagnetic induction is used?
   (a) Motor   (b) Transistor
   (c) Transformer   (d) Amplifier

10. Resistance depends on—
    i. Length
    ii. Area of cross section
    iii. Temperature
    Which one is correct?
    (a) i   (b) i & ii
    (c) i, ii & iii   (d) ii & iii

A car is moving with a velocity $15ms^{-1}$. After 5s its velocity bcomes $35ms^{-1}$

From this information answer 11 and 12

11. What is the acceleration of car?
    (a) $4 \ ms^{-2}$
    (b) $8ms^{-2}$
    (c) $10ms^{-2}$
    (d) $40ms^{-2}$

12. What is the velocity after 6s?
    (a) $20ms^{-1}$
    (b) $30ms^{-1}$
    (c) $39ms^{-1}$
    (d) $40ms^{-1}$

13. ★ For which reason we can hold a glass in our band?
    (a) Fricition
    (b) Force
    (c) Pressure
    (d) Inertia

14. ML^2T^3 is the dimension of—
    (a) Power
    (b) work
    (c) Force
    (d) Momentum

15. What is the volume of 1000 liters of water in m^3?
    (a) 1
    (b) 10
    (c) 0.1
    (d) 0.001

16. Which one is the correct equation?
    (a) $E_k = mv^2$
    (b) $P = \dfrac{mgh}{t}$
    (c) $E_P = mg$
    (d) $E = mc$

17. ★ If the density of any medium is greater than the air, then the velocity of light in that medium will be—
    (a) greater
    (b) smaller
    (c) equal
    (d) Zero

18. What is the unit of temperature in SI unit?
    (a) Celsius
    (b) Fahrenheit
    (c) Kelvin
    (d) Centigrade

19. ★ What type of energy is stored when a body is stretched?
    (a) Kinetic energy
    (b) Potential energy
    (c) Heat energy
    (d) Chemical energy

20. What is the soft iron bar called in a Generator?
    (a) Slip ring
    (b) Armature
    (c) Magnet
    (d) Brush

21. In a transformer, the voltage of primary coil is 10V and current 6A. If the voltage of secondary coi is 20V, what will be the current in secondary coil?
    (a) 12A
    (b) 6A
    (c) 3A
    (d) 1A

22. What is the name of the forth state of matter?
    (a) Gas
    (b) Plasme
    (c) Solid
    (d) Liquid

23. Which colour of the visible light has the smallest frequency?
    (a) Violet
    (b) Red
    (c) Orange
    (d) Yellow

24. ★ Which one of the following specific heat is more?
    (a) Iron
    (b) Zinc
    (c) Ice
    (d) Water

25. ECG is done for
    (a) Lung
    (b) Heart
    (c) Abdomen
    (d) Liver

Ans.	1	b	2	d	3	a	4	a	5	c	6	a	7	d	8	d	9	c	10	c	11	a	12	c	13	a
	14	a	15	a	16	b	17	b	18	c	19	b	20	b	21	c	22	b	23	b	24	d	25	b		