

Model Question of SSC Examination 2021 for All Board

Physics

Subject Code

1	3	6
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Time — 2 hours 35 minutes

Creative Essay Type

Full marks — 50

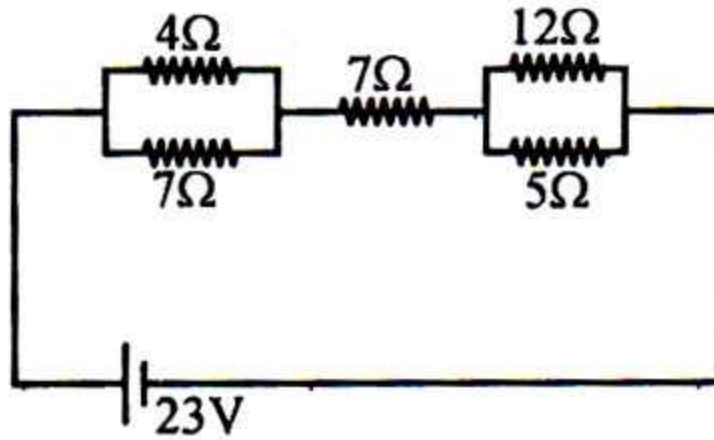
[N.B. -The figures in the right margin indicate full marks. Answer any five Questions.]

1. ► A displacement– time table of a car is given below :

Time t(s)	0	1	2	4	6	8
Displacement s(in)	0	x	6	24	54	96

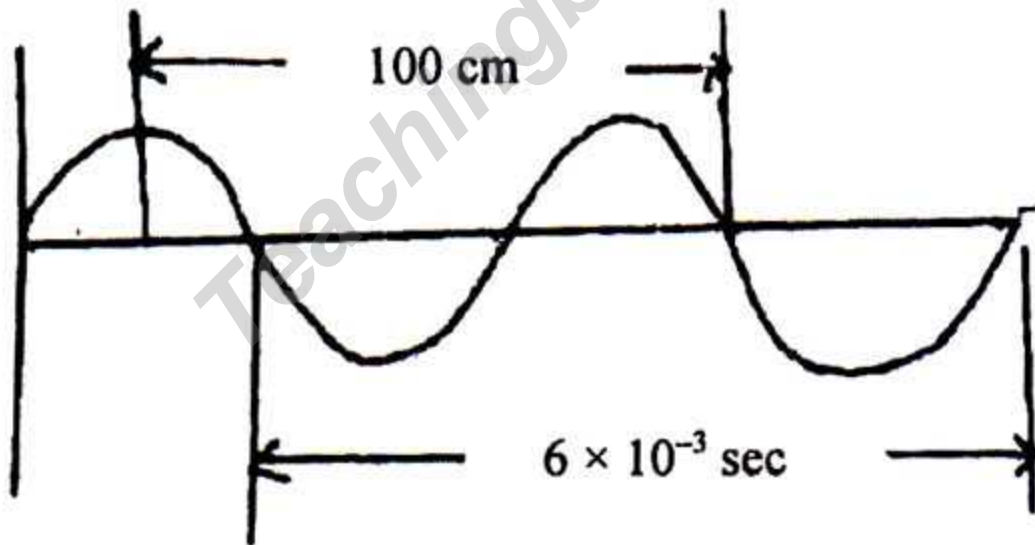
- a. Which scientist gave the definition of displacement, motion, acceleration, time etc? 1
- b. 'The displacement does not depend on the path of the object'– Explain why. 2
- c. Determine the value of x. 3
- d. Analyse the velocity after determining the acceleration of the car. 4
2. ► The absolute refractive index of x and y media are 1.4 and 1.5 respectively. The velocity of light is $3 \times 10^8 \text{ ms}^{-1}$ in vacuum.
- a. What is magnification? 1
- b. Which mirror is used as looking glass of a car? Explain. 2
- c. Determine the velocity of light in 'x' medium. 3
- d. The angle– more than which angle, incident of the interesting surface of x and y, total internal reflection will occur– Analyse mathematically. 4

3. ►



- a. What is electromagnetic induction? 1
- b. How the induced current can be increased?– Explain. 2
- c. Determine the equivalent resistance of the circuit diagram. 3
- d. How the resistances should be connected so that the electric current will be 2A? – Analyse mathematically. 4

4. ►

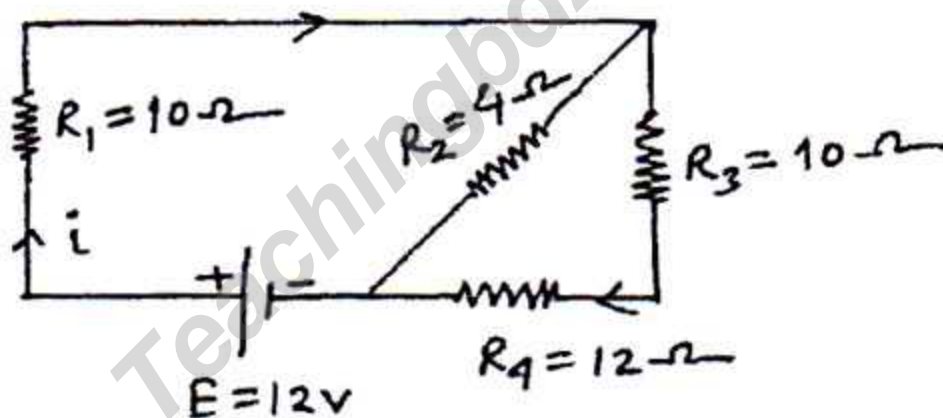


- a. What is heat capacity? 1
- b. Why dye is used while doing angiogram? 2
- c. Determine the velocity of the wave given in the figure. 3
- d. If sound is created by the above source in water then what type of change of wavelength will occur in water– Analyse mathematically. 4

5. ► The velocities of two X and Y media are 300 ms^{-1} and 340 ms^{-1} respectively. The difference of wave length of sound is 0.2 m in two media.

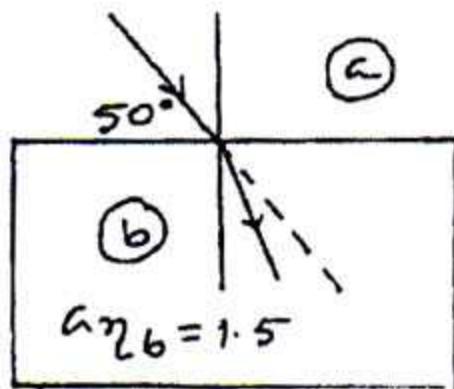
- What is ultrasonic wave? 1
- Write the differences between longitudinal and transverse wave, 2
- Find out the frequency of sound. 3
- Determine the difference of distance travelled by 50 complete vibrations in X and Y medium? Show it mathematically. 4

6. ►



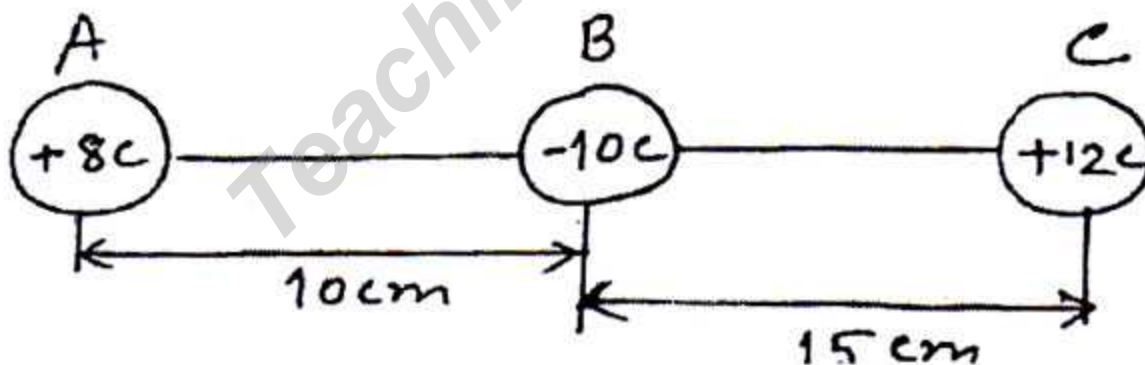
- What is specific resistance? 1
- The electromotive force of an electric circuit is 12V ; what does it mean? 2
- Calculate the equivalent resistance of the circuit. 3
- How can you arrange the given resistances to get an electric power 18W ? Explain with necessary circuit diagram. 4

7. ►



- Define one dioptre. 1
- The power of a lens is $-3D$; what does it mean? 2
- Determine the angle of refraction. 3
- If the light ray refracts from (b) medium to (a) medium then for which value of angle of incidence light ray comes back in the first medium. Analyze with ray diagram. 4

8. ►



- What is charge? 1
- State and explain Ohm's law. 2
- Find the effective force at the point B. 3
- If the charge at B is neutralized then what is the value of electric intensity at midpoint of the straight line between A and C? Analyze mathematically. 4

[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.]

- In which machine X-ray is used?
 - MRI
 - CT Scan
 - ETT
 - ECG
- WluU is the range of frequency of the sound in ultrasonography?
 - 1–5 Mega hertz
 - 1–10 Mega hertz
 - 5–10 Mega hertz
 - 5–15 Mega hertz

- Digital signal is—
 - Audio, Video voltage
 - Binary code
 - Definite value

Which one of the following is correct?

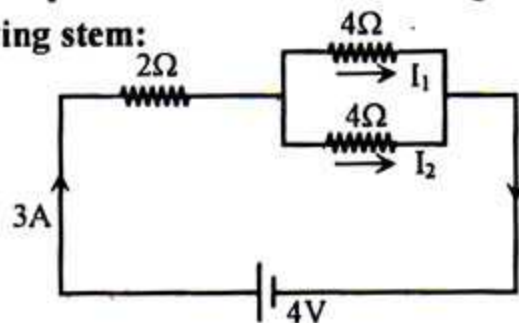
- i & ii
 - i & iii
 - ii & iii
 - i, ii & iii
- Which scientist invented Vacuum tube using the work of Edison?
 - Becquere
 - Newton
 - Maricurie
 - Fleming
 - Which one is made on the basis of electromagnetic effect?
 - Electric Motor
 - Transformer
 - Generator
 - Amplifier

- The electric current of primary and secondary coil of a transformer is 10A and 2A respectively. How much will be the voltage of secondary coil if the

voltage of primary coil is 200V.

- 40V
 - 100V
 - 500V
 - 1000V
- How many types of inks are used for colour printing?
 - 1
 - 2
 - 3
 - 4
 - What will be the intensity of electric field at 50 cm away from 5C?
 - $1.8 \times 10^{-11} \text{NC}^{-1}$
 - $2.5 \times 10 \text{nNC}^{-1}$
 - $1.8 \times 10^{-9} \text{NC}^{-1}$
 - $1.2 \times 10^{-9} \text{NC}^{-1}$

Answer questions no. 9 and 10 in ligh of the following stem:



- What is the voltage between A and B?
 - 12v
 - 3v
 - 4v
 - 6v
- In case of current flow of the circuit of stem—
 - $I = I_1 = I_2$
 - $I_1 = I_2$
 - $I > I_1$

Which one of the following is correct?

- i
- i & ii
- i & iii
- ii & iii

11. What will be the refractive index of glass when the critical angle of glass with respect to air is 45° ?

- (a) $\sqrt{2}$ (b) $\frac{1}{\sqrt{2}}$
 (c) 1 (d) $\frac{1}{2}$

12. Which part of eye is made of Rod and cone nerve?

- (a) Cornea
 (b) Eyelens
 (c) Retina
 (d) Pupil

13. In which of the following convex mirror is used?

- (a) In Rader
 (b) In Car
 (c) Ip torchlight
 (d) In solar furnace

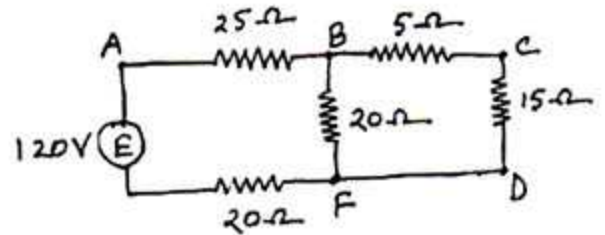
14. In spherical mirror how many secondary axis are there?

- (a) 1
 (b) 2
 (c) 3
 (d) Numerous

15. What will be the minimum distance to hear an echo of sound at 40°C temperature?

- (a) 17.8 m (b) 17.6 m
 (c) 17.4 m (d) 16.6 m

Observe the following electric circuit carefully and answer to the questions no. 16 and 17 :



16. What is the resistance across AF?

- (a) 40Ω (b) 35Ω
 (c) 30Ω (d) 25Ω

17. What is the current flowing through the circuit?

- (a) 0.12A (b) 0.20A
 (c) 2.2A (d) 2.8A

18. Which of the following is the SI unit of amount of substance?

- (a) Kg (b) Mole
 (c) Candela (d) Ampere

19. Which one of the following is insulator?

- (a) Human body (b) Soil
 (c) Glass (d) Iron

20. Vernier constant of a slide callipers is 0.005 cm. What is the total number of division of vernier scale?

- (a) 5 (b) 10
 (c) 15 (d) 20

21. If the specific heat of copper is $400 \text{ JKg}^{-1}\text{K}^{-1}$; what is the heat capacity of copper of mass 5 kg?

- (a) 400 JK^{-1} (b) 500 JK^{-1}
 (c) 1000 JK^{-1} (d) 2000 JK^{-1}

22. Who invented of vacuum tube first?

- (a) Addison (b) Fleming
 (c) Marconi (d) De forest

23. Which one is the input device of a computer?

- (a) RAM (b) Scanner
 (c) ROM (d) Speaker

24. What is the unit of stress?

- (a) Nm^2 (b) Nm^{-1}
 (c) Nm^{-2} (d) No unit

25. Which one is derived quantity?

- (a) Length
 (b) Flow of current
 (c) Heat
 (d) Intensity of light

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