Model Question of SSC Examination 2019 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. ▶ A train starts from rest with acceleration 10 m/s^2. Parallel to this a car starts at the same time with uniform velocity 100 m/s.

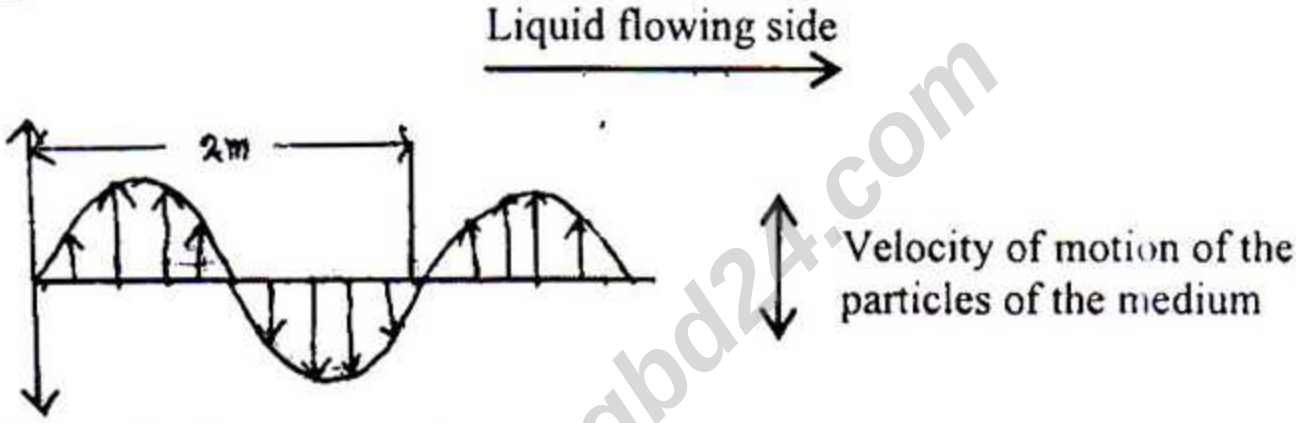
a. What is friction? 1

b. When someone jumps from a boat, why does the boat moves backward? 2

c. Find the required time for travelling 50 cm by the train? 3

d. Will the train overtake the car? Explain it mathematically? 4

2. ★



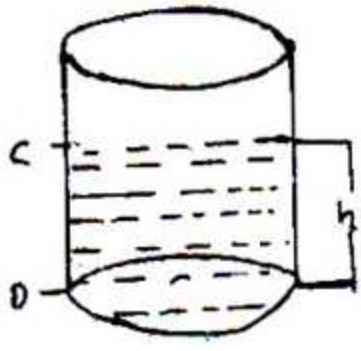
a. What is buoyancy? 1

b. What do you mean by the co-efficient of real expansion of the liquid $18 \times 10^{-5} K^{-1}$? 2

c. What will be the frequency if the wave travels 4356m in 3 seconds? 3

d. If the wave length of the wave is reduced of half while keeping the same amplitude, evaluated the changes that will occur in wave velocity and frequency. 4

3. ▶ In the figure a cylinder is shown, whose area of base, A = $0.2m^3$ and height of the liquid, h = 1.5m. 80 kg liquid is required to fill the CD part of the cylinder.



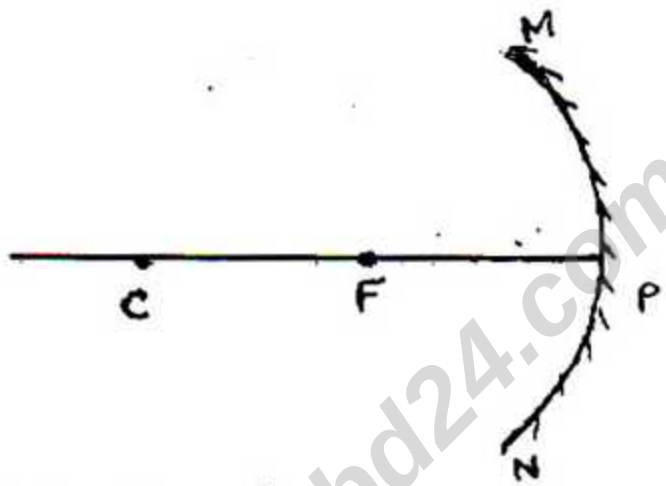
a. What is Pascal's law? 1

b. A small piece of iron sinks in water but a ship made of iron floats in it— way? 2

c. Find the magnitude of pressure of a point 75 cm deep from the surface of liquid? 3

d. According to the statement prove that "pressure rises with the increase of the liquid"? 4

4. ✪



a. What is Snell's law? 1

b. Write down two advantages of having two eyes? 2

c. In figure, when an object is placed at C, Find the position, nature and size of the image? 3

d. In the mirror MN, focal length is half of the radius of curvature. Explain it. 4

5. ▶ A tank having capacity of carrying 1000-liter water situated at roof of a three storied building requires 10 minutes to fill with water. Capacity of pump is 0.5 kW and bottom of the rank is at a height of 10 meter from the ground.

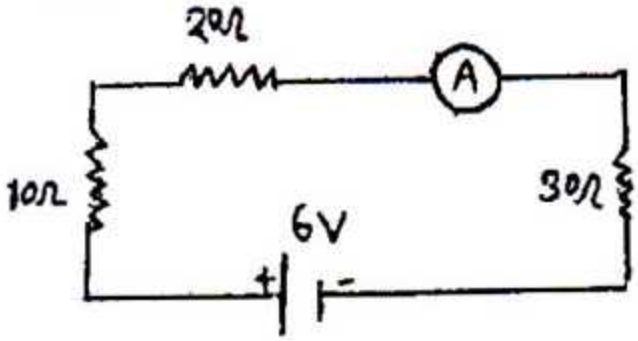
a. What is potential energy? 1

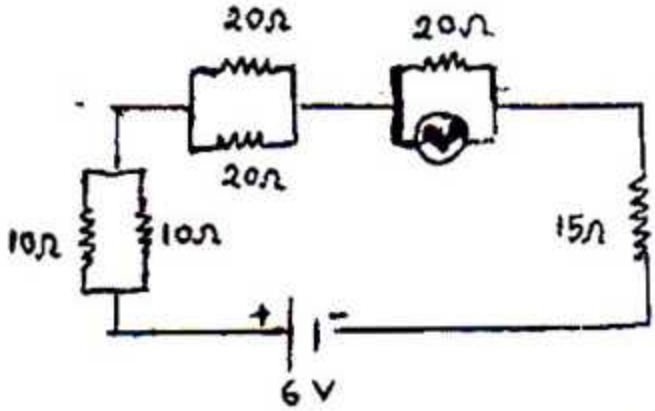
b. Derive that the kinetic energy is proportional to the square of the velocity. 2

c. What is work done by the pump? 3

d. Find the efficiency of the pump? 4

6. ✪



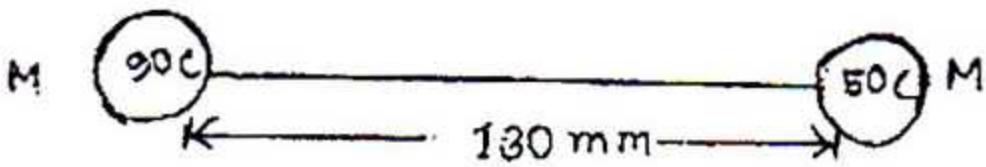


a. What is specific resistance? 1
b. Write at least two differences between ammeter and voltmeter? 2
c. What is the value of current flowing through the first circuit? 3
d. How much more or less is the value of current flowing through the second circuit than the first circuit? 4

7. ▶ In a transformer the ratio of turns of the primary to secondary coils is N:N/8. 10 volt is found in secondary coil by applying emf e volt. the current available in primary coil is I_p and 2 amp respectively.

a. What is analogue signal? 1
b. Mention some fundamental differences between the power of computer and the human brain. 2
c. Calculate the value of E and I_p? 3
d. If turns of the secondary coils is N also then what is the current in secondary coil for I_p amp current in primary coil. 4

8. ▶ Look at the following diagram and answer the questions :



a. What is electric induction? 1
b. Why do you mean by the e.m.f. of 3 volt? 2
c. Find the value of electric force acting between the two charges of the above diagram. 3
d. Derive mathematically if the two charges M and N are made one-fifth times but the distance between them is made four times, then what will be the change of force. 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. Which one of the following quantities is independent?
ⓐ Potential difference
ⓑ acceleration
ⓒ amount of substance
ⓓ force

2. What does the tangent drawn at point of the velocity — time graph indicte?
ⓐ Displacement ⓑ momentum
ⓒ acceleration ⓓ velocity

In the following table the velocity of a car is given in every alternate 5s.

Time (sec)	0	5	10	15	20	25	30	35	40
velocity (m/s)	0	10	20	30	30	30	30	15	0

Now answer the question no 3 and 4.

3. What distance will be travelled by the car in 20s?
ⓐ 250m ⓑ 150m
ⓒ 825m ⓓ 375m

4. The motion of the car is—
i. Firstly acceleration secondly uniform velocity then retardation
ii. Total travelled distance will be 925m
iii. Total travelled distance will be 825m
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii

5. ★ An efficient civil engineer—
i. must construct a friction free road
ii. must fix boards at different distances mentioning highest speed level
iii. must warn the drivers about risk bridges
Which one is correct?
ⓐ i & ii ⓑ ii & iii
ⓒ i & iii ⓓ i, ii & iii

6. How can you find our displacement?
ⓐ Multiplying work-done by applied force
ⓑ dividing work-done by applied force
ⓒ dividing work-done by applied by time
ⓓ multiplying work done by time taken

7. ★ A joule is compound unit one which is meter, what is another once?
ⓐ Watt ⓑ Newton
ⓒ Kilowatt ⓓ Second

8. Which of the following relation is correct?
ⓐ $W = \frac{h\rho g}{A}$ ⓑ $F = h\rho gA$
ⓒ $W = \frac{h\rho}{gA}$ ⓓ $F = \frac{A}{h\rho g}$

9. What is the unit of buoyancy?
ⓐ N ⓑ N–m
ⓒ Pa ⓓ H–P

10. In which direction does the negative charge move?
ⓐ From higher potential to lower potential
ⓑ From higher potential to higher potential
ⓒ From lower potential to higher potential
ⓓ From lower potential to lower potential

Take a look to the chart below and answer the question numbers 11 and 12 :

	Transformer-1	Transformer-2	Transformer-3
E_p	120v	50v	100v
N_p	1000	1000	2000
N_s	500	2000	3000

11. Step up transformers—
i. Transformer-1 ii. Transformer-2
iii. Transformer-3
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii

12. What will be the highest output voltage?
ⓐ 60v ⓑ 100v
ⓒ 200v ⓓ 150v

13. ★ What will be the temperature in Kelvin scale if it measures 70° in Celsius scale?
ⓐ 273K ⓑ 373K
ⓒ 243K ⓓ 343K

14. ★ What is actually beta ray emitted due to the radioactive decay? The fow of—
ⓐ negative electron
ⓑ A charge neutral particle
ⓒ nucleus
ⓓ proton

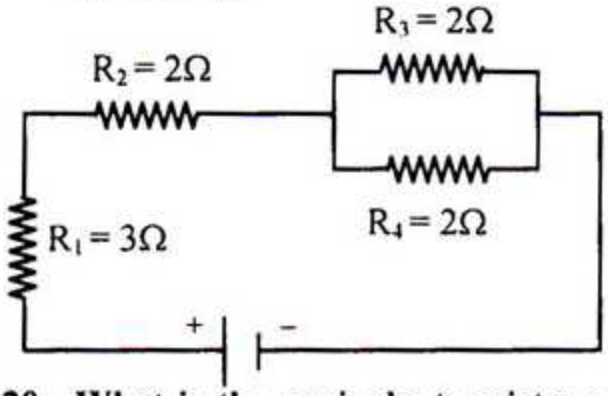
15. Which type of velocity do we find of sound on moon?
ⓐ Maximum ⓑ Minimum
ⓒ 332 m/s ⓓ zero

16. Which equation is correct?
ⓐ $Ft > (mv - mu)$
ⓑ $Ft = mv + mu$
ⓒ $Ft = mv - mu$ ⓓ $\frac{F}{t} = mv - mu$

17. In Sphero meter least count is—
ⓐ Pitch(Total number of deviations of circular scale)
ⓑ Pitch/(Total number of deviations of linear scale)
ⓒ (Total number of deviations of circular scale)/pitch
ⓓ Linear scale reading-Circular scale reading

18. Two friends are sitting face to face in a compartment of a running train. What is one's position with respect to an static reference object?
ⓐ Relative rest
ⓑ relative motion
ⓒ absolute rest
ⓓ absolute motion

19. The boyd at rest may have—
ⓐ Energy
ⓑ Speed
ⓒ momentum
ⓓ velocity



20. What is the equivalent resistane of the circuit?
ⓐ 1Ω ⓑ 2Ω
ⓒ 3Ω ⓓ 4Ω

21. Which one is correct?
ⓐ Four resistance are in series
ⓑ R_1 II R_2, R_3 II R_4
ⓒ R_1 series R_2, R_3 II R_4
ⓓ Four resistances are in parallel

22. To examine eye, ear, nose and throat what kind of mirrors are used?
ⓐ Plain ⓑ Concave
ⓒ Convex ⓓ Any

23. What isotope is used in treating the abnormal growth of the thyroid gland?
ⓐ Iodine-131 ⓑ carbon-14
ⓒ cobalt-60 ⓓ phosphorus-32

24. ★ $\frac{\text{Sini}}{\text{Sinr}}$ = Constant; This constant depend on—
ⓐ Nature of media
ⓑ Velocity of light
ⓒ Wavelength
ⓓ Angle of incidence

25. Full form of ETT is—
ⓐ Exercise Tomography Test
ⓑ Exercise Tolerance Test
ⓒ Exercise Turbulence Test
ⓓ Exercise Tissue Test

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