

Model Question of SSC Examination 2019 for All Board

Physics

Subject Code

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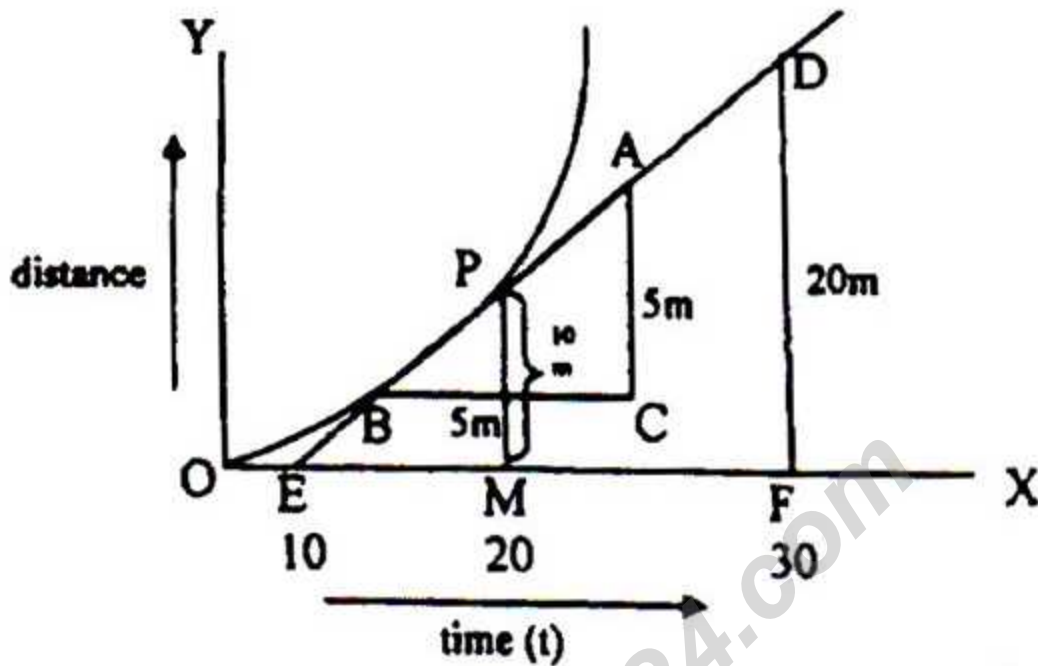
Time — 2 hours 35 minutes

Creative Essay Type

Full marks — 50

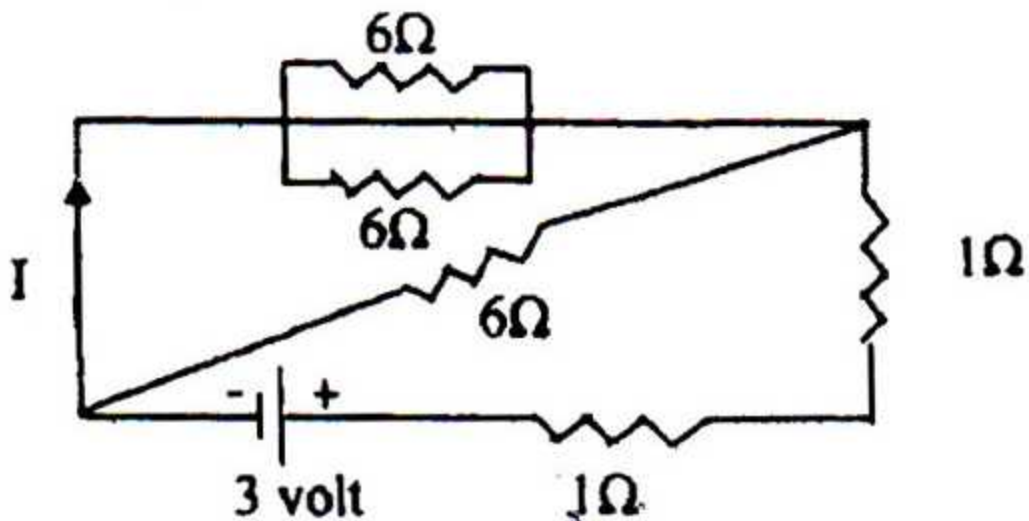
[N.B. -The figures in the right margin indicate full marks. Answer any five Questions.]

1. ★



- a. What is non-uniform acceleration? 1
- b. The acceleration of a body is 5ms^{-2} towards north, what does it mean? 2
- c. Calculate the acceleration at point P? 3
- d. The gradient of the tangent at any point on the distance time represents the velocity at that point. Analyze it mathematically. 4

2. ►



- a. What is system loss? 1

- b. Why the resistances of conductor increases with increasing temperature? 2
- c. Calculate the flow of current from the circuit? 3
- d. If all the resistances are connected in parallel then draw the circuit and what change the flow of current? Explain it mathematically? 4

3. ★



- a. Which are called lubricants? 1
- b. Friction is a necessary evil— give argument in favor of it. 2
- c. Calculate the backward velocity of the gun. 3
- d. Does the stem follow the principal of conservation of momentum. Analyze it mathematically? 4

4. ► A candle is placed on the principal axis at a distance 40 cm of a lens of power + 5d.

- a. What is Myopia? 1
- b. What are the advantages of having two eyes. 2
- c. Calculate the distance of the image of the object. 3
- d. Is there remedial possibility for hypermetropia by the lens? Explain with effective figure. 4

5. ► Distance between source and reflector is 16.6cm. Temperature of air is 30° and velocity of sound is 332ms^{-1} . Wave length is 25m.

- a. What is magnification? 1
- b. Why metal coating is given behind a mirror? 2
- c. Calculate the frequency of the wave. 3
- d. To hear an echo what measure can take? Explain it mathematically. 4
6. ★ The area of the body is 300cm^2 . Its height is 0.1m and mass is 5.5kg . The body was immersed in water. Density of water is 1000kgm^{-3} .
- a. What is called atmospheric pressure? 1
- b. Is Torricelli's vacuum is a vacuum in reality? 2
- c. How much is the weight of the body in water? 3
- d. How much volume is needed equal to the mass of the body, when the body will be immersed in water? 4
7. ► A boy of mass 50 kg and a young man of mass 70 kg start running from the ground floor and reach the roof at the same time. Both of them ran with the same velocity of 35m/min .
- a. What is called efficiency? 1
- b. What do you mean by the work 25J ? 2
- c. Calculate the kinetic energy. 3
- d. Explain with mathematical logic whether the power of both are equal or not? 4
8. ► Meghla went to doctor suffer with abdomen pain. By X-ray a stone was found in gall-bladder.
- a. What is MRI? 1
- b. In which cases angiogram is done? 2
- c. How X-ray is produced? 3
- d. By using another instrument is it possible to examine stone? Explain it with logic. 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.]

1. **★** A charge of 6C is moved between two points P and Q having potential 10V and 5V respectively. What is the amount of work done?

(a) 5J (b) 10J (c) 30J (d) 60J

2. A hammer of mass 300g, moving at 40 m/s, strikes a nail. The nail stops the hammer in a very short time of 0.02s. What will be the force of the nail on the hammer?

(a) 600 N (b) 1200 N
(c) 2000 N (d) 2500N

Read the stem and answer the following questions no 3 and 4

Two wires A and B of equal length, different cross sectional areas and made of same metal.

3. If the resistance of wire A is four times the resistance of wire B, what will be the ratio of the radii of the wire?

(a) 1 : 2 (b) 2 : 1
(c) 1 : 4 (d) 4 : 1

4. For both the wires —

i. Resistivity is same
ii. Resistance is different
iii. Conductance is also different

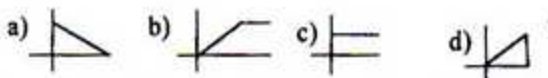
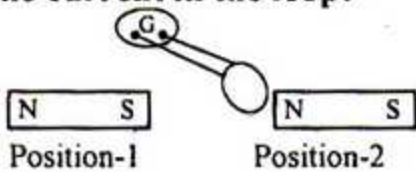
Which one is correct?

(a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

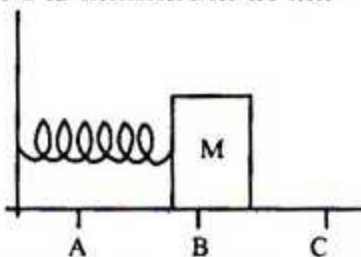
5. How many images will you see when two plane mirrors are perpendicular to each other?

(a) 1 (b) 2
(c) 3 (d) ∞

6. A magnet initially stationary is pushed closer to a loop then stopped. Which of the graphs of the current shown below closely represents the variation of the current in the galvanometer detecting the current in the loop?

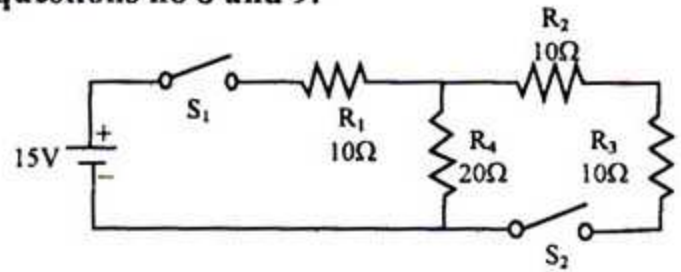


7. The figure below is shown mass M attached to a spring. The initial position of mass M is at point C. A and B are the extreme positions of the mass as it oscillates. The kinetic energy of mass M is maximum at



(a) point A only (b) point B only
(c) point C only (d) points A and B

Read the stem and answer the following questions no 8 and 9.



8. What will be the equivalent resistance of the above circuit if switch S1 is closed?

(a) 6.66Ω (b) 10Ω
(c) 20Ω (d) 30Ω

9. What will be the current flow through R4 if both the switches are closed?

(a) 0.75A (b) 0.05A
(c) 0.0375A (d) 0.375A

10. **★** Which of the following statement(s) is (are) not true?

i. The speed of light in vacuum is 3×10^5 km/s.

ii. The real image is always inverted

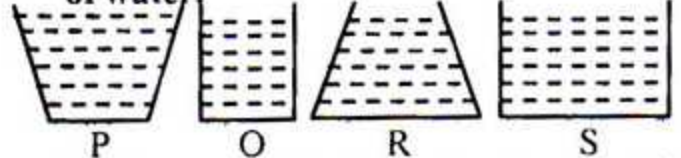
iii. Magnification of plane mirror is +1 or -1

iv. Image formed by a concave lens is always diminished and real.

Which one is correct?

(a) ii (b) iii & iv
(c) ii & iv (d) i, iii & iv

11. The diagrams show, to the same scale, the vertical sections of a set of circular vessels, each containing the same depth of water.



Which one of the following statement is correct?

(a) The water exerts the greatest pressure on the base of vessel S.

(b) The water exerts the same pressure on the base of each vessel.

(c) The water exerts the same force on the base of each vessel.

(d) The water exerts the greatest pressure on the base of vessel P

Read the stem and answer the following questions no 12 and 13.

For the angle of incidence 30° , the angles of refraction in three media A, B and C are 15° , 25° and 45° respectively.

12. What will be the refractive index of the medium where light is coming from with respect to medium C?

- (a) 0.707 (b) 1
(c) 1.41 (d) 1.5

13. Which of the following statement(s) is (are) true?

- i. Velocity of light is minimum in medium A.
ii. Medium C is optically denser than B.
iii. Refractive index of B is more than C.

- Which one is correct?
(a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

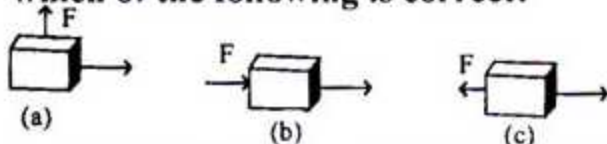
14. What is the unit of co-efficient of volume expansion?

- (a) m^{-1} (b) m^{-3}
(c) K (d) K^{-1}

15. What is the wave length of X-ray?

- (a) $10^{-7}m$ (b) $10^{-8}m$
(c) $10^{-8}cm$ (d) $10^{-10}cm$

16. In each of the following a force, F is acting on an object of mass, m. The direction of displacement is from west to east shown by the longer arrow. Observe the diagrams carefully and which of the following is correct?



- i. In case of fig. (a) work done be zero
ii. In case of fig. (b) positive work is done
iii. In case of fig. (c) no work is done by the force

- Which one is correct?
(a) i (b) i & ii
(c) i & iii (d) i, ii & iii

17. When a standard is set for a quantity, then what is called that standard quantity?

- (a) amount (b) rate
(c) prefix (d) unit

18. If the displacement of an object is proportional to square of time, then the object moves with —

- (a) uniform velocity
(b) uniform acceleration
(c) increasing acceleration
(d) decreasing acceleration

19. When the wave passes from one medium to another, which one of the following remains constant?

- (a) speed (b) wavelength
(c) frequency (d) amplitude

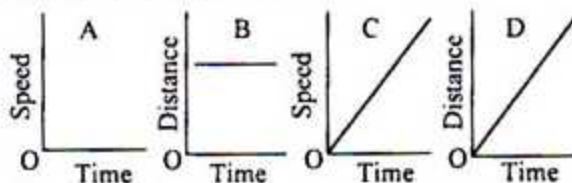
The graph of the velocity against the time of a moving object is shown below.



20. What is the displacement between $t = 3$ and $t = 5$?

- (a) 4m (b) 2m
(c) -2m (d) 0

Read the stem and answer the following questions no 21 and 22.



21. Which of the graphs represents a car moving at a constant speed?

- (a) A (b) B
(c) C (d) D

22. Which of the following statement(s) is (are) true?

- i. $\tan\theta$ of graph B is zero speed of the object
ii. Slope of the graph D is acceleration of the object
iii. Area of triangle of the graph C is distance travelled by the object

- Which one is correct?
(a) i & ii (b) i & iii
(c) ii & iii (d) i, ii & iii

23. Ball A of mass m and velocity v collides with ball B of mass m and velocity $-V$. What are the velocities V_A and V_B of the two balls after collision?

- (a) $V_A = -v$ and $V_B = v$
(b) $V_A = v$ and $V_B = -v$
(c) $V_A = -v$ and $V_B = -v$
(d) $V_A = v$ and $V_B = v$

24. What is the relation between refractive indices μ , μ_1 and μ_2 if the behavior of light rays is shown in the following figure?



- (a) $\mu > \mu_2$; $\mu = \mu_1$ (b) $\mu < \mu_2$; $\mu = \mu_1$
(c) $\mu < \mu_1 < \mu_2$ (d) $\mu_1 > \mu_2$; $\mu = \mu_1$

25. If the current I through a resistor is increased by 100% what will be the increased in power dissipation?

- (Assume temperature remains unchanged)
(a) 100% (b) 200%
(c) 300% (d) 400%

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