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. ▶

Let 8th vernier/circular mark has coincide with main scale mark. 20 vernier scale divisions in Slide Calipers and reading of circular scale in Screw gauge is 100 divisions

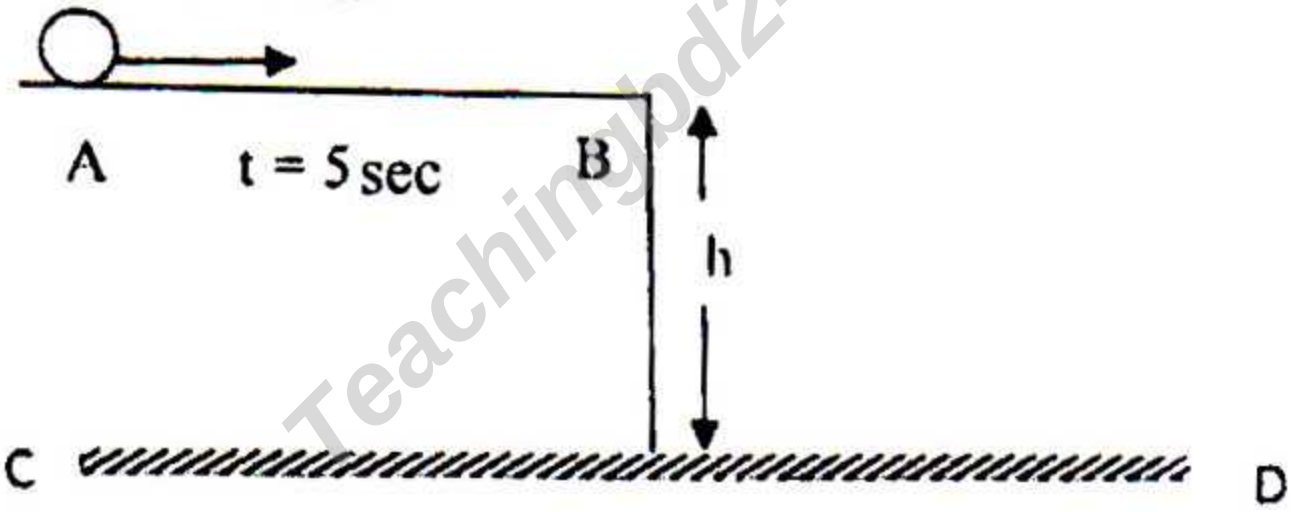
a. What is balance? 1

b. Explain personal error is more harmful than instrumental error. 2

c. Determine the length of the rod in Slide Calipers. 3

d. Which one gives the more accurate result and why that mention in the stem? 4

2. ▶



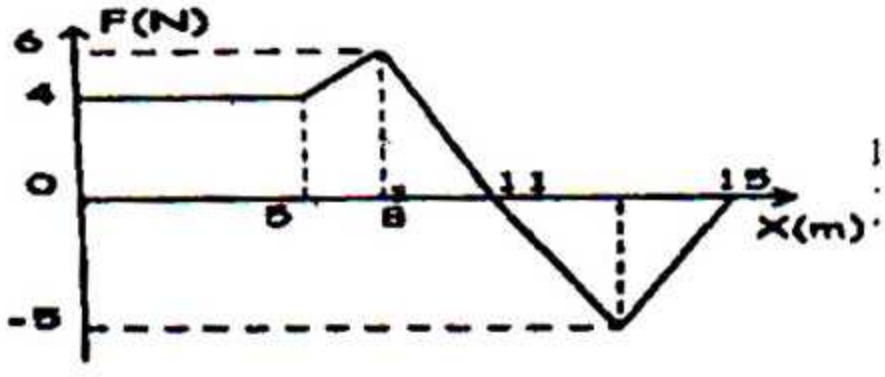
a. Define oscillatory/harmonic motion. 1

b. Write down the name of 6 devices presented by physics ending with 'scope' 2

c. Calculate the travelling distance AB of the body. 3

d. If the body fall down from B point to ground then the travelling time is less than the value of acceleration due to gravity. Verify the line with proper logic. 4

3. ★ Applied force vs. position graph of an object is given below. Find the work done by the forces on the object.



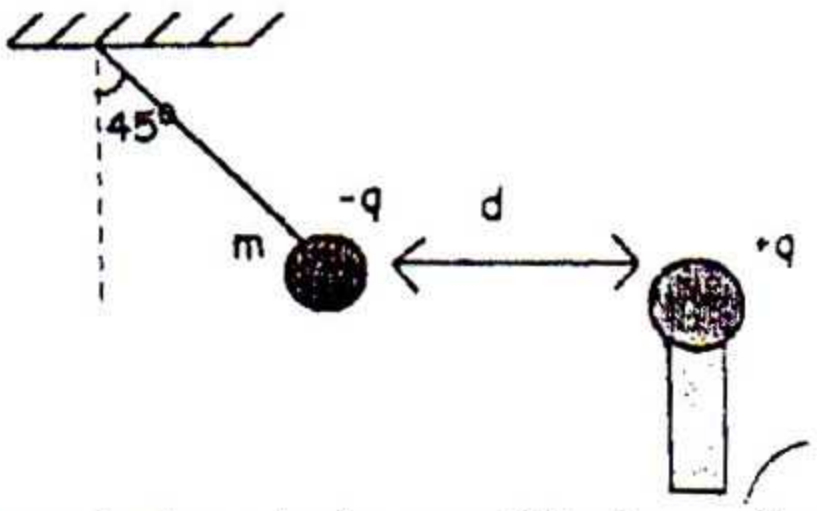
Area under the graph gives us work done by the force and a body of mass 5 kg start from the origin point 'O' and finishing point 'X'. Final velocity at 'X' point is $30ms^{-1}$.

a. What is the another name of volumetric expansivity? 1
b. How can you make a prediction regarding the availabity of mineral oils? 2
c. Find out the kinetic energy of the body at 'X' point. 3
d. Verify with logic that total work done is summation of work done part to part. 4

4. ★ Three cylinders made of same matter and at same temperature, are placed on a platform. Same amount of heat given to the cylinders make same amount of change in their temperature.

a. What is known as reverberation? 1
b. Impulse of force is equal to the change of momentum– Explain it. 2
c. Find the relation between changes in the lengths of these cylinders. 3
d. If three cylinder are not made of same matter then compares the specific heat among them. 4

5. ★

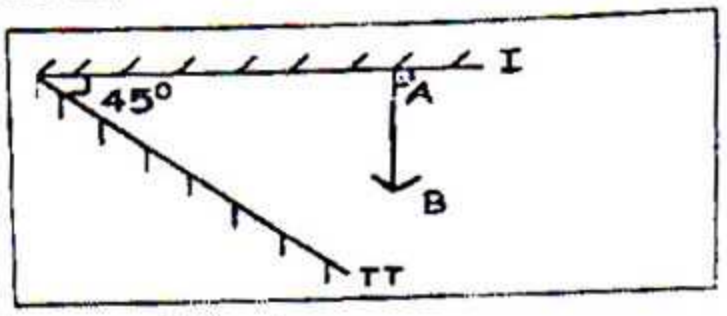


If the system given below is in equilibrium, find the q in terms of given quantities and tension in the rope in terms of mg.
Here, d = 10mm, m = 20gm

a. What is diffused reflection? 1
b. Why an embankment dam's lower part is kept wider than upper part? 2

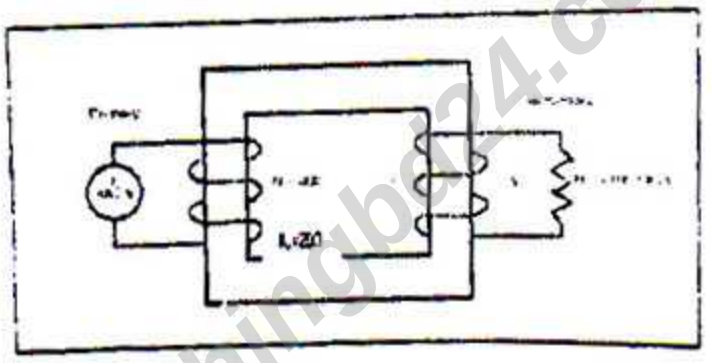
c. Determine the value of charge 'q' in the stem. 3
d. If the distance will be double then what will be the changing tension in the rope. 4

6. ▶ Rays coming from the object AB first reflects from mirror 1 and then reflects from mirror 2. Draw the images of this object in mirror 2.



a. Define latent heat of fusion. 1
b. Explain the acceleration of an object moving in a circular path. 2
c. Draw the images of this object in mirror 2. 3
d. If the mirror 2 will be change by concave mirror then what will be the nature of the image. 4

7. ▶



a. Define latent heat of fusion. 1
b. Explain the acceleration of an object moving in a circular path. 2
c. Find out current of the primary coil in the stem. 3
d. IF Rp = 100Ω the what type of change is coming in the stem. 4

8. ▶

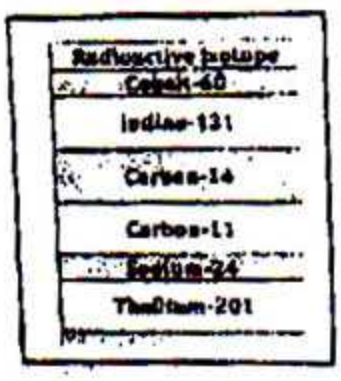


Fig-A

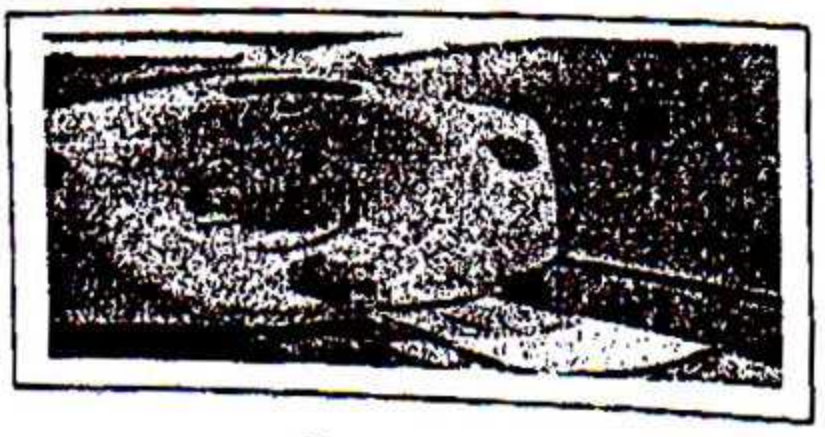


Fig-B

a. What do CAT and PET stands for? 1
b. What do you know about brachytheraphy? 2
c. Explain the uses of Fig-A in human life in the stem. 3
d. Find out the relationship between Fig-A and Fig-B in the stem. 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.]

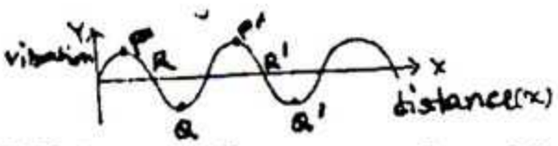
1. The velocity of a car decreasses at a uniform rate from 20m/s to 4m/s in 4 sec. What is the acceleration of the car?

ⓐ 16 m/s^2
ⓑ 4 m/s^2
ⓒ – 400 cm/s^2
ⓓ – 16 cm/s^2

2. What is called the rectangular coil wire on the soft sheet of iron in generator?

ⓐ Slip ring ⓑ Armature
ⓒ Soleniod ⓓ Commutator

3.



Which one indicates wave length?

ⓐ PR
ⓑ PQ
ⓒ P′Q′
ⓓ PP′

4. What type of friciton is the motion of bicycle?

ⓐ Static friciton
ⓑ Sliding fricition
ⓒ Rolling friction
ⓓ Fluid friction

5. ★ Power of a lens is 2.5D. What is the focal length of the lens?

ⓐ 20 cm
ⓑ 40 cm
ⓒ 60 cm
ⓓ 80 cm

6. A body of mass 5 kg was doropped from the roof of a building of 50m height. What will be the knetic energy just before it reaches the ground?

ⓐ 245J
ⓑ 845J
ⓒ 1225J
ⓓ 2450J

7. Which of the function in conductor?

ⓐ Human body
ⓑ Wood
ⓒ Paper
ⓓ Plastic

8. What is the function of rectifier?

ⓐ Increase electric current
ⓑ Increase electric voltage
ⓒ decrease electric current
ⓓ Prodfuce unidirection current

9. ★ Which one is color sensitive?

ⓐ Retina ⓑ Eyelens
ⓒ Rods ⓓ Cones

10. What type of image is produced in mirror in case of dental treatment?

ⓐ Real and extended
ⓑ Virtual and extended
ⓒ Real and diminsihed
ⓓ Virtual and diminished

11. ★ Which of the following is scalar quantity?

ⓐ Electric intensity
ⓑ Acceleration
ⓒ Weight
ⓓ Pressure

12. Which of the following matters specific heat is minimum?

ⓐ Lead ⓑ Silver
ⓒ Copper ⓓ Water

13. What is the unit of modulus of elasticity?

ⓐ Nm^2 ⓑ Nm
ⓒ Nm^{-1} ⓓ Nm^{-2}

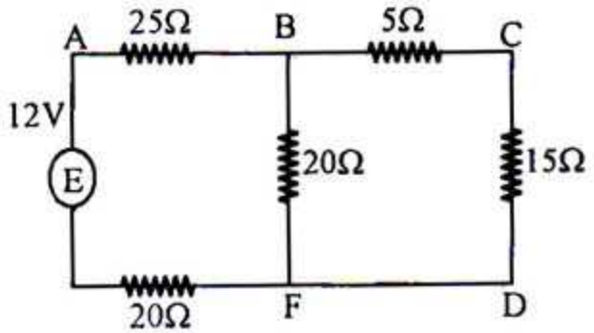
14. ★ A body of mass 10 gm is thrown vertically upward. It comes to the ground after 10 seconds. For the object—

i. Starting velocity will be $49ms^{-1}$
ii. Maximum height will be 122.5m
iii. Potential energy at maximum height will be 100 J

Which one is correct?

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

Read the stem and answer the following questions no 15 and 16:



15. What is the resistance across AF?

ⓐ 40Ω ⓑ 35Ω
ⓒ 30Ω ⓓ 25Ω

16. ★ What is the current flows through the above circuit?

ⓐ 0.12°
ⓑ 0.20A
ⓒ 2.2°
ⓓ 2.8A

17. Gamma ray emitted from cobalt–60 is used in the diagnosis of which diseases?

ⓐ Thyroid gland related diseases
ⓑ Cancer
ⓒ Tumor ⓓ all

18. What will be the mimimum hearing distance of the reflections to hear an echo of sound at 40°C in air?

ⓐ 17.8 m ⓑ 17.6 m
ⓒ 17.4 m ⓓ 16.6 m

19. Induced voltage or induced current can be increased in the following way —

i. increasing the number of coil
ii. Moving the magnet or the coil slowly towards or away from the electric circuit
iii. Decreasing the power of pole of magnet

Which one is correct?

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

20. Radium transforms into which of the following through radioactive disintegration step bys step?

ⓐ Aluminium ⓑ Lead
ⓒ Silver ⓓ Iron

21. ★ How many electrode are used to get complete image of heart?

ⓐ 4 ⓑ 6
ⓒ 10 ⓓ 12

22. Which one is the unfit of modulus of elasticity?

ⓐ Nm^2 ⓑ Nm
ⓒ Nm^{-1} ⓓ Nm^{-2}

23. Two persons of mass 50 kg and 100 kg are moving with velocity $4ms^{-1}$ and $2ms^{-1}$ respectively. Which one is correct?

ⓐ Kinetic energy of 1st person is two times than that of 2nd person
ⓑ Kinetic energy of 1st person is half of kinetic energy of 2nd person
ⓒ Kinetic energy of 2nd person is 4 times than that of 1st person
ⓓ Both of them heave equal kinetic energy

24. Total no of division of vernier scale in silide callipers is 20. The value of smallest division in main scale is 1mm. What is the vernier cosntant?

ⓐ 0.01 mm ⓑ 0.5 mm
ⓒ 0.5 mm ⓓ 20 mm

25. ★ Which relation of the following is correct?

ⓐ $t \propto h^2$ ⓑ $G = \frac{gR^2}{M}$
ⓒ $v = u + gt$ ⓓ $a = \frac{u+v}{t}$

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	ⓒ		