Question 1

ot yet answered

Marked out of 2.00

Calculate the length of trajectory of the body moving through the straight line with velocity 6.5 m/s during the time 2.8 s (carry out calculations in SI unit system, inscribe just number into the data field, e.g. 1.23).

Answer:

Question 2

Not yet answered

Marked out of 2.00

A train of length 200 m is moving through the tunnel of length 50 m with a speed of 18 km/h. Determine the time (in seconds) needed for passing the tunnel (inscribe just number into the data field, e.g. 1.23).

Answer:

Question 3

Not yet answered

Marked out of 2.00

Calculate the moment of inertia of a circular disk relative to the symmetry axis, if the mass of a disk is 9.6 g, radius of the disk is 4 cm (carry out calculations in $g.cm^2$, inscribe just number into the data field, e.g. 1.23).

Answer:

Question 4

Not yet answered

Marked out of 2.00

An object of mass 2 kg in an elevator accelerates downward with acceleration of 5 m/s^2 . Free fall acceleration is equal to 10 m/s^2. Determine the weight of the body (inscribe just number into the data field, e.g. 1.23).

Answer:

Question 5

Not yet answered

Marked out of 2.00

Calculate the period (T), if the number of complete revolutions is 7 and the corresponding time is 6.5 second (carry out calculations in seconds, inscribe just number into the data field, e.g. 1.23).

Answer:

Question 6

Not yet answered

Marked out of 2.00

Equation of plane wave propagating along the direction of x- axis is given by the formula s=5cos(8πt-3πx). Determine the frequency (v) of the wave (inscribe just a number into the data field, e.g. 1.23):

Answer:

Question 7

Not yet answered

Marked out of 2.00

Calculate the electric force acting on the charged particle if q=$1*10^{-4}$ C. Electric field strength E= 49207.4 V/m (Inscribe in the field the only value, e.g.1.234).

Answer:

Question 8

Not yet answered

Marked out of 1.00

When a car's speed changes from 30 m/s to 15 m/s, its kinetic energy ----- .

Select one:

- a. is decreased 2- times
- b. is decreased 4- times
- c. does not change
- d. is increased 4-times
- e. is increased 2-times

Question 9

Not yet answered

Marked out of 1.00

A 5-kilogram block is suspended by a cord from the ceiling. The force exerted on the block by the cord is most nearly ----- .

Select one:

- a. 25 N
- b. 100 N
- c. 200 N
- d. 50 N

Time left 0:44:51

Question 10

Not yet answered

Marked out of 2.00

In a given process, 12 joules of heat is added to an ideal gas and the gas does 8 joules of work. Which of the following is true about the internal energy of the gas?

Select one:

○ a.   it has increased by 20 Jouls

○ b.   it has not changed

○ c.   it has increased by 4 Jouls

Question 11

Not yet answered

Marked out of 1.00

Gay-Lussac's law for ideal gases is given by the formula (p is the pressure, V- volume, T-temperature):

Select one:

○ a.   p / V=const

○ b.   p / T=const

○ c.   V / T=const

Question 12

Not yet answered

Marked out of 1.00

Select the vector quantities (3 answers):

Select one or more:

- ☐ a. velocity
- ☐ b. distance
- ☐ c. displacement
- ☐ d. time
- ☐ e. acceleration
- ☐ f. mass

Question 13

Not yet answered

Marked out of 1.00

What kind is a motion if the value of the velocity remains unchanged (choose two correct answers):

Select one or more:

- ☐ a. Non-Uniform straight
- ☐ b. Uniform straight
- ☐ c. Uniform curvilinear (circular)
- ☐ d. Non-Uniform circular
- ☐ e. Acceleratory straight

Question 14

Not yet answered

Marked out of 1.00

Is it true or false: „A common unit of acceleration is the meter per second squared- m/s^2"

Select one:
- ○ True
- ○ False

Question 15

Not yet answered

Marked out of 1.00

Newton's second law is given by the formula ----- (p - is the momentum, m - mass, a - acceleration)

Select one or more:
- ☐ a. F=ma
- ☐ b. F=dp/dt
- ☐ c. F=mdp/dt
- ☐ d. F=a

Question 16

Not yet answered

Marked out of 1.00

The kinetic energy of rotation body is given by formula (I is the moment of inertia):

Select one:

○ a. $E=\frac{1}{2}I^2\omega$

○ b. $E=\frac{1}{2}\ I\omega^2$

○ c. $E=I\omega^2$

Question 17

Not yet answered

Marked out of 1.00

Mechanical waves can be ----- .

Select one:

○ a. only longitudinal

○ b. transverse and longitudinal, both

○ c. only transverse

Question 18

Not yet answered

Marked out of 1.00

Is it true or false: „Total mechanical energy of simple harmonic oscillator is proportional to the square of the amplitude."

Select one:

○ True

○ False

Question 19

Not yet answered

Marked out of 1.00

Select the units for physical quantities of a rotating body:

angular displacement	Choose...
period	Choose...
angular velocity	Choose...
frequency	Choose...

Question 20

Not yet answered

Marked out of 1.00

Determine physical quantities characterizing the state of an ideal gas of a fixed amount of mass (m) (select 3 answers):

- ☐ a. Frequency
- ☐ b. Pressure
- ☐ c. Temperature
- ☐ d. Density
- ☐ e. Concentration
- ☐ f. Volume

Question 21

Not yet answered

Marked out of 2.00

A fixed volume of gas is cooled from 20°C to 0°C. What is the temperature change, ΔT in Kelvin?

Select one:

- ○ a. 293 K
- ○ b. 20 K
- ○ c. 273 K