

# 2022大物A2慕课视频小测最新答案

检测题有些题目可能只是一个单词不同其他都相同的，要仔细看题目再选答案!

test for week1 [ 提交时间: 2020-09-17 13:05:51 ] 得分: **100.00** 分

试卷结构满分: **100** 分

• 一、单选题 (共 5 题, 100.00 分)

12345

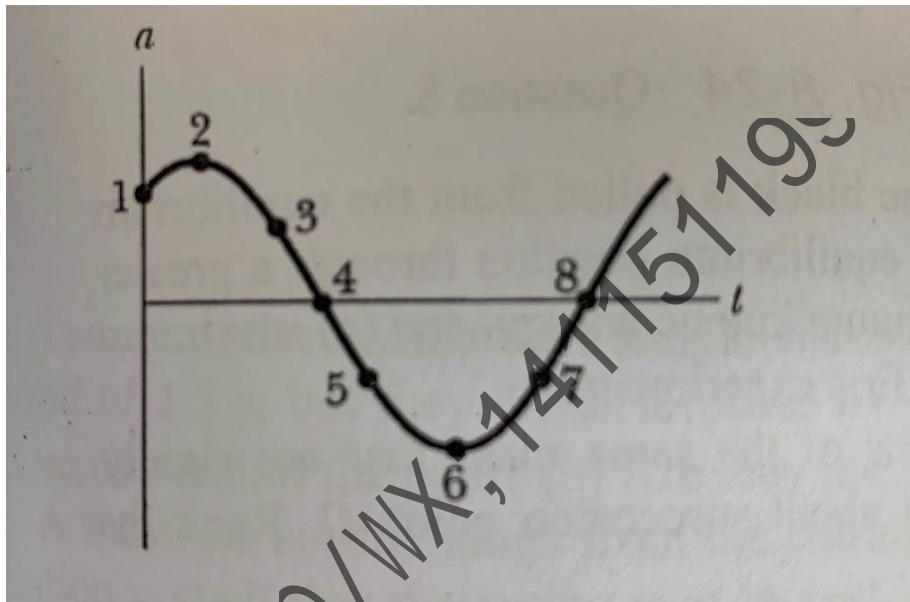
■ 绿色表示答对题目

■ 橙色表示答错题目

■ 灰色表示主观/未完成题目/未批改

一、单选题 (共 100.00 分)

1.



The acceleration  $a(t)$  of a particle undergoing SHM(简谐振动) is graphed in the figure. Which of the labeled points corresponds to the particle at  $-A$ ?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5
- F. 6
- G. 7

H.

8

满分：20.00 分

得分：20.00 分

你的答案：

B

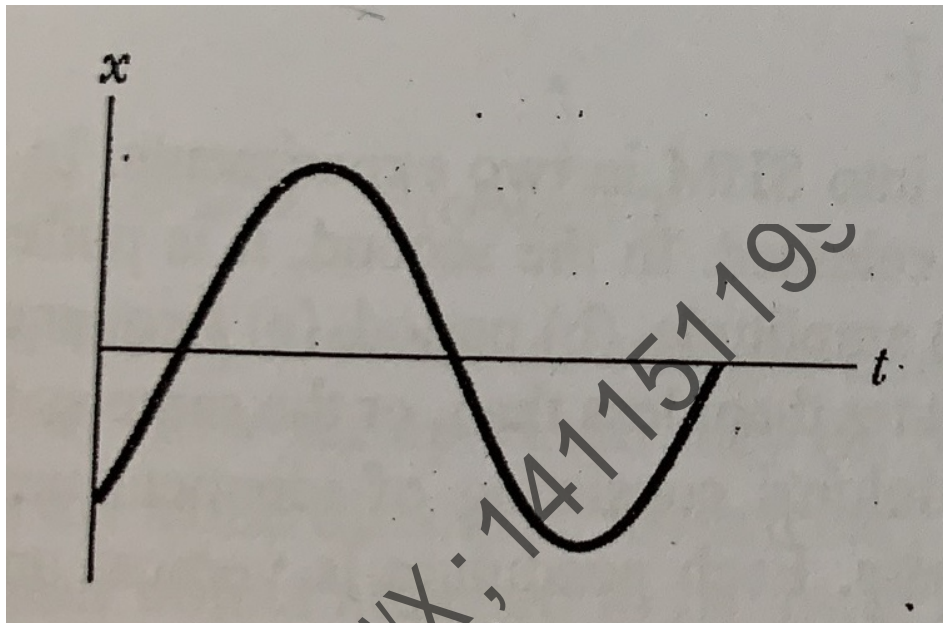
正确答案：

B

教师评语：

暂无

2.



W

Which of the following describe  $\phi$  for the SHM(简谐振动) of the figure.

A.

$$\left(\frac{\pi}{2}, \pi\right)$$

B.

$$\left(\pi, \frac{3\pi}{2}\right)$$

C.

$$\left(-\frac{3}{2}\pi, -\pi\right)$$

满分：20.00 分

得分：20.00 分

你的答案：

B

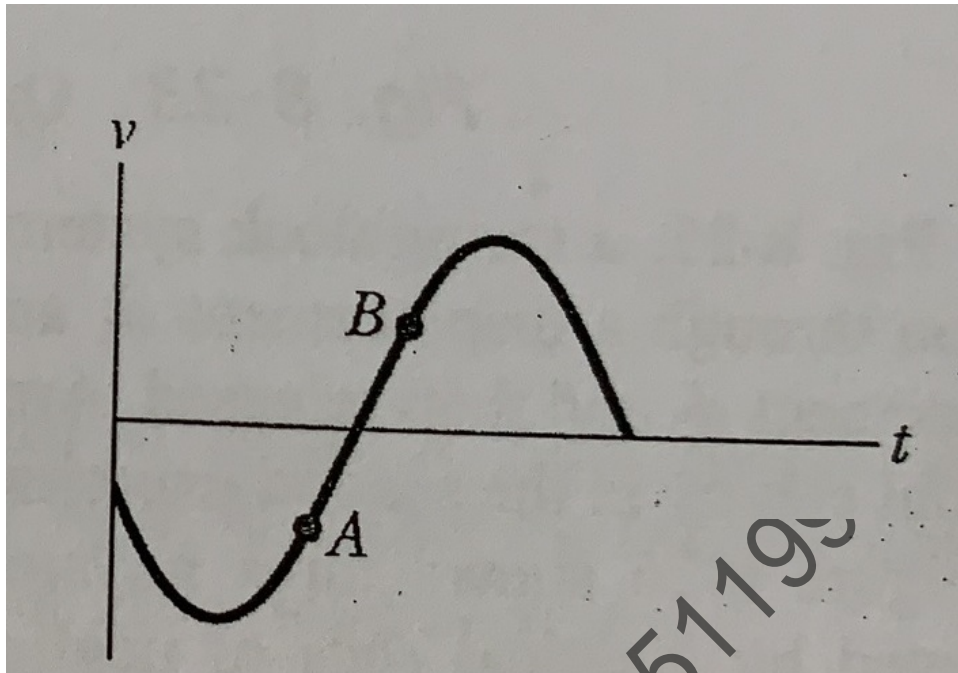
正确答案：

B

教师评语:

暂无

3.



The velocity  $v(t)$  of a particle undergoing SHM is graphed in figure. At point A the particle is

- A.  
momentarily stationary
- B.  
headed toward -A(负的最大位移处)
- C.  
headed toward A(正的最大位移处)

满分: 20.00 分

得分: 20.00 分

你的答案:

B

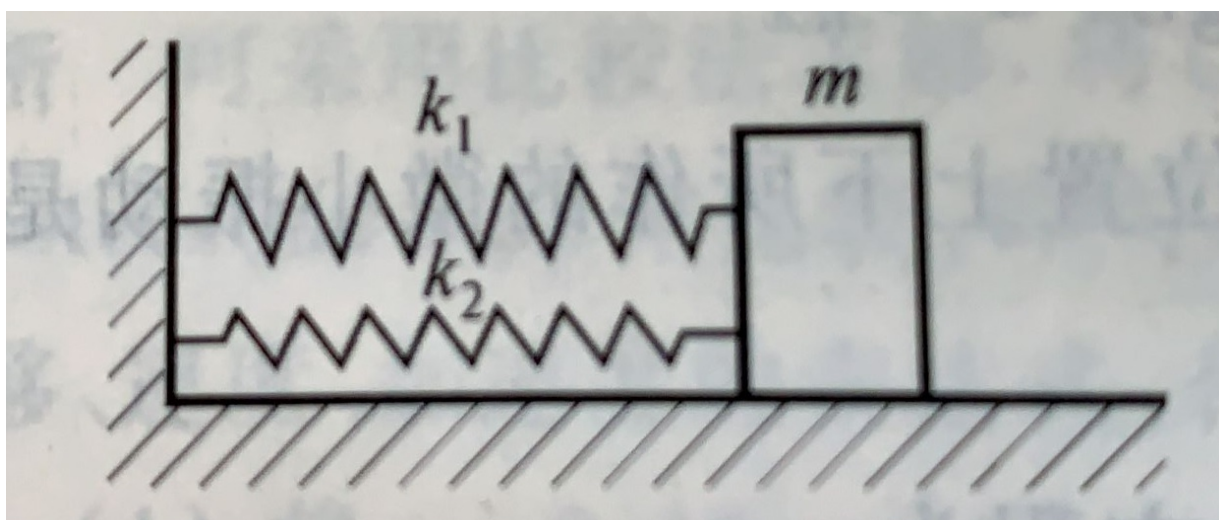
正确答案:

B

教师评语:

暂无

4.



In the figure, two springs are connected to a block of mass  $m$  that is set oscillating over a frictionless floor. The springs each have spring constant  $k$ . What is the frequency of the oscillations?

A.

$$\frac{2\pi}{\sqrt{2k/m}}$$

B.

$$\frac{2\pi}{\sqrt{k/m}}$$

C.

$$\frac{2\pi}{\sqrt{k/2m}}$$

满分：20.00 分

得分：20.00 分

你的答案：

A

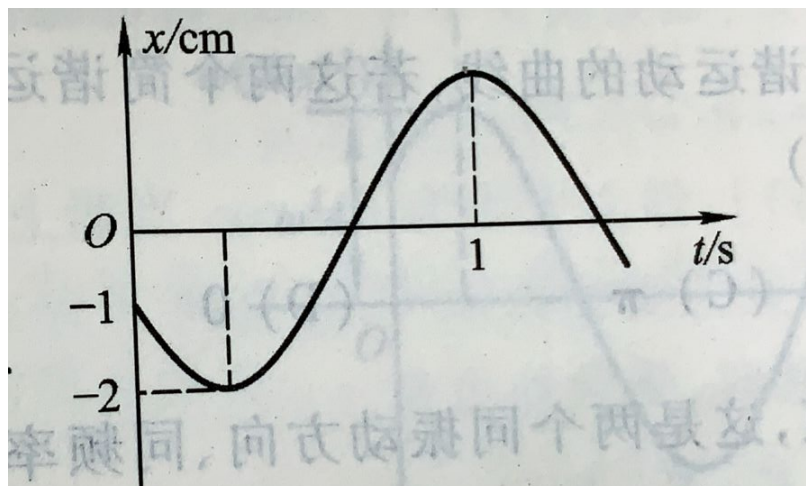
正确答案：

A

教师评语：

暂无

5.



The displacement  $x(t)$  of a particle undergoing SHM(简谐振动) is graphed in figure. The function of SHM is

A.

$$x = 2\cos\left(\frac{2}{3}\pi t - \frac{2}{3}\pi\right) (\text{cm})$$

B.

$$x = 2\cos\left(\frac{2}{3}\pi t + \frac{2}{3}\pi\right) (\text{cm})$$

C.

$$x = 2\cos\left(\frac{4}{3}\pi t - \frac{2}{3}\pi\right) (\text{cm})$$

D.

$$x = 2 \cos\left(\frac{4}{3}\pi t + \frac{2}{3}\pi\right) (\text{cm})$$

满分: 20.00 分

得分: 20.00 分

你的答案:

D

正确答案:

D

教师评语:

暂无

test for week2

An electromagnetic wave with frequency  $4.0 \times 10^{14}$  Hz travels through vacuum in the positive direction of an x axis. The wave has its electric field directed parallel to the y axis, with amplitude  $E_m$ . At time  $t=0$ , the electric field at point P on the x axis has a value of  $+E_m/4$  and is decreasing with time. What is the distance along the x axis from point P to the first point with  $E=0$  if we search in the positive direction of the x axis? ( $\sin 15^\circ \approx 0.25$ )

A.  $\frac{1}{24}\lambda$

B.  $\frac{1}{4}\lambda$

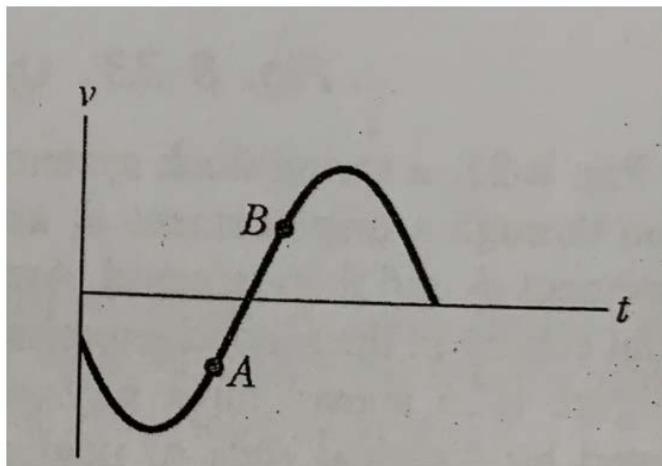
C.  $\frac{1}{2}\lambda$

D.  $\frac{11}{24}\lambda$

看清楚题目 positive

2.

( 20.00 分 )

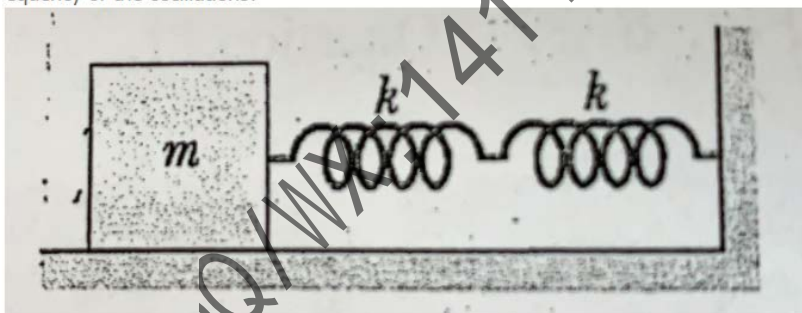


The velocity  $v(t)$  of a particle undergoing SHM is graphed in figure. The speed (速度的绝对值) of the particle is increasing at

- ☒ A. point B  
☐ B. point A

4. In the figure, two springs are joined and connected to a block of mass  $m$  that is set oscillating over a frictionless floor. The springs each have spring constant  $k$ . What is the frequency of the oscillations?

( 20.00 分 )



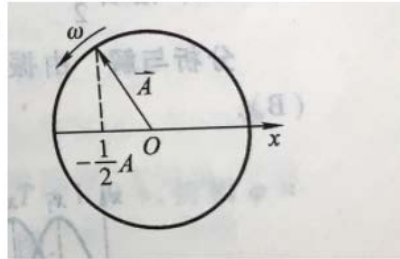
- ☒ A.  $\frac{2\pi}{\sqrt{k/2m}}$   
☐ B.  $\frac{2\pi}{\sqrt{k/m}}$   
☐ C.  $\frac{2\pi}{\sqrt{2k/m}}$

5. A particle is undergoing SHM(简谐振动), the amplitude is A. At the

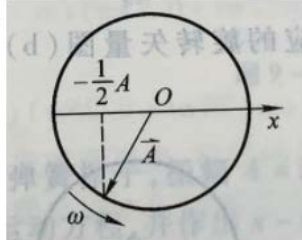
( 20.00 分 )

beginning the particle is at  $-\frac{A}{2}$  and head toward -A(负的最大位移处), Which of the following is correct?

☐ A.



☒ B.



An electromagnetic wave with frequency  $4.0 \times 10^{14}$  Hz travels through vacuum in the positive direction of an x axis. The wave has its electric field directed parallel to the y axis, with amplitude  $E_m$ . At time  $t=0$ , the electric field at point P on the x axis has a value of  $+E_m/4$  and is decreasing with time. What is the distance along the x axis from point P to the first point with  $E=0$  if we search in the negative direction of the x axis? ( $\sin 15^\circ \approx 0.25$ )

A.  $\frac{1}{24}\lambda$

B.  $\frac{1}{4}\lambda$

C.  $\frac{1}{2}\lambda$

D.  $\frac{11}{24}\lambda$

看清题目 negative



## test for week3

### 一、单选题 (共 100.00 分)

1. In a region of outer space, the electric and magnetic fields are described by (12.50 分)

$$\vec{E}(x, y, z, t) = E_0 \sin(kx - \omega t) \hat{j} \quad \vec{B}(x, y, z, t) = B_0 \sin(kx - \omega t) \hat{k}$$

The electric field magnitude is greater than zero for  $0 < x < 0.4\text{m}$ , goes to zero at  $x = 0.4\text{m}$ , and is negative for  $0.4\text{m} < x < 0.8\text{m}$ .

(1) In which direction is the wave propagating?

- ☒ A. in the positive direction of an x axis  
☐ B. in the negative direction of an x axis

2. In a region of outer space, the electric and magnetic fields are described by (12.50 分)

$$\vec{E}(x, y, z, t) = E_0 \sin(kx - \omega t) \hat{j} \quad \vec{B}(x, y, z, t) = B_0 \sin(kx - \omega t) \hat{k}$$

The electric field magnitude is greater than zero for  $0 < x < 0.4\text{m}$ , goes to zero at  $x = 0.4\text{m}$ , and is negative for  $0.4\text{m} < x < 0.8\text{m}$ .

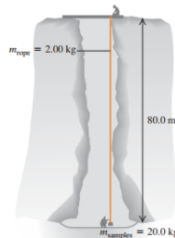
(2) What is the value of k?

- ☐ A.  $\frac{T}{2\pi}$   
☐ B.  $\frac{2\pi}{T}$   
☐ C.  $\frac{\lambda}{2\pi}$   
☒ D.  $\frac{2\pi}{\lambda}$

3. Sound waves are longitudinal waves in air. The speed of sound depends on temperature; at  $20^\circ\text{C}$  it is  $344\text{m/s}$ . What is the wavelength of a sound wave in air at  $20^\circ\text{C}$  if the frequency is  $262\text{Hz}$ ? (12.50 分)

- ☐ A.  $0.131\text{m}$   
☐ B.  $0.762\text{m}$   
☐ C.  $13.10\text{m}$   
☒ D.  $1.31\text{m}$

4. One end of a nylon rope is tied to a stationary support at the top of a vertical mine shaft  $80.0\text{m}$  deep (Shown in the figure). (12.50 分)



The rope is stretched taut by a box of mineral samples with mass  $20.0\text{kg}$  attached at the lower end. The mass of the rope is  $2.00\text{kg}$ . The geologist at the bottom of the mine signals to his colleague at the top by jerking the rope side ways. If a point on the rope is given a transverse simple harmonic motion with a frequency of  $2.00\text{Hz}$ , how many cycles of the wave are on the rope's length?

- ☒ A. 1.81  
☐ B. 45  
☐ C. 0.55  
☐ D. 3540

5. In a region of outer space, the electric and magnetic fields are described by (12.50 分)

$$\vec{E}(x, y, z, t) = E_0 \sin(kx - \omega t) \hat{j} \quad \vec{B}(x, y, z, t) = B_0 \sin(kx - \omega t) \hat{k}$$

The electric field magnitude is greater than zero for  $0 < x < 0.4\text{m}$ , goes to zero at  $x = 0.4\text{m}$ , and is negative for  $0.4\text{m} < x < 0.8\text{m}$ .

(3) What is the value of  $\omega$ ?

- ☐ A.  $\frac{\lambda}{2\pi}$
- ☐ B.  $\frac{2\pi}{\lambda}$
- ☒ C.  $\frac{2\pi}{T}$

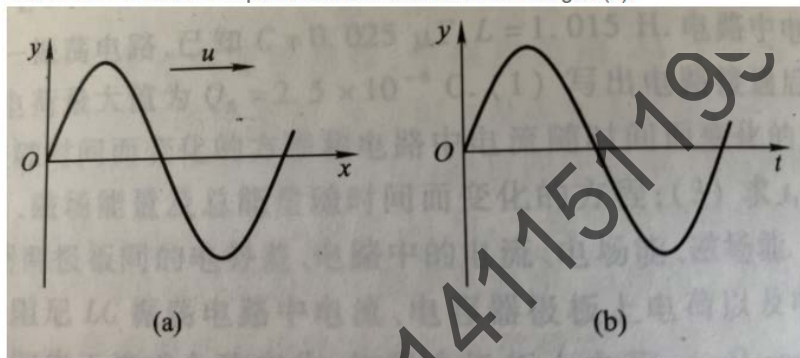
6. The function of a mechanical wave is (12.50 分)

$$y = 0.05 \cos(6\pi t + 0.06\pi x) (\text{m})$$

Which of the statement is correct?

- ☐ A. The wave velocity is 10m/s.
- ☒ B. The period is  $\frac{1}{3}$  s.
- ☐ C. The wavelength is 100m.
- ☐ D. The wave travels through vacuum in the positive direction of an x axis.

7. A Simple Harmonic Wave is shown in figure(a), the wave travels in the positive direction of an x axis. A Simple Harmonic motion is shown in figure(b). (12.50 分)



What is the initial phase at  $x=0$  in figure(a)?

- ☐ A.  $\pi$
- ☒ B.  $\frac{\pi}{2}$
- ☐ C.  $-\frac{\pi}{2}$
- ☐ D. 0

8. Under a tension  $F$ , it takes 2.00s for a pulse to travel the length of a taut wire. What tension is required (in terms of  $F$ ) for the pulse to take 6.00s instead? (12.50 分)

- ☒ A.  $F/9$
- ☐ B.  $9F$
- ☐ C.  $3F$
- ☐ D.  $F/3$

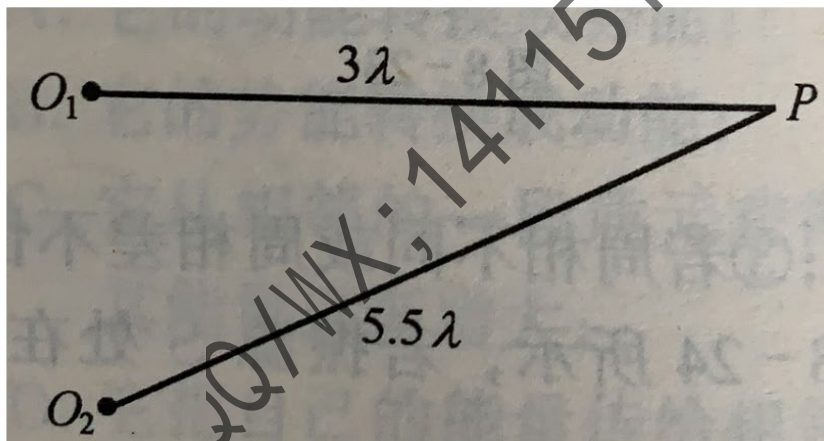
# test for week4

1. 入射波波函数为  $y = A\cos 2\pi\left(\frac{t}{T} + \frac{x}{\lambda}\right)$  , 反射波波函数为  $y = A\cos 2\pi\left(\frac{t}{T} - \frac{x}{\lambda}\right)$  . 则驻波的波腹位置为:
- ☐ A.  $\pm k\frac{\lambda}{4} \quad k=0,1,2,\dots$
- ☒ B.  $\pm k\frac{\lambda}{2} \quad k=0,1,2,\dots$
- ☐ C.  $\pm(2k+1)\frac{\lambda}{4} \quad k=0,1,2,\dots$
- ☐ D.  $\pm(2k+1)\frac{\lambda}{2} \quad k=0,1,2,\dots$
- 
2. 入射波波函数为  $y = A\cos 2\pi\left(\frac{t}{T} + \frac{x}{\lambda}\right)$  , 反射波波函数为  $y = A\cos 2\pi\left(\frac{t}{T} - \frac{x}{\lambda}\right)$  . 则驻波的波节位置为:
- ☐ A.  $\pm k\frac{\lambda}{2} \quad k=0,1,2,\dots$
- ☐ B.  $\pm(2k+1)\frac{\lambda}{2} \quad k=0,1,2,\dots$
- ☒ C.  $\pm(2k+1)\frac{\lambda}{4} \quad k=0,1,2,\dots$
- ☐ D.  $\pm k\frac{\lambda}{4} \quad k=0,1,2,\dots$
- 
3. What is the frequency of blue light that has a wavelength of 450 nm?
- ☒ A.  $6.67 \times 10^{14} \text{ Hz}$
- ☐ B.  $1.35 \times 10^{11} \text{ Hz}$
- ☐ C.  $6.67 \times 10^5 \text{ Hz}$
- ☐ D.  $1.35 \times 10^2 \text{ Hz}$
- 
4. 长度为L, 线密度为  $\mu$  的一根均匀细绳, 两端栓紧, 张力保持为T, 则此绳振动的频率为
- ☐ A.  $\frac{2\pi n}{\mu} \sqrt{\frac{T}{L}}$
- ☒ B.  $\frac{n}{2L} \sqrt{\frac{T}{\mu}}$
- ☐ C.  $\frac{n}{4L} \sqrt{\frac{T}{\mu}}$
- ☐ D.  $\frac{1}{2L} \sqrt{\frac{T}{\mu}}$
- 
5. A friend of yours racing toward you at 25.0 m/s on a day when the speed of sound is 340 m/s. What frequency does your friend hear if you suddenly start singing at 400 Hz?
- ☐ A. 372Hz
- ☐ B. 432Hz
- ☒ C. 429Hz
- ☐ D. 370Hz
- 
6. A light wave has a 670 nm wavelength in air. Its wavelength in a transparent solid is 420 nm.a. What is the speed of light in this solid?
- ☐ A.  $4.79 \times 10^8 \text{ m} \cdot \text{s}^{-1}$
- ☐ B.  $0.78 \times 10^8 \text{ m} \cdot \text{s}^{-1}$
- ☐ C.  $3.22 \times 10^8 \text{ m} \cdot \text{s}^{-1}$
- ☒ D.  $1.88 \times 10^8 \text{ m} \cdot \text{s}^{-1}$

7. What is the frequency of an electromagnetic wave with a wavelength of 20 cm?
- ☐ A.  $6 \times 10^7$  Hz
- ☐ B.  $1.5 \times 10^6$  Hz
- ☒ C.  $1.5 \times 10^9$  Hz
- ☐ D.  $6 \times 10^{10}$  Hz
- 
8. An opera singer in a convertible sings a note at 600 Hz while cruising down the highway at 90 km/h. What is the frequency heard by a person on the ground behind the car?
- ☐ A. 590.0Hz
- ☒ B. 558.9Hz
- ☐ C. 600.0Hz
- ☐ D. 604.4Hz
- 
9. An opera singer in a convertible sings a note at 600 Hz while cruising down the highway at 90 km/h. What is the frequency heard by a person standing beside the road in front of the car? ( $u=340\text{m/s}$ )
- ☒ A. 647.6Hz
- ☐ B. 590.0Hz
- ☐ C. 600.0Hz
- ☐ D. 595.6Hz

## 二、填空题 (共 10.00 分)

1.



如图所示,  $O_1$ 、 $O_2$  为两个周期相同的相干波源 (振幅分别为  $A_1$ 、 $A_2$ ) , 则点P的合振幅为: \_\_\_\_\_。

第1空:

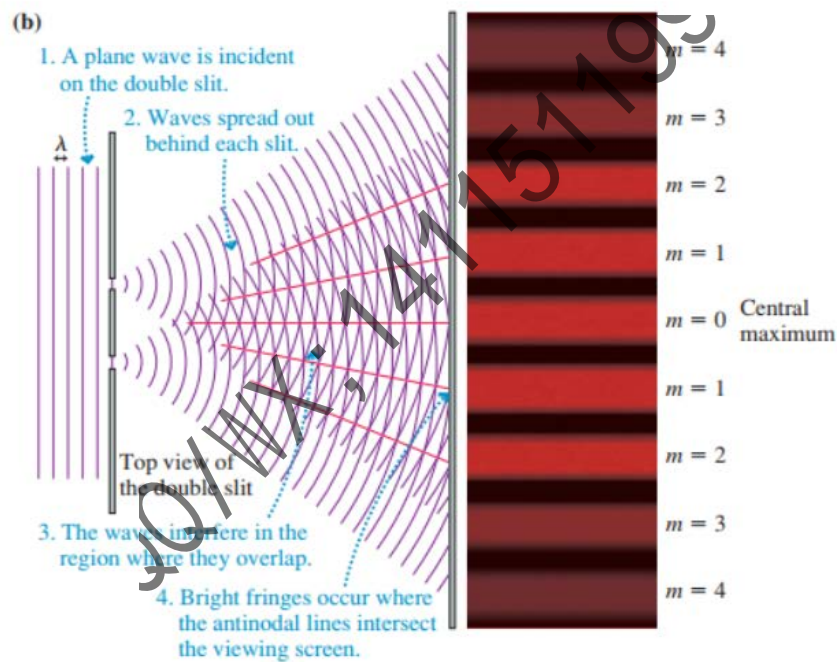
## test for week5

### 一、单选题 (共 100.00 分)

1. A common lens coating material is magnesium fluoride ( $\text{MgF}_2$ ) with  $n=1.38$ . What thickness should a nonreflective coating have for 550-nm light if it is applied to glass with  $n=1.52$ ? (25.00 分)

- ☐ A. 140nm  
☐ B. 200nm  
☐ C. 275nm  
☒ D. 100nm

2. Suppose the viewing screen in Figure is moved closer to the double slit. What happens to the interference fringes?

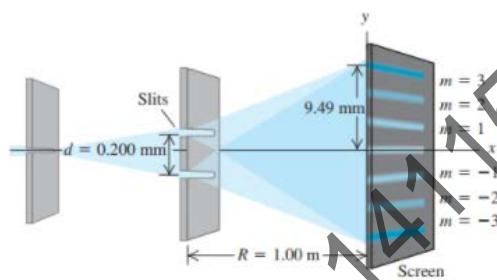


- ☐ A. They get brighter but otherwise do not change.  
☒ B. They get brighter and closer together.  
☐ C. They get brighter and farther apart.

3. A thin layer of benzene ( $n=1.501$ ) lies on top of a sheet of fluorite ( $n=1.434$ ). It is illuminated from above with light whose wavelength in benzene is 400 nm. Which of the following possible thicknesses of the benzene layer will maximize the brightness of the reflected light?

- ☐ A. 200nm
- ☐ B. 400nm
- ☒ C. 100nm
- ☐ D. 300nm

4. Figure below shows a two-slit interference experiment in which the slits are 0.200 mm apart and the screen is 1.00 m from the slits. The  $m=3$  bright fringe in the figure is 9.49 mm from the central fringe. Find the wavelength of the light.



- ☐ A. 760nm
- ☐ B. 400nm
- ☐ C. 530nm
- ☒ D. 633nm

9.1

1.

What is not correct in the following statements ?

A.

A. The friction heat generation process is irreversible;

B.

B. The process of free expansion of gas is irreversible;

C.

C. From the conservation of total energy, there will not be an energy crisis;

D.

D. Air conditioner has the functions of cooling and heating, indicating that there is no direction during the heat transferring process;

满分: 100.00 分

得分: 100.00 分

你的答案:

D

正确答案:

D

9.2

If the value of energy  $Q$  is negative, it means that

A.

In the physical process, the system emits heat to the surrounding

B.

In the physical process, the system absorbs heat from the surrounding

C.

In the physical process, the system does not absorb heat, nor does it emit heat

D.

We can't judge it

满分: 100.00 分

得分: 100.00 分

你的答案:

A

正确答案:

A

教师评语:

### 9.3

According to the Einstein model, which of the following statements is incorrect

A.

The vibration in the X direction will not affect the energy in other directions

B.

The frequency of the vibration in the X direction will not affect the vibration frequency in other directions

C.

The vibration of the X direction does not affect the total vibrational energy of the atom

D.

The vibrations in three directions of X, Y and Z are independent of each other

满分: 100.00 分

得分: 100.00 分

你的答案:

C

正确答案:

C

教师评语:

### 9.4

1.

If the number of quanta of energy is 2, how many ways to arrange the energy in single atom

A.

4

B.

5

C.

6

D.

7

满分: 100.00 分

得分: 100.00 分

你的答案:

C

正确答案:

C

教师评语:



### 9.5

If there is a one atom system, three oscillators and three quanta of energy, how many times the [1, 2, 0] microstate can be seen when we check the system by  $10^5$  times

A.

$10^4$

B.

$10^3$

C.

$10^2$

D.

Cannot see it

满分: 100.00 分

得分: 100.00 分

你的答案:

A

正确答案:

A

教师评语:

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### 9.6

If we observe one system by 1 million times, the probability for the observation of specific microstate is 29%. What is probability when we observe the same system and this specific microstate by 100 times?

A.

< 29%

B.

>29%

C.

=29%

D.

Highly probably not 29%

满分: 100.00 分

得分: 100.00 分

你的答案:

D

正确答案:

D

9.7 ‘

If the number of quanta of energy is 4 and there are two atoms, how many ways to arrange the energy in the two atoms?

A.

6

B.

4

C.

126

D.

210

满分: 100.00 分

得分: 100.00 分

你的答案:

C

正确答案:

C

9.8

1.

In this video, If we divide the the Y-axis values by total value ( $9 \times 10^{115}$ ), what is the sum of all modified Y-axis values?

A.

$9 \times 10^{115}$

B.

$3 \times 10^{81}$

C.

100

D.

1

满分: 100.00 分

得分: 100.00 分

你的答案:

D

正确答案:

D

教师评语:

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10.2

Regarding the order of the entropy, which one is correct?

A.

gas> liquid> solid

B.

solid> gas> liquid

C.

liquid>gas>solid

D.

solid>liquid>gas

满分: 100.00 分

得分: 100.00 分

你的答案:

A

正确答案:

A

教师评语:

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10.3

Regarding the descriptions about entropy, temperature and energy, which one is correct?

A.

Entropy is related to the process that the system experiences;

B.

Temperature is a process dependent parameter;

C.

Energy is a process dependent parameter;

D.

Entropy, temperature and energy are all parameters only related to the state where the system is.

满分: 100.00 分

得分: 100.00 分

你的答案:

D

正确答案:

D

教师评语:

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10.4

Which following process will result in an increase in entropy ?

A.

The process of freezing water

B.

The diffusion of the gas

C.

Water vapor turns into liquid water

D.

All of the above processes.

满分: 100.00 分

得分: 100.00 分

你的答案:

B

正确答案:

B

教师评语:

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10.6

Regarding the specific heat capacity, which of the following statements is correct?

A.

Specific heat capacity of matter is related to the amount of heat absorbed or emitted by the material

B.

The specific heat capacity of the material is related to the temperature of the material

C.

The greater the mass of matter, the greater its specific heat capacity

D.

The specific heat capacity of matter is not related to material's temperature and quality

满分: 100.00 分

得分: 100.00 分

你的答案:

B

正确答案:

B

教师评语:

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,

11.3

What is the total area below  $P(v)/dv$  curve?

A.

1

B.

2

C.

+  $\infty$

D.

It changes with the mass of molecular weight

满分: 100.00 分

得分: 100.00 分

你的答案:

A

正确答案:

A

教师评语:

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11.4

Regarding the molecular translational kinetic energy, which of the following statement is correct:

A.

The translational kinetic energy of nitrogen gas is greater than that of oxygen gas

B.

The translational kinetic energy of oxygen gas is greater than that of nitrogen gas

C.

we cannot judge it based on the current conditions

满分: 100.00 分

得分: 100.00 分

你的答案:

C

正确答案:

C

教师评语:

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11.6

Regarding the specific capacity of gas under constant pressure, which of the following statements is correct?

A.

The specific heat capacity of O<sub>2</sub> gas is greater than the specific heat capacity of CO<sub>2</sub> gas

B.

The specific heat capacity of CO<sub>2</sub> gas is greater than the specific heat capacity of O<sub>2</sub> gas

C.

It cannot be judged

D.

All of the above statements are not correct

满分: 100.00 分

得分: 100.00 分

你的答案:

C

正确答案:

C

教师评语:

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11.9

There are two bottles of N<sub>2</sub> and O<sub>2</sub> gas, and they have the same volume and temperature of gas. If their mass density is equal, which of the following statement is correct:

A.

The pressure of nitrogen is greater than that of oxygen

B.

The pressure of nitrogen is less than that of oxygen

C.

Their pressure is the same

D.

It cannot be judged

满分: 100.00 分

得分: 100.00 分

你的答案:

A

正确答案:

A

教师评语:

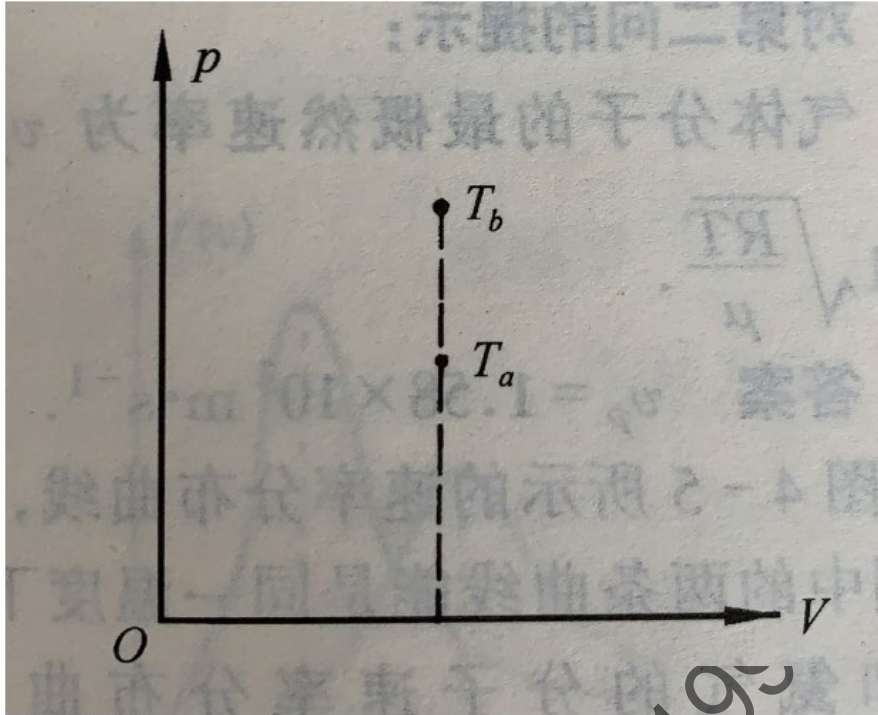
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# test for week12

## 一、单选题 (共 100.00 分)

1. During a bout with the flu an 80-kg man ran a fever of  $39.0^{\circ}\text{C}$  instead of the normal body temperature of  $37.0^{\circ}\text{C}$ . Assuming that the human body is mostly water, how much heat is required to raise his temperature by that amount? ( $c=4190\text{J/kg}\cdot\text{K}$  for water.) (9.09 分)
- ☐ A.  $7.2\times 10^6\text{J}$
- ☐ B.  $4.8\times 10^5\text{J}$
- ☐ C.  $8.9\times 10^5\text{J}$
- ☒ D.  $6.7\times 10^5\text{J}$
- 
2. 体积  $V=1\times 10^{-3}\text{m}^3$ , 压强  $p=1\times 10^5\text{Pa}$  的气体分子平均平动动能的总和为 () (9.09 分)
- ☐ A.  $1.5\times 10^{-3}\text{J}$
- ☐ B. 1.5J
- ☐ C. 8.31J
- ☒ D. 150J
- 
3. The Ideal-Gas has volume  $V$ , intensity of pressure  $p$ , temperature  $T$ , the mass per mole  $M$ , and  $k$  is boltzmann constant,  $R$  is ideal gas constant. What the number of molecules  $n$  is (9.09 分)
- ☒ A.  $\frac{pV}{kT}$
- ☐ B.  $\frac{pV}{RT}$
- ☐ C.  $\frac{pV}{mT}$
- ☐ D.  $\frac{pV}{m}$
- 
4. 双原子理想气体, 做等压膨胀, 若气体膨胀过程从热源吸收热量700J, 则气体对外做功为 ( ) (9.10 分)
- ☐ A. 250J
- ☐ B. 300J
- ☒ C. 200J
- ☐ D. 350J
- 
5.  $v_p$  理想气体分子速率按麦克斯韦速率分布函数分布,  $f(v_p)$  表示速率在速率  $v_p$  附近单位速率区间内的分子数占总分子数的百分比。那么, 当气体温度降低时, 则 (9.09 分)
- ☐ A.  $v_p$  和  $f(v_p)$  都变小
- ☐ B.  $v_p$  变小, 而  $f(v_p)$  不变
- ☒ C.  $v_p$  变小, 而  $f(v_p)$  变大
- ☐ D.  $v_p$  不变, 而  $f(v_p)$  变大
- 
6. 两瓶不同类气体, 分子平均平动动能相等, 但气体密度不同, 则两瓶气体 (9.09 分)
- ☒ A. 温度相同, 压强不等
- ☐ B. 温度和压强都相等
- ☐ C. 温度相同, 内能也一定相等
- ☐ D. 温度和压强都不同

7.



如图所示，试比较温度的高低

- ☐ A.  $T_a > T_b$   
☒ B.  $T_a < T_b$   
☐ C.  $T_a = T_b$   
☐ D. 无法判定

8. 在一密闭容器中，理想气体的平均速率提高为原来的2倍，则

(9.09分)

- ☐ A. 温度为原来的2倍，压强为原来的4倍  
☒ B. 温度和压强都为原来的4倍  
☐ C. 温度为原来的4倍，压强为原来的2倍  
☐ D. 温度和压强都提高为原来的2倍

9. 一瓶氦气和一瓶氮气密度相同，分子平均平动动能相等，而且它们都处于平衡状态，则它们

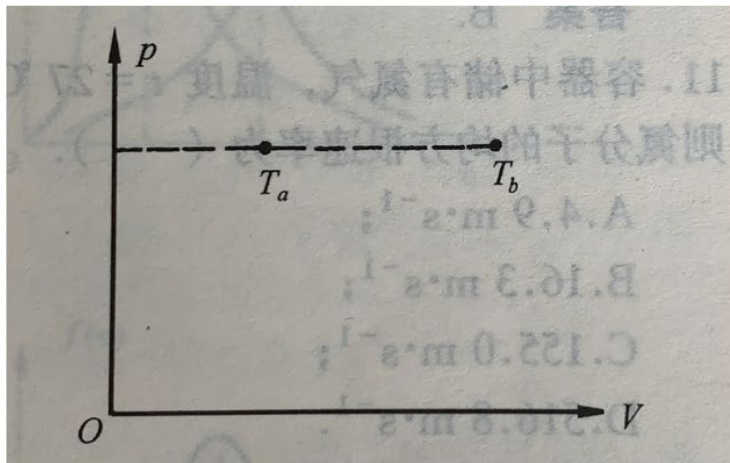
(9.09分)

- ☐ A. 温度相同，但氮气的压强小于氦气压强  
☐ B. 温度和压强都相等  
☒ C. 温度相同，但氮气的压强大于氦气压强  
☐ D. 温度和压强都不等



10.

(9.09分)



如图所示，试比较a，b两点温度的高低

- ☒ A.  $T_a < T_b$
- ☐ B. 无法判定
- ☐ C.  $T_a > T_b$
- ☐ D.  $T_a = T_b$

11. 两个相同的密封容器，一个盛有氢气，一个盛有氦气（均为理想气体）。开始时，它们的压强和温度都相等。现将9J的热量传递给氦气，是氦气升高一定温度，如果要使氢气也升高同样的温度，则应该向氢气传递热量（ ）

(9.09分)

- ☐ A. 9J
- ☐ B. 12J
- ☒ C. 15J
- ☐ D. 5.4J