

تعداد سؤال: نسی: ۲۰ تکمیلی: -- تشریحی: ۴

زمان آزمون (دقیقه): تستی و تکمیلی: ۳۰ تشریحی: ۵۰

نام درس: زبان تخصصی رشته تحصیلی-گرایش: فیزیک - (حالت جامد - هسته‌ای - اتمی و مولکولی)

کلاس: ۱۲۱۲۱۶۰

\* دانشجوی گرامی: لطفاً، گزینه ۱ را در قسمت کد سری سؤال برگه پاسخنامه خود، علامت بزنید.

بدیهی است، مسئولیت این امر برعهده شما خواهد بود.

\*\* این آزمون نمره منفی ندارد. \* استفاده از فرهنگ لغات مجاز نیست.

**A: Choose the best choice to fill in the blanks.**

- In nuclear reactors the ..... of radioactivity particles is important.  
a. evolution                      b. detection                      c. calibration                      d. infection
- Kelvin and centigrade are two ..... degrees to measure the temperature.  
a. equal                              b. equilibrium                      c. equality                              d. equivalent
- Einstein's theories was so ..... that everybody attracted in his theories.  
a. impressive                      b. dispersive                      c. proceeding                      d. proceed
- We can consider the ..... of a vector and solve one dimensional problem.  
a. components                      b. temporary                      c. coordination                      d. nods
- Since the traffic light was out of order an accident ..... there.  
a. take place                      b. took place                      c. was placed                      d. is placed
- Some quantities ..... other quantities.  
a. are making of                      b. are made up of                      c. are made of                      d. are make up of
- Newton said the ..... on a body equals the mass multiplied by its .....  
a. force- acceleration                      b. work-distance  
c. force - velocity                      d. work-velocity
- There are many differences between these systems. They're not .....  
a. compatible                      b. comparable                      c. complex                      d. equal
- Newton's laws of motion .....in inertial reference frames.  
a. state that                      b. hold true                      c. rest                      d. is related
- Spectrum of radiation .....produced by electric circuits is very wide.  
a. wavelength                      b. frequency                      c. charge                      d. distance

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**B: choose the best choice**

11. The following pairs of insulators are rubbed together. Which one is **NOT** possible?
- a. asbestos-silk: silk is positively charged.      b. cotton-glass: glass is positively charged.  
c. ebonite-wool: wool is negatively charged.      d. cat's fur-mica: mica is negatively charged.
12. Which fact made it possible to make the magnetic compass?
- a. like ends repel and unlike ends attract.  
b. a broken magnet still has two unlike ends.  
c. the earth is itself a magnet.  
d. a magnetic compass needle has two ends.
13. The velocity of a mass of  $2\text{ kg}$  from rest becomes  $6\frac{m}{s}$  in 3 sec. Which one is the acceleration?
- a.  $2\frac{m}{s^2}$       b.  $0.5\frac{m}{s^2}$       c.  $3\frac{m}{s^2}$       d.  $1.5\frac{m}{s^2}$
14. What does experience a straight wire carrying current in a direction perpendicular to a magnetic field?
- a. a force along the magnetic field proportional to current .  
b. a force along the magnetic field proportional to current and length.  
c. a transverse force proportional to current and length.  
d. nothing because the current is perpendicular to the magnetic field.
15. The multiplication of the mass and velocity is called .....
- a. velocity      b. torque      c. mass      d. momentum
16. Which field of physics deals with the motion of microscopic particles ?
- a. quantum relativity      b. quantum mechanics  
c. classical mechanics      d. relativity
17. About what processes scattering deals with?
- a. collision      b. heating  
c. propagation      d. measurement

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18. Which one is what we make certain that is correct.

- a. verified  
b. illustrated  
c. analyzed  
d. realized

19. When we write  $|-6|=6$ , what is concerned?

- a. attitude  
b. amplitude  
c. magnitude  
d. square

20. To make the solution, you can add the fluid to powder or powder to fluid. What can we say instead "powder to fluid"?

- a. ultimately  
b. reproducibly  
c. recoverably  
d. conversely

«سوالات تشریحی»

\* بارم هر سؤال تشریحی ۱/۷۵ نمره.

**C: Translate the following texts into Persian.**

1.

a. Kinetic energy lost to friction is not recoverable in any immediately obvious way, but a sensitive thermometer detects an increase in temperature on the surfaces where friction acted.

b. In addition to the horizontal component of the magnetic field measured by a compass needle, the magnetic force has also a vertical component.

2.

a. When the charged rod is brought near but not touching the electroscope knob, the electroscope leaf deflects.

b. Although it was based on purely theoretical reasoning, Maxwell's hypothesis led immediately to the prediction that electromagnetic waves can be produced by oscillating charges or currents.

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3.

a. There are three types of equilibrium: unstable, stable and neutral.

b. Words such as hot or cold are relative in their use, but there is considerable agreement on comparisons between objects.

4. If you were to measure the temperatures of a very large group of people and plot the number of persons with any given temperature vs. that temperature, you would obtain a bell-shaped curve having a mean temperature of  $98.5^{\circ}C$ .