

X2.1a

PHYS-104 (1) (Kaldon-44497)

WMU - Fall 2003

Exam 2 - 150,000 points

1060

Name _____

Movie Title _____

Rev. 10/07/02 Tu.2.r.1

Do Not Open This Test Until Told To Do So

**Select the Answer Which BEST Completes the Statement (30 questions – 5,000 points each)
Unless Stated Otherwise, All Observational Questions Are From West Michigan**

Bubble Sheets – Fill in Your NAME

Use Your 5-digit PID Number Instead of Your Student ID Number (Fill in at RIGHT)

EXAM 1 [FORM - A]

PHYS-1060 (KALDON-1)

WMU

...

Now Pay Attention – You Can Do This (150,000 points) Multiple-Guess-Fill-In-The-Bubbles

Using the following parts of the electromagnetic spectrum to answer:

A – Radio waves B – microwaves C – visible light D – X-ray E – Gamma ray

- 1.) Green plants like _____ from the Sun.
- 2.) Radio signals are actually...
- 3.) Break an arm and the hospital might zap it with the _____ part of the E-M spectra.
- 4.) The cop's radar gun catching you speeding uses...
- 5.) A Motorola Razr cellphone uses the _____ part of the E-M spectra.
- 6.) The Sun's 11-year cycle involves...
A – The heliopause.
B – The corona.
C – Solar eclipses.
D – Sunspots.
E – None of the above
- 7.) Sunspots are...
A – Impact craters on the Sun's surface.
B – Sources of black light on the Sun's surface.
C – Volcanic lava flows on the Sun's surface.
D – Magnetic storms on the Sun's surface.
E – None of the above
- 8.) Auroras are formed by...
A – Charged particles from the Sun riding the Earth's magnetic fields down to the poles.
B – Neutral particles in the solar wind.
C – X-rays energizing the upper atmosphere.
D – Meteor showers from leftover comets.
E – None of the above
- 9.) The Maunder Butterfly describes...
A – The variations in the position of the Sun at the center of the solar system.
B – The graph of solar brightness over time.
C – A South American butterfly unusually sensitive to variations in solar brightness.
D – All of the above
E – None of the above
- 10.) During the Maunder Minimum (1645-1715)...
A – Solar output was relatively lower.
B – There were few sunspots.
C – Europe experienced a "Little Ice Age".
- D – All of the above
E – None of the above
- 11.) The Sun's corona may be thin, but it's temperature is about...
A – 5800 Kelvin.
B – 10,000 Kelvin.
C – 1,000,000 Kelvin.
D – 15,000,000 Kelvin.
E – None of the above
- 12.) The intense pressure and density, plus thermonuclear fusion, heats the Sun's core to...
A – 5800 Kelvin.
B – 10,000 Kelvin.
C – 1,000,000 Kelvin.
D – 15,000,000 Kelvin.
E – None of the above
- 13.) Light from the core takes _____ to get to the surface of the Sun.
A – 1½ seconds.
B – 8 minutes.
C – 11 years.
D – Over a million years.
E – None of the above
- 14.) We say that there are only about 92 naturally occurring elements in the Periodic Table, because those elements beyond Uranium or Plutonium...
A – Are unstable.
B – Are radioactive.
C – Can only exist for a short time.

D – All of the above
E – None of the above

15.) The helium in the Solar System can only come...

A – From radioactive decay in rocky material.
B – From hydrogen fusion in the Sun.
C – From the expelled matter from an earlier star's supernova explosion.
D – All of the above
E – None of the above

16.) Dr. Phil figures that Technetium isn't one of the 92 naturally occurring elements in the Periodic Table, because all of the isotopes of Technetium...

A – Are unstable.
B – Are radioactive.
C – Can only exist for a short time.
D – All of the above
E – None of the above

17.) The letters O B A F G K M in the main sequence stars represent...

A – the alphabet in the German language.
B – descriptive classifications from before we understood what was going on.
C – the first letters in the names of Hertzsprung-Russell's children.
D – nothing of significance.
E – None of the above

18.) Atoms are structures with...

A – Z protons.
B – Z electrons.
C – N neutrons.
D – All of these.
E – None of the above

19.) Ions are atoms which...

A – only have extra electrons.
B – only have missing electrons.
C – replace electrons with neutrons.
D – have a different number of electrons than protons.

E – None of the above

20.) Our Sun is a...

A – main sequence star.
B – white dwarf star.
C – yellow supergiant star.
D – giant star.
E – None of the above

21.) The difference in energy between the 2nd and 4th energy states of an electron in hydrogen is 2.55 eV (eV = a unit of energy). If a hydrogen atom's electron lies initially in the 2nd energy state, then what kind of photons can excite this atom's electron to the 4th energy state?

A – Nature does not allow electron excitations by photons.
B – those with energies greater than 2.55 eV.
C – those with energies less than 2.55 eV.
D – those with energies equal to 2.55 eV.
E – None of the above

22.) Which two observable quantities of stars are plotted on a Hertzsprung-Russell (H-R) diagram?

A – radius and surface temperature.
B – radius and luminosity.
C – surface temperature and luminosity.
D – composition and mass.
E – None of the above

23.) Isotopes are atoms...

A – with differing numbers of neutrons.
B – with differing numbers of electrons.
C – with differing numbers of protons.
D – always radioactive.
E – None of the above

24.) We can observe on the H-R Diagram, patterns in:

A – size of stars.
B – mass of stars.
C – lifetimes of stars.
D – All of the above.
E – None of the above

25.) Which of these best characterizes the average composition of our Sun and stars in general?

A – mostly hydrogen, with some helium, trace amounts of heavy elements.
B – mostly heavy elements, with some hydrogen and helium.
C – mostly helium, with some hydrogen, trace amounts of heavy elements.
D – mostly silicon and iron, similar to the Earth's composition because Earth formed with the Sun.
E – None of the above

26.) Bright O stars on the main sequence are ...

A – luminosity class I.
B – luminosity class III.
C – luminosity class V.
D – luminosity class VII.
E – None of the above

27.) For every G-class star there are about ten M-class stars. This makes the percentage of main sequence stars which are red dwarfs...

A – 0.076 %.
B – 0.76 %.
C – 7.6 %.
D – 76 %.
E – None of the above

28.) Bright O stars which are supergiants are in...

A – luminosity class I.
B – luminosity class III.
C – luminosity class V.
D – luminosity class VII.
E – None of the above

29.) Star A and B have the same surface temperature, but Star A is three times the radius of Star B. Star A is ___ as Star B.

A – twice as luminous.
B – four times as luminous.
C – half (1/2) as luminous.
D – one-fourth (1/4) as luminous.
E – None of the above

30.) Star C and D have the same size and luminosity, but Star D is twice as far away as Star C. Star D is ___ as Star C.

A – twice as bright.
B – four times as bright.
C – half (1/2) as bright.
D – one-fourth (1/4) as bright.
E – None of the above