

Pre Test on the Seasons

(This is an example of instructions you will see on your test.)
sheet. Write your form number and exam number after your name."

Part 1 Multiple Choice

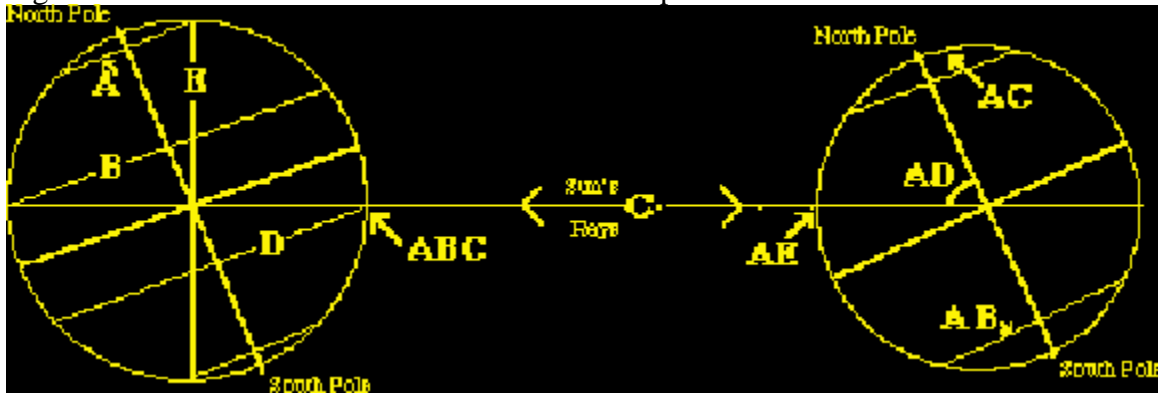
1. The two most important things which determine the amount of energy falling on an object in one day are:
 - A. The changing strength of the solar beam. (choose two answers)
 - B. The angle of the sun upon the surface
 - C. The Albedo of the object.
 - D. The duration of daylight.
 - E. None of these
2. The seasons are caused by:
 - A. The tilt of the axis of the earth with respect to the Plane of the Ecliptic
 - B. The shape of the elliptical orbit of the earth around the sun
 - C. The orbit of the Moon around the Earth
 - D. Changes in the energy output of the Sun itself
 - E. None of these
3. The Angle of the Sun above the horizon at noontime:
 - A. Changes 47 degrees from Solstice to Equinox
 - B. Changes 47 degrees from Solstice to Solstice
 - C. is the way to measure your longitude
 - D. Is the lowest the sun will be that day
 - E. Stays the same every day of the year
4. At the North Pole:
 - A. The sun never shines
 - B. The sun rises on the day of the Vernal Equinox
 - C. The sun rises on the day of the Autumnal Equinox
 - D. The sun can get higher than $23 \frac{1}{2}$ degrees above the horizon
 - E. None of these
5. At the Equinox:
 - A. The days are longer than nights in the Northern Hemisphere
 - B. The days are the same length as the nights
 - C. The sun is $23 \frac{1}{2}$ degrees above the horizon at the poles
 - D. The sun is overhead at the Tropic of Capricorn
 - E. The sun is overhead at the tropic of Cancer
6. On October 31 the sun is overhead at 14 degrees south of the equator. How high will the sun be above the southern horizon at noontime that day in Boston (Lat. 45 degrees North)?
 - A. 45 degrees
 - B. 76 degrees
 - C. 36 degrees
 - D. $23 \frac{1}{2}$ degrees
 - E. None of these

PART II. TRUE OR FALSE (A = TRUE , B = FALSE)

7. Summer is the time from the Equinox to the Summer Solstice
8. The first day of summer is also the longest day of the year.
9. Winter lasts from the winter solstice to the Vernal Equinox
10. Summer and Winter are reversed in time between the Southern and Northern Hemispheres.
11. The axis of the earth points toward the North Star all year.
12. There are always 12 hours of daylight and 12 hours of darkness at the poles
13. The duration of daylight changes more in higher latitudes than in lower latitudes
14. Duration of daylight and solar angle work together to make the difference between summer and winter greater than either one alone.

PART III: Multiple Choice / Matching ONE BEST ANSWER.

Fig. 1 The Earth at Solstice Positions Six Months apart in time.



ABCD

ABCDE

Note: All letters refer to the drawing.

Choose your answers using the letters from the diagram above:

15. The Tropic of Capricorn
16. The tropic of Cancer
17. The Plane of the Ecliptic
18. The Circle of Illumination
19. The overhead position of the sun at the December Solstice
20. The overhead position of the sun at the June Solstice
21. The angle of axis tilt with respect to the Plane of the Ecliptic
22. Drawing of Summer in the Southern Hemisphere
23. Drawing showing Winter in the Southern Hemisphere
24. The "Land of the Midnight Sun"
25. The location of the Antarctic Circle
26. The location of the Arctic Circle

** END **

Key

- 1.BD 2.A 3.B 4.B 5.B 6.E (The correct answer is 31 degrees) 7.F 8.T 9.T 10.T 11.T 12.F
- 13.T 14.T 15.D 16.B 17.C 18.E 19.ABC 20.AE 21.AD 22.ABCD 23.ABCDE 24.AC
- 25.AB 26.A