GGR1B10NOV

Student Number: _____

SECTION A: (Climatology and Geomorphology – Short questions)

Answer all questions in this section on this question paper.
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Which of the following is true? 1) _____
   A) Because of the distances to the stars, it is impossible to see stars "in the present." Each is seen at a different point in time in the past.
   B) It takes light about 100,000 years to cross our galaxy.
   C) If you could see the most distant parts of our universe, you would be looking at least ten billion years back in time.
   D) All of the above are true.
   E) None of the above are true.

2) The solar constant is measured at 2) _____
   A) the outer boundary of the thermosphere.
   B) Earth's surface at the equator.
   C) the outer boundary of the exosphere.
   D) the top of the stratosphere.
   E) the top of the troposphere.

3) The three stable gases in the atmosphere, in order of abundance from most to least, are 3) _____
   A) oxygen, carbon dioxide, argon.
   B) oxygen, argon, nitrogen.
   C) carbon dioxide, argon, oxygen.
   D) nitrogen, oxygen, argon.

4) When light passes from one medium to another, 4) _____
   A) transmission happens.
   B) it is usually not affected physically.
   C) Rayleigh scattering is the predominant effect.
   D) refraction occurs.

5) Which of the following is true regarding locations at high elevations? 5) _____
   A) Higher elevations experience lower average temperatures during both day and night.
   B) Temperatures at night, and in the shadows, are greater at higher elevations.
   C) The density of air increases with increasing elevation.
   D) Higher elevations experience higher temperatures during the day because they are closer to the Sun.

6) Which of the following is true of the thermal equator during the month of July? 6) _____
   A) It assumes an orientation that closely parallels that of the equator.
   B) Its orientation is apparently random and has yet to be adequately explained.
   C) It trends equatorward over continents and poleward over the oceans.
   D) It trends poleward over continents and equatorward over the oceans.

7) When water freezes, its density 7) _____
A) decreases.
B) increases.
C) remains the same as in the liquid state.

8) When water condenses, it _____ heat energy and _____ the surrounding air. 8) _____
A) absorbs heats B) releases; heats C) absorbs; cools D) releases; cools

9) Summer afternoon thundershowers are often a result of 9) _____
A) orographic lifting. B) convectional lifting.
C) frontal lifting. D) subtropical high pressure disturbance.

10) The severity of storm activity along a warm front is _____ than that along most cold fronts because the rate of uplift is _____ along a warm front. 10) _____
A) greater; faster B) less; slower C) greater; slower D) less; faster

TRUE/FALSE. Write true or false on the line provided.

11) Earth is at perihelion in early January when it is closest to the Sun. 11) _____

12) The duration of dawn and twilight tends to increase with increasing latitude. 12) _____

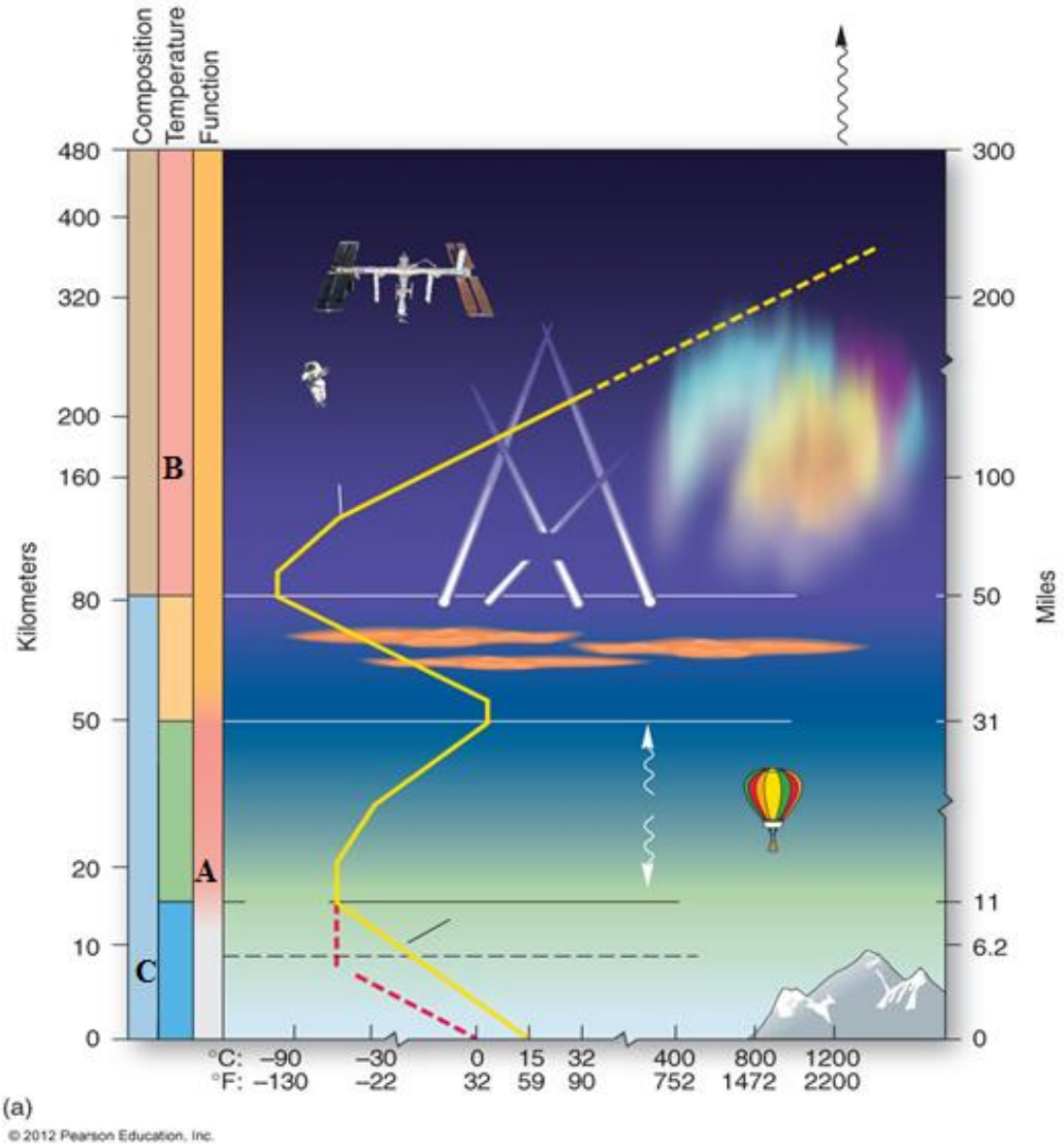
13) Weather is the long-term average conditions and extremes in a region. 13) _____

14) A rainshadow is a zone of dark clouds and heavy rainfall. 14) _____

15) The lowest sea-level pressure on Earth was measured inside a hurricane. 15) _____

16) The pressure gradient force and the friction force together produce geostrophic winds along Earth's surface. 16) _____

[Total 6x ½=3]



17. Provide labels for the atmospheric layers shown in the diagram above:

A _____

B_____

C _____ (3)

18. Define atmospheric stability and atmospheric instability and explain the weather likely to be associated with each state.

_____

_____

_____

_____ (2)

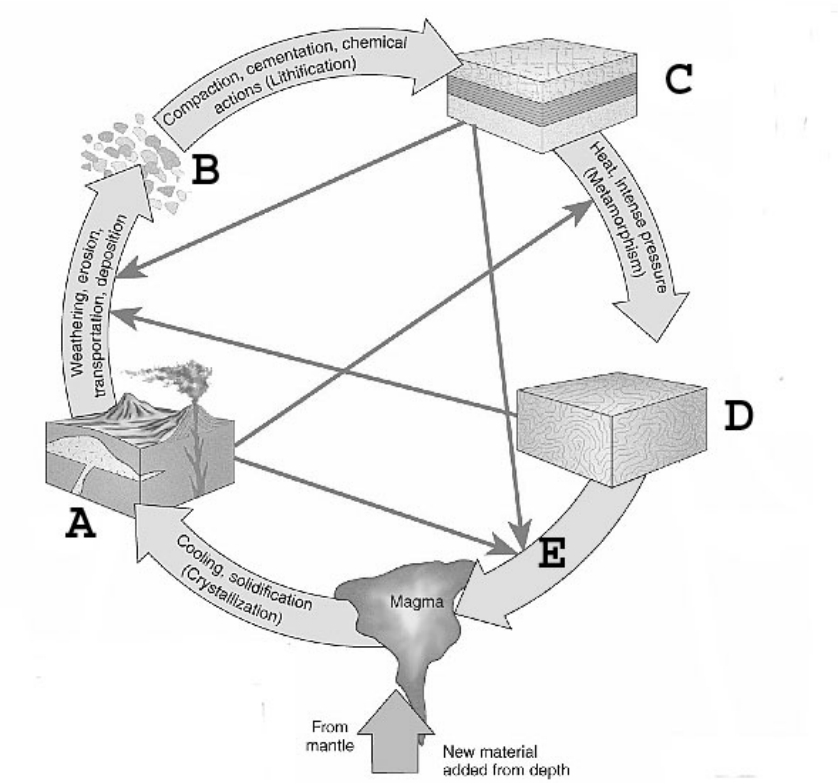
19. Name two greenhouse gasses contributing to climate change.

_____

_____ (2)

20. Write down the correct labels for A-E in the sketch in the space provided below.

(5)



A _____

B _____

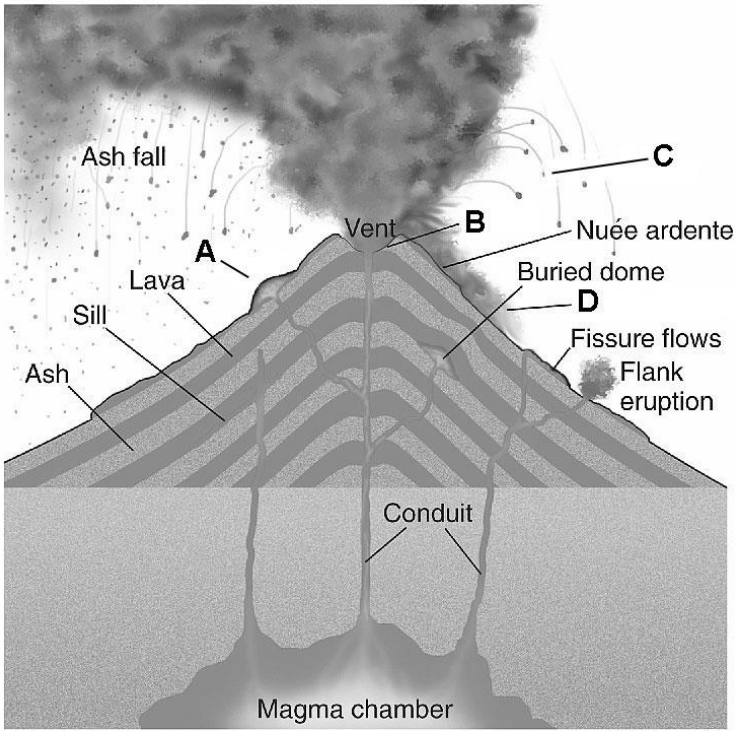
C _____

D _____

E _____

21. Write down the correct labels for A-D in the sketch in the space provided below.

(4)



A _____

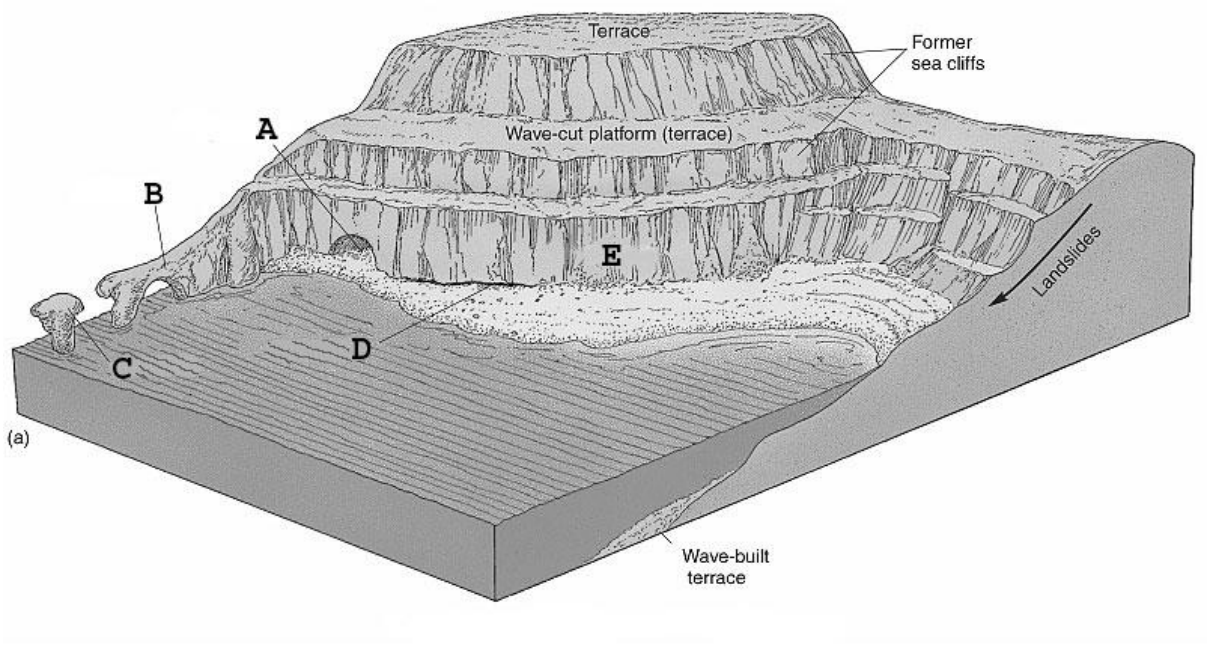
B _____

C _____

D _____

22. Write down the correct labels for A-E in the sketch in the space provided below.

(5)



A _____

B _____

C _____

D _____

E _____

23. List 3 (three) basic types of faults. (3)

_____

_____

_____

24. List the 3 (three) types of plate boundaries. (3)

_____

_____

_____

Total Section A: 40 marks