1) Which of the following is the naturally occurring auxin in plants?
   a) indolebutyric acid  b) naphthaleneacetic acid
   c) indoleacetic acid  d) zeatin
   e) kinetin

2) Benzyladenine is a synthetic _____.
   a) gibberellic acid  b) cytokinin
   c) ethylene  d) auxin
   e) abscisic acid

3) Where is the site of gibberellic acid production in the plant?
   a) shoot tips  b) root tips
   c) embryos  d) all are sites of production
   e) none are sites of production

4) _____ is the response to touch.
   a) geotropism  b) touchotropism
   c) phototropism  d) massagotropism
   e) thigmotropism

5) At the cellular level, which hormone is important in triggering cell division?
   a) gibberellic acid  b) cytokinin
   c) ethylene  d) auxin
   e) abscisic acid

6) Who was the first to postulate that plants contained hormones?
   a) Gregor Mendel  b) Charles Darwin
   c) Liberty Hyde Bailey  d) Luther Burbank
   e) Bill Clinton

7) _____ can be sprayed on peach trees in the spring to cause fruit or flowering thinning.
   a) gibberellic acid  b) cytokinin
   c) ethylene  d) auxin
   e) abscisic acid

8) _____ can be used in tissue culture to stimulate adventitious shoot formation.
   a) gibberellic acid  b) cytokinin
   c) ethylene  d) auxin
   e) abscisic acid

9) _____ can be sprayed on greenhouse azaleas to overcome and substitute for cold treatment needed by their buds.
   a) gibberellic acid  b) cytokinin
   c) ethylene  d) auxin
   e) abscisic acid

10) _____ is the curling and contortion of leaves, and is caused by _____.
   a) abscission / ethylene  b) epinasty / ethylene
   c) abscission / abscisic acid  d) epinasty / abscisic acid
   e) bolting / gibberellic acid
11) _____ favors staminate flower formation on monoecious plants, such as cucumbers.
   a) gibberellic acid  
   b) cytokinin
   c) ethylene  
   d) auxin
   e) abscisic acid

12) One should never store cut flowers and fruit together in the same cooler or refrigerator.
   a) true  
   b) false

13) _____ protects plants from drought stress by causing the stomata to close when it starts to get dry.
   a) gibberellic acid  
   b) cytokinin
   c) ethylene  
   d) auxin
   e) abscisic acid

14) _____ can be used to trigger a bromeliad, such as pineapple, to flower.
   a) gibberellic acid  
   b) cytokinin
   c) ethylene  
   d) auxin
   e) abscisic acid

15) _____ is the amount of heat (# calories) needed to raise 1 g of a substance by 1 °C.
   a) heat of fusion  
   b) specific heat
   c) heat of vaporization  
   d) calorie
   e) British Thermal Unit

16) Greenhouses are cooled by fan-and-pad cooling systems. This relies on the very high _____ of water, which is _____.
   a) heat of fusion / 80 cal/g  
   b) heat of vaporization / 80 cal/g
   c) heat of fusion / 540 cal/g  
   d) heat of vaporization / 540 cal/g
   e) change of state / 540 cal/g

17) The greenhouse effect is caused by trapping _____ within the atmosphere.
   a) visible radiation  
   b) ultraviolet radiation
   c) infrared radiation  
   d) far red radiation
   e) microwave radiation

18) When water freezes, heat energy is _____ the surroundings.
   a) absorbed from  
   b) released into

19) What is the name of the 23 ½ north latitude, which occurs as the upper limit of the Tropical Climatic Zone?
   a) Equator  
   b) Arctic Circle
   c) Tropic of Capricorn  
   d) Tropic of Cancer
   e) Tropic of Tan

20) At the summer solstice, the earth's axis (at the north pole) is _____ relative to the sun's axis.
   a) tilted 23 ½ away from the sun  
   b) neither tilted toward or away
   c) tilted 23 ½ towards the sun

21) On average, the warmest to coldest sides of a building during the winter are _____.
   a) north > east > west > south  
   b) south > west > east > north
   c) north > west > east > south  
   d) south > east > west > north
22) At the vernal equinox, the sun's rays strike the earth at a 90° angle at the _____.
   a) Arctic Circle  b) Tropic on Cancer  c) Equator  d) Tropic of Capricorn  e) Antarctic Circle

23) The optimum temperature for cool season crops is _____.
   a) 32-45 °F (0-7 °C)  b) 50-60 °F (9-15 °C)  c) 65-75 °F (18-24 °C)  d) 78-90 °F (24-32 °C)

24) Which IS NOT a method used to control high temperatures in greenhouses in Texas?
   a) fan-and-pad cooling system  b) paint greenhouse roof with shading compound  c) add fog to greenhouse  d) none are used in greenhouses  e) all are used in greenhouses

25) _____ is loss of heat by long wavelength infrared (IR) radiation.
   a) temperature inversion  b) greenhouse effect  c) radiational dissipation  d) radiational cooling  e) advective cooling

26) If the low temperature at night is predicted to be 23 °F and the dew point is 37 °F, which of the following would you predict?
   a) dark frost  b) white frost  c) light frost  d) black frost  e) blizzard

27) During a radiational freeze, a warm layer of air occurs about 10-15 feet above a cold layer of air that is next to the ground; this is called a _____.
   a) advective freeze  b) temperature layering  c) stratification  d) radiational inversion  e) temperature inversion

28) _____ is a type of freeze damage where the cambium under the bark freezes and expands.
   a) frost heaving  b) bark contraction  c) mechanical breakage  d) bark splitting  e) southwest injury

29) Which of the following prevents a radiational freeze by decreasing radiational cooling?
   a) create cloud or fog of water vapor  b) fly helicopters over plants  c) turn on sprinkler irrigation  d) proper site selection  e) use oil burners

30) What is the first thing that triggers hardening-off or cold acclimation of woody plants for the winter?
   a) cold temperature  b) red light  c) cool temperature  d) short days  e) long days

31) Which type of dormancy is caused by a low level of growth promoters and/or a high level of growth inhibitors in plants?
   a) quiescence  b) stratification  c) rest  d) chilling dormancy  e) snooze
32) Orient pear is a 650 hour variety. If you planted Orient pear in Deaf Smith county in the panhandle of north Texas, which is a 1,200 hour zone, it would?
   a) flower at the normal time in spring  
   b) flower too late in the spring, if at all  
   c) flower too early in the spring  
   d) flower in the fall of the year  

33) Which has the longer chilling requirement?
   a) vegetative buds  
   b) flower buds  

34) What is the name of the treatment or technique used on seeds of temperate trees to overcome their chilling requirement and cause them to germinate?
   a) vernalization  
   b) stratification  
   c) bolting  
   d) scarification  
   e) chilling  

35) _____ is flower formation and seed stalk elongation in biennials.
   a) vernalization  
   b) stratification  
   c) bolting  
   d) scarification  
   e) chilling  

36) What is the wavelength range of visible light (radiation)?
   a) 200-400 nm  
   b) 400-700 nm  
   c) 660 and 730 nm  
   d) 700 to 900 nm  

37) Which type instrument measures photosynthetically active radiation (PAR)?
   a) radiometer  
   b) psychrometer  
   c) photometer  
   d) tensiometer  
   e) quantum sensor  

38) When plants bend towards light in response to higher light intensity on one side of the plant, this is called _____.
   a) photoperiod  
   b) vernalization  
   c) phototropism  
   d) phytochromism  
   e) photosynthesis  

39) If a plant is grown in very low light, it will be long and spindly with pale green to yellowish leaves. This is called _____.
   a) photooxidation  
   b) elongation  
   c) blanching  
   d) etiolation  
   e) stretching  

40) At a light intensity above a plant's light compensation point, the rate of photosynthesis will be _____ the rate of respiration.
   a) greater than  
   b) less than  
   c) the same as  

41) At low light intensities, which type plant will have the higher rate of photosynthesis?
   a) shade or acclimatized plant  
   b) sun or non-acclimatized plant  
   c) all plants will have the same rate of photosynthesis
42) One method of acclimatization is to give the plant a final period of greatly reduced light intensity before placing it indoors. How long should the plants be left in the acclimatization treatment?
   a) a couple of days
   b) 1 week
   c) 4-6 weeks
   d) 3 months
   e) 1 year

43) If you wanted to shift all the phytochrome in a plant into the active form, you should shine _____ light on the plant.
   a) green
   b) blue
   c) red
   d) far red
   e) infrared

44) In the concept of the atmospheric window, which type of light is not selectively affected upon passing through the earth's atmosphere?
   a) visible light
   b) ultraviolet light
   c) infrared light
   d) far red light
   e) bud light

45) A _____ is a plant that is not affected by photoperiod.
   a) long-day plant
   b) nyterperiodic plant
   c) short-day plant
   d) day-neutral plant

46) Which of the following IS NOT a type of response that some plants have to photoperiod?
   a) flowering
   b) bulb formation
   c) fall color development
   d) stem elongation
   e) all are responses that plants may have to photoperiod

47) Today sunrise was at 7:30 am and will set at 6:51 pm. Therefore, what is the photoperiod that plants will perceive today?
   a) 10 hours 21 minutes
   b) 10 hours 51 minutes
   c) 11 hours 21 minutes
   d) 11 hours 51 minutes
   e) 12 hours 21 minutes

48) What part of the plant measures photoperiod, e.g. is the site of perception of photoperiod?
   a) roots
   b) stems
   c) leaves
   d) flowers
   e) growing point or apex

49) For photoperiodic plants, when do all the critical events occur that trigger flowering?
   a) during the day
   b) during the night

50) Chrysanthemums are short-day plants. If you wanted to make a chrysanthemum flower during the summer, you should ______.
   a) cover with black cloth about 5 pm for the last part of the day and throughout the night
   b) add artificial light for about the first 6 hours of the night
   c) add artificial light for about 2 hours in the middle of the night
KEY

1) c 
2) b 
3) d 
4) e 
5) b 
6) b 
7) d 
8) b 
9) a 
10) b 
11) a 
12) a 
13) e 
14) c 
15) b 
16) d 
17) c 
18) b 
19) d 
20) c 
21) b 
22) c 
23) c 
24) e 
25) d 
26) b 
27) e 
28) d 
29) a 
30) d 
31) c 
32) c 
33) a 
34) b 
35) c 
36) b 
37) e 
38) c 
39) d 
40) a 
41) a 
42) c 
43) c 
44) a 
45) d 
46) e 
47) e 
48) c 
49) b 
50) a