1. The natural plant hormones were first isolated from
(a) Corn germ oil and human urine
(b) Cotton fruits, spinach leaves and rice plants
(c) Avena coleoptile spinach leaves and the fungus gibberella
(d) Human urine and rice seedlings

2. Who used the term 'phytohormones' for plant hormone
(a) Balis (b) Morgan (c) Went (d) Thimman

3. Which of the following is plant hormone
(a) Auxin (b) Morphactin
(c) Gibberellin (d) All the above

4. In which of the following respect, the plant hormones differ from enzymes
(a) Required in less quantity
(b) They are expanded in the process
(c) They release some energy
(d) None of the above

5. Phytohormones are used in
(a) Parthenacarpy (b) Grafting
(c) Ripening of fruits (d) All the above

6. Whose technique is employed for the extraction and elimination of hormones
(a) Beck (b) Beer (c) Garner (d) Allard

7. The rapid growth during adolescence is the result of the hormone
(a) GH (b) Thyroxin
(c) Both GH and thyroxin (d) Neither of the two

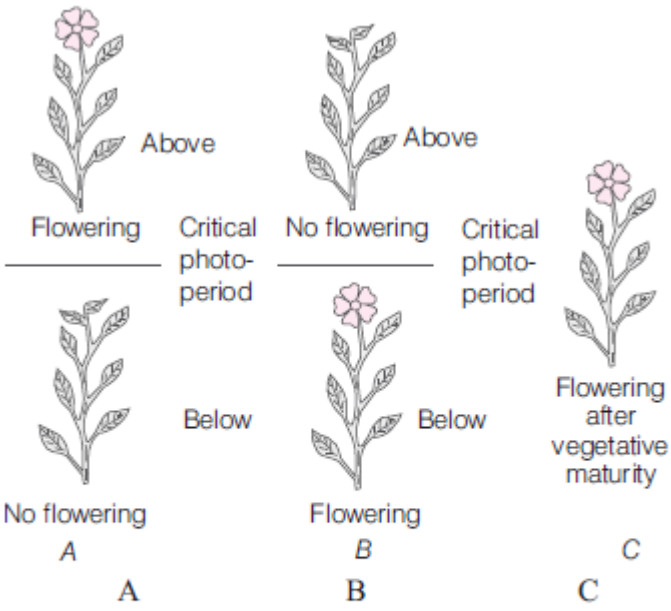
8. In plants, phototropism is the movement
(a) towards the light source
(b) away from the light source
(c) parallel to the light source
(d) lateral to the light source

9. Plants which require exposure to light for a period greater than critical day length are
(a) long day plants (b) long-short day plants
(c) short day plants (d) short-long day plants

10. Short day plants require light for a period
(a) less than critical duration
(b) equal than critical duration
(c) more than critical duration
(d) independent of critical duration

11. Day neutral plants
(a) show no flowering in any photoperiod
(b) show loss of activity during day time
(c) have no correlation between exposure to light duration and induction of flowering response
(d) None of the above

12. The given figure shows responses of different plants *A*, *B* and *C* to photoperiod (light). Choose the correct option.



	A	B	C
(a)	Long day plant	Day neutral plant	Short day plant
(b)	Short day plant	Day neutral plant	Long day plant
(c)	Long day plant	Short day plant	Day neutral plant
(d)	Short day plant	Long day plant	Day neutral plant

13. Effect of daily duration of light and dark periods on growth and development of plants especially on flowering is called
(a) vernalisation (b) photoperiodism
(c) phototaxis (d) Both (a) and (b)

14. Short day plant also called
(a) short night plant (b) long night plant
(c) intermediate night plant (d) None of these

15. What is the site of perception of photoperiod necessary for induction of flowering in plants? ***NEET 2019***
(a) Pulvinus (b) Shoot apex
(c) Leaves (d) Lateral buds

16. Choose the correct option.
(a) Flowering in certain plants depends on a combination of light and dark exposures on plant
(b) Shoot apices of plant themselves cannot perceive photoperiods, they modify themselves into flowering apices prior to flowering
(c) There is a hormonal substance that is responsible for flowering
(d) All of the above

17. A long day plant having a critical photoperiod of 13 hours will flower in which condition?

	Duration of light period	Duration of dark period
(a)	13	11
(b)	11	13
(c)	12	12
(d)	10	14

18. Which pigment is involved in photoperiodic changes in plants?
(a) Phytochrome (b) Chlorophyll
(c) Cytochrome (d) Anthocyanin

19. A few normal seedlings of tomato were kept in a dark room. After a few days they were found to have become white like albinos. Which of the following terms will you use to describe them? ***CBSE-AIPMT 2014***
(a) Mutated (b) Embilised
(c) Etiolated (d) Defoliated

20. Vernalisation is ***JIPMER 2019***
(a) low pH treatment
(b) low temperature treatment
(c) high temperature treatment
(d) high pH treatment

21. Temperature required for vernalisation is

(a) 5-10°C (b) 5-15°C
(c) 0-5°C (d) 3-17°C

22. Through their effect on plant growth regulators, what do the temperature and light control in the plants? ***CBSE-AIPMT 2012***
(a) Apical dominance (b) Flowering
(c) Closure of stomata (d) Fruit elongation

23. Hormone, which replaces the requirement of vernalisation is
(a) ethylene (b) auxin
(c) gibberellin (d) cytokinin

24. Examples of plants which require vernalisation is/are
(a) pea (b) sugarbeet
(c) cabbage (d) All of these

25. Vernalisation can be reversed by
(a) application of high temperature
(b) application of auxin
(c) application of more less temperature
(d) application of gibberellin

26. Vernalisation stimulates flowering in ***CBSE-AIPMT 2012***
(a) jimikand (b) turmeric
(c) carrot (d) ginger

27. Stimulus of vernalisation is perceived by
(a) shoot tips (b) mature tissues
(c) embryo tips (d) Both (a) and (c)

28. Certain seeds which fail to germinate even when external conditions are favourable is due to
(a) photoperiodism (b) seed dormancy
(c) vernalisation (d) plasticity

29. Which of the following is/are factor causing seed dormancy?
(a) Impermeable and hard seed coat
(b) Chemical inhibitors like abscisic acids, phenolic acids and para-ascorbic acids
(c) Immature embryos
(d) All of the above

30. Which of the following method would not help in breaking seed dormancy?
(a) Mechanical abrasions using knives, sandpaper, etc
(b) Microbial action
(c) Subjecting the seed to auxin to remove effect of inhibitory substance
(d) Changing the environmental conditions like light and temperature

1. (a)

2. (d)

3. (d)

4. (a)

5. (d)

6. (c)

7. (c)

8. (a)
9. (a)
10. (*a*) Plants exposed to light for a period less than critical duration before initiation of flowering are called short day plants, e.g. soyabean, tobacco, etc.

11. (c)
12. (c)
13. (b)
14. (*b*) Short Day Plants (SDPs) are also called long night plants because these plants require a long continuous and uninterrupted critical dark period for flowering.

15. (*c*) For induction of flowering in plants, photoperiod stimulus is percieved by the leaves of plants. As a result, floral hormones are produced in the leaves which are then translocated to the apical part and subsequently cause the initiation of floral primordial growth.

16. (d)
17. (*a*) A long day plant having a critical photoperiod of 13 hours will flower under conditions in which the duration of light is more than the critical period of time. Thus, option (a) is correct as in this, the duration of light period is more than duration of dark period.

18. (*a*) Phytochrome is a pigment, which is universally present in green flowering plants and is responsible for inducing photomorphogenic photoperiodic changes and developmental processes. It exists in two forms Pr and Pfr.

19. (*c*) When a few normal seedlings of tomato become white (like albinos) after a few on being kept in dark, it means that the process etiolation has taken place. Etiolation is the process, in which flowering plants are grown in partial or complete absence of light. Etiolation is mainly characterised by long and weak stem and smaller, sparse pale yellow coloured leaves due to longer internodes.

20. (*b*) Vernalisation is low temperature treatment. It is the process of shortening of vegetative phase and initiation of reproductive phase by application of low temperature to moistened seeds and young plants. It is used for a number of temperate plants like winter wheat, winter rye, cabbage, henbane, *Chrysanthemum* and even certain perennials like apples.

21. (c)
22. (*b*) Flowering is controlled by PGRs, which on being acted upon by temperature and light either promote or inhibit flowering. Flowering is a transitional phase in the life cycle of a plant. It is controlled by two main factors

l Photoperiod or light period, i.e. photoperiodism.

l Exposure to low temperature, i.e. vernalisation.

23. (*c*) Vernalisation involves the cold treatment of certain plants to induce flowering. Vernalisation treatment of biennial plants for flowering can be replaced by gibberellin (GA3).

24. (*d*) Common examples of plants which require vernalisation are winter rye, winter wheat, winter oat, winter barley, pea, sugarbeet, cabbage, henbane, viola, clover, *Chrysanthemum*, etc.

25. (*a*) Low temperature is required for vernalisation usually 0-5°C. To reverse the effect of vernalisation, high temperature (40°C) is applied. This phenomenon is called devernalisation.

26. (*c*) Vernalisation stimulates flowering in carrots. In biennial plants (monocarpic plants) like carrots, sugarbeet, cabbage, etc. Vernalisation (cold treatment) stimulates a subsequent photoperiodic flowering response.

27. (*d*) The stimulus for vernalisation is perceived only by the meristematic cells, which are mainly present in the shoot tips, embryo tips, root apex, etc.

28. (b)

29. (d)

30. (*c*) Option (c) is not helpful in breaking seed dormancy. This is because auxin does not inhibit seed dormancy. Rather seed dormancy can be inhibited by subjecting the seeds gibberellic acid.