English

1. The response of different organisms to environmental rhythms of light and darkness is called

(A) Diurnal cycle
(B) Phototaxis
(C) Photoperiodism
(D) Phototropism

Correct Option(s): C

English

2. Which field of study focuses on plant nutrition and growth in relation to soil conditions to determine ways to increase crop yields?

(A) Agronomy
(B) Horticulture
(C) Agrobiology
(D) Botany

Correct Option(s): C

English

3. What is the term used to describe the process that ensures the development of a closed vegetative canopy with sufficient tillering and fruiting sites, leading to a sizeable seed load and adequate leaf-area index for full radiation interception during seed setting and seed-filling stages?

(A) Partitioning
(B) Photosynthesis
(C) Post-harvest events
(D) Prior events

Correct Option(s): D

English

4. What is the phrase for the situation in which yield increases with an increase in plant population but, unlike an asymptotic curve, yield decreases with a further increase in population?

(A) Asymptotic response
(B) Parabolic response
(C) Exponential response
(D) Linear response

Correct Option(s): B

English

5. What are fertilizers called that are formed by coating conventional fertilizers with one or more micronutrients?

(A) Fortified fertilizers
(B) Customized fertilizers
(C) Water soluble fertilizers
(D) Nano fertilizers

Correct Option(s): A

English

6. Name the technique that uses different nutrient ratios from the quantitative chemical analysis of plant tissues to assess crop nutrient balances, first introduced by Beaufils in 1973.

(A) Diagnosis and Recommendation Integrated System (DRIS)
(B) Integrated crop management (ICM)
(C) Soil Nutrient Index (SNI)
(D) Integrated Plant Nutrition System (IPNS)

Correct Option(s): A

English

7. Which metal is essential for the metabolism of leghemoglobin and ribonucleotide reductase in Rhizobium?

(A) Iron
(B) Cobalt
(C) Zinc
(D) Magnesium

Correct Option(s): B

English

8. Which type of bacteria can inhibit plant growth by producing phytotoxic metabolites and live on or in plant roots?

(A) Endophytic bacteria
(B) Nitrogen-fixing bacteria
(C) Deleterious rhizobacteria
(D) Mycorrhizal fungi

Correct Option(s): C

English

9. How productive is this cropping system in comparison to its nutrient input?

(A) Recovery Efficiency
(B) Partial Factor Productivity
(C) Internal Utilization Efficiency
(D) Partial Nutrient Balance

Correct Option(s): B

English

10. How much time is required for 50% absorption of MoO4-2 in a plant leaf?

(A) 2-6 hrs
(B) 0.5-2 hrs
(C) 6-8 days
(D) 10-20 days

Correct Option(s): D

English

11. Who defined a weed as "Higher plants which are a nuisance" in 1960?

(A) J.L. Harper
(B) A.E. Georgia
(C) G.C. Klingman
(D) W.C. Muenscher

Correct Option(s): A

English

12. What is conjugation in the context of herbicide interaction with plants?

(A) The absorption of herbicide molecules by soil
(B) The breakdown of herbicide molecules
(C) The release of herbicides from plant cells
(D) The coupling of intact herbicide molecules with plant cell constituents

Correct Option(s): D

English

13. Which are the main compounds of essential oils that have a strong phytotoxic activity toward different weed species is

(A) Alcohols
(B) Fatty acids
(C) Phenolics
(D) Terpenoids

Correct Option(s): D

English

14. Lotus seed collected from the bottom of the Manchurian lake bed have viability even after

(A) 1 years
(B) 10 years
(C) 100 years
(D) 1000 years

Correct Option(s): D

English

15. Which herbicide defoliant was utilized by the U.S. military during the Vietnam War?

(A) Glyphosate
(B) 2, 4, 5-T
(C) Atrazine
(D) Paraquat

Correct Option(s): B

English

16. What is the difference between the saturated and the unsaturated zones of ground water?

(A) The saturated zone has a higher porosity than the unsaturated zone
(B) The saturated zone has a lower porosity than the unsaturated zone
(C) The pore spaces in the saturated zone are completely full of water and the pore spaces in the unsaturated zone are not completely full of water
(D) The pore spaces in the saturated zone are not completely full of water; the pore spaces in the unsaturated zone are completely full of water

Correct Option(s): C

English

17. The depth of water required for each crop for its maturity is known as

(A) Duty
(B) Delta
(C) Crop period
(D) Base period

Correct Option(s): B

English

18. Effective precipitation for a crop may be defined as

(A) Total precipitation minus the loss due to evaporation
(B) Total precipitation minus loss due to infiltration
(C) Available water stored in the soil within the root zone of crop
(D) Total precipitation during the cropping period

Correct Option(s): A

English

19.

In the context of SAR calculations, how is SAR typically expressed and calculated?

(A) $SAR = Na^{+}/((1/2(Ca^{2}+ + Mg^{2}+))^{1/2})$
(B) $SAR = Ca^{+}/((1/2(Na^{2+} + Mg^{2+}))^{1/2})$
(C) $SAR = Mg^{+}/((1/2(Ca^{2+} + Ca^{+}))^{1/2})$
(D) $SAR = Mg^{2+}/((1/2(Ca^{2}+ + Ca))^{1/2})$

Correct Option(s): A

English

20. Normal moisture extraction pattern of plant root from the surface is

(A) 20 per cent of the extracted moisture comes from upper quarter of the root zone, 30 per cent from second quarter, 40 per cent from third quarter and 10 per cent from fourth bottom quarter

(B) 30 per cent of the extracted moisture comes from upper quarter of the root zone, 20 per cent from second quarter, 40 per cent from third quarter and 10 per cent from fourth bottom quarter

(C) 10 per cent of the extracted moisture comes from upper quarter of the root zone, 20 per cent from second quarter, 30 per cent from third quarter and 40 per cent from fourth bottom quarter

(D) 40 per cent of the extracted moisture comes from upper quarter of the root zone, 30 per cent from second quarter, 20 per cent from third quarter and 10 per cent from fourth bottom quarter

Correct Option(s): D

English

21. When was the mouldboard plough, which had a curved blade that inverted the soil and buried weeds and residues, invented?

(A) 6000 BC

(B) 3500 BC

(C) 1100 AD

(D) Mid-1800s

Correct Option(s): C

English

22. Which nutrient management approach aligns best with conservation agriculture to reduce nutrient losses and enhance soil health?

(A) Reduced tillage and use of cover crops for nutrient cycling

(B) Conventional tillage and inorganic fertilizers application

(C) Mono-cropping with high rates of synthetic nitrogen fertilizers

(D) Deep tillage combined with excessive phosphorus supplementation

Correct Option(s): A

English

23. In conservation agriculture, the role of biochar in carbon sequestration is to:

(A) Increase the rate of decomposition of organic matter

(B) Enhance soil aeration, which accelerates carbon cycling

(C) Serve as a stable form of carbon, resistant to microbial decomposition

(D) Act as a synthetic fertilizer substitute for nitrogen management

Correct Option(s): C

English

24. How does agroforestry combined with conservation agriculture contribute to climate change mitigation?

(A) By reducing evapotranspiration and decreasing atmospheric CO_2 levels

(B) Through enhanced carbon sequestration in both biomass and soil, reducing overall greenhouse gas emissions

(C) By increasing methane emissions from decomposing organic matter

(D) Through increased use of synthetic inputs, which reduce CO_2 emissions by promoting crop growth

Correct Option(s): B

English

25. What is the primary long-term economic benefit of adopting conservation agriculture for soil carbon sequestration?

(A) High returns from immediate access to premium agricultural markets

(B) Increased crop yields due to improved soil fertility in the short term

(C) The ability to sell carbon credits or participate in carbon offset markets

(D) Immediate reduction in costs associated with labour and fuel

Correct Option(s): C

English

26. Which physiological adaptation allows rice plants to thrive in environments with fluctuating water levels, such as during periods of drought and flooding?

(A) Increased water-use efficiency through CAM metabolism
(B) Formation of root aerenchyma for gas exchange
(C) Osmoregulation via proline accumulation
(D) C3 photosynthetic pathway

Correct Option(s): B

English

27. Which variety of wheat was used in the green revolution in India?

(A) Pitic 62
(B) Sonalika
(C) COW (W) 1
(D) Lerma Rojo

Correct Option(s): D

English

28. What is the ideal temperature range during the vegetative growth stage of black gram for optimal biomass accumulation?

(A) 5°C - 15°C
(B) 15°C - 25°C
(C) 25°C - 35°C
(D) 35°C - 45°C

Correct Option(s): C

English

29. Which micronutrient is often limiting in chickpea production and must be applied through foliar sprays or soil amendments, especially in calcareous soils?

(A) Nitrogen
(B) Potassium
(C) Sulphur
(D) Zinc

Correct Option(s): D

English

30. Which emerging threat could have the greatest impact on cereal yields in temperate regions over the next two decades?

(A) Increased prevalence of heat-resistant weeds
(B) Pesticide-resistant insects targeting cereal crops
(C) Rising sea levels leading to saltwater intrusion in arable lands
(D) Sudden climatic variability causing erratic growing seasons

Correct Option(s): D

English

31. Which saturated fatty acid is primarily associated with increasing levels of low-density lipoprotein (LDL) cholesterol?

(A) Palmitic acid
(B) Linoleic acid
(C) Arachidonic acid
(D) Oleic acid

Correct Option(s): A

English

32. Who is credited with introducing groundnut oil seeds to India in the first half of the 16th century?

(A) Vasco De Gama
(B) British East India Company
(C) Jesuit Fathers
(D) Dutch traders from Malacca

Correct Option(s): C

English

33. Which of the following is an example of a Gossypium hirsutum cotton variety?

(A) TCHB 213

(B) K 2

(C) MCU 5

(D) Suvin

Correct Option(s): C

English

34. Which special technique is specifically designed to manage waterlogged or excess soil moisture conditions during the northeast monsoon period in coastal Andhra Pradesh and Tamil Nadu?

(A) STP technique

(B) Partha method

(C) Modified trench system

(D) Flat Planting

Correct Option(s): B

English

35. Which chemical is used for growth manipulation under the High Density Planting System (HDPS) of cotton?

(A) Gibberellic Acid

(B) Sylvite

(C) Mepiquat chloride

(D) Carnallit

Correct Option(s): C

English

36. Which term refers to the practice of obtaining patents on genetic resources or traditional knowledge without acknowledging the contributions or rights of the originating communities?

(A) Domestication

(B) Bio-piracy

(C) Bio-prospecting

(D) Distribution

Correct Option(s): B

English

37. Which type of extraction method is commonly used to obtain oils for use in aromatherapy and natural perfumery?

(A) Supercritical Fluid Extraction

(B) Solvent extraction

(C) Cold Press Extraction

(D) Cohobation

Correct Option(s): A

English

38. Origin of Java citronella is

(A) Africa

(B) India

(C) Myanmar

(D) Sri Lanka

Correct Option(s): D

English

39. Which specific species of root-knot nematodes is known to primarily affect the scented geranium plant?

(A) Meloidogyne incognita

(B) Meloidogyne chitwoodi

(C) Meloidogyne graminicola

(D) Meloidogyne enterolobii

Correct Option(s): A

English

40. Which specific climatic factor is most critical for optimizing the quality of coffee beans in Arabica coffee cultivation?

(A) Temperature variation between day and night
(B) High humidity levels consistently above 90%
(C) Average annual rainfall exceeding 2000 mm
(D) Average temperature between 25°C and 30°C with minimal frost exposure

Correct Option(s): D

English

41. Which strategies is critical to maintaining a sustainable "Round the Year Fodder Production System"?

(A) Incorporating a diverse mix of annual and perennial crops to optimize growth periods and soil fertility
(B) Focusing exclusively on perennials like Bajra Napier hybrid to reduce labor costs
(C) Complete reliance on annual fodder crops for higher yields
(D) Eliminating inputs such as fertilizers and irrigation to reduce environmental impact

Correct Option(s): A

English

42. What is the primary biochemical change that occurs during the process of silage making?

(A) Conversion of proteins into ammonia through enzymatic reactions
(B) Breakdown of fibers into simpler sugars via aerobic fermentation
(C) Conversion of sugars into lactic acid, which lowers the pH to inhibit spoilage
(D) Synthesis of organic acids like acetic acid through aerobic bacterial fermentation

Correct Option(s): C

English

43. What is the role of tannins in sorghum, and why are they considered an anti-quality factor in certain contexts?

(A) Tannins increase the grain's nutritional value by acting as antioxidants, but reduce palatability
(B) Tannins bind with proteins and starches, decreasing digestibility and nutritional value, particularly for monogastric animals
(C) Tannins promote seed dormancy, which enhances the crop's drought tolerance, but hinders growth in favorable conditions
(D) Tannins protect sorghum plants from pests but reduce photosynthetic efficiency

Correct Option(s): B

English

44. How does Azolla contribute to nutrient cycling when used in farming systems?

(A) By releasing plant growth hormones into the surrounding water for better crop growth
(B) By absorbing heavy metals from water, reducing toxicity for livestock
(C) By increasing carbon dioxide sequestration in ponds and water bodies
(D) By fixing atmospheric nitrogen and improving soil fertility when incorporated as green manure

Correct Option(s): D

English

45. How long does it take for fodder hydroponics to reach maturity?

(A) Five days time for optimum growth
(B) Seven days time for optimum growth
(C) Nine days time for optimum growth
(D) Eleven days time for optimum growth

Correct Option(s): B

English

46. How does agroforestry contribute to both mitigation and adaptation to climate change, particularly in the context of carbon sequestration?

(A) By reducing the need for synthetic fertilizers and improving nutrient cycling.
(B) Through enhancing biodiversity, which contributes to ecosystem resilience and increased carbon storage.
(C) By allowing for the expansion of agricultural land into forested areas without increasing carbon emissions.
(D) By improving the microclimate conditions that reduce carbon emissions and increase sequestration rates.

Correct Option(s): B

English

47. Which tree species are most suitable for strong coppicing practices?

(A) Acacia catechu

(B) Bambax ceiba

(C) Chloroxylon swietinia

(D) Conifers

Correct Option(s): A

English

48. What percentage of India's total pasture area is accounted for by alpine and sporadic annual pastures in the Himalayan region?

(A) 13 million hectares

(B) 23 million hectares

(C) 33 million hectares

(D) 43 million hectares

Correct Option(s): A

English

49. What is the ecological value of the grasslands?

(A) Enhancing water retention through forested canopies

(B) By reducing soil erosion through dense, evergreen vegetation coverage

(C) Grasslands are an essential worldwide biodiversity repository.

(D) By offering high productivity that supports large-scale agricultural operations

Correct Option(s): C

English

50. In which year were the first Taungya plantations established, and where was this practice first implemented?

(A) 1896 in North Bengal

(B) 1884 in South India

(C) 1901 in Central India

(D) 1890 in Assam

Correct Option(s): A