# IBPS AFO Mains Memory Based Paper 1st Nov 2026

**Q1.** At what height above ground level is the **Diameter at Breast Height (DBH)** conventionally measured?
**A.** 1.00 m
**B.** 1.20 m
**C.** 1.37 m
**D.** 1.50 m
**E.** 1.80 m
**S1. Ans. (C)**
**Explanation:**

- **Diameter at Breast Height (DBH)** is the standard diameter measurement used in forest mensuration for standing trees.
- In India and many forestry applications, DBH is measured at **1.37 m (4.5 feet)** above ground level.
- DBH provides a standardized basis for comparing the size and growth of trees.
- It is widely used in calculating **basal area, tree volume, biomass and timber yield**.
- If the tree has irregularities, buttresses or branching at the standard measurement point, forestry protocols may require measurement at an appropriate alternative height.

**Why other options are incorrect:**

- **1.00 m:** Lower than the conventional breast-height measurement.
- **1.20 m:** Not the standard DBH height.
- **1.50 m:** Commonly used in some contexts as a convenient measurement height, but the standard Indian forestry value is 1.37 m.
- **1.80 m:** Considerably above the conventional breast-height position.

**Information Booster:**
DBH = **1.37 m = 4.5 feet** above ground level.

**Q2.** A milk sample contains **12% total solids** and **3.5% milk fat**. Since total solids in milk comprise both milk fat and solids-not-fat, calculate the **Solid-Not-Fat (SNF)** percentage of the given milk sample.
**A.** 7.5%
**B.** 8.0%
**C.** 8.5%
**D.** 9.5%
**E.** 10.5%
**S1. Ans. (C)**
**Explanation:**
The relationship between total solids, milk fat and SNF is:
**Total Solids (TS) = Fat + SNF**
Therefore,
**SNF = Total Solids − Fat**
Given:
Total Solids = **12%**
Fat = **3.5%**
Therefore:

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**SNF = 12 − 3.5 = 8.5%**

Hence, the correct answer is **8.5%**.

**Why other options are incorrect:**

- **7.5%:** Results from an incorrect subtraction.
- **8.0%:** Does not correspond to the given TS and fat values.
- **9.5%:** Overestimates SNF by 1 percentage point.
- **10.5%:** Does not account correctly for the fat component.

**Information Booster:**

**SNF = Total Solids − Fat**

SNF mainly includes **proteins, lactose, minerals and other non-fat milk solids**.

**Q3.** Which of the following is the correct scientific name of the pathogen responsible for **Fusarium wilt of pigeonpea**?

**A.** *Fusarium udum*

**B.** *Fusarium oxysporum*

**C.** *Macrophomina phaseolina*

**D.** *Rhizoctonia solani*

**E.** *Sclerotium rolfsii*

**S1. Ans. (A)**

**Explanation:**

- The causal organism of **Fusarium wilt of pigeonpea** is ***Fusarium udum*** **Butler**.
- It is an important **soil-borne fungal pathogen** of pigeonpea.
- The pathogen primarily infects through the root system and colonizes the vascular tissues, interfering with water and mineral transport.
- Typical symptoms include **yellowing, wilting and eventual death of affected plants**.
- Fusarium wilt is particularly important because the pathogen can persist in the soil, making disease management difficult.

ICRISAT and the Journal of Food Legumes identify ***Fusarium udum*** as the major causal pathogen of pigeonpea Fusarium wilt.

**Why other options are incorrect:**

- ***Fusarium oxysporum*:** Several formae speciales cause wilt diseases in different crops, but the standard causal organism of pigeonpea wilt is *F. udum*.
- ***Macrophomina phaseolina*:** Causes charcoal/stem and root rot in several crops.
- ***Rhizoctonia solani*:** Associated with several soil-borne diseases including damping-off and sheath blight-like diseases.
- ***Sclerotium rolfsii*:** Causes diseases such as southern blight/stem and root rot.

**Information Booster:**

Pigeonpea → **Fusarium wilt** → ***Fusarium udum***.

**Q4.** Which of the following is the scientific name of the **banana aphid**?

**A.** *Aphis gossypii*

**B.** *Pentalonia nigronervosa*

**C.** *Myzus persicae*

**D.** *Rhopalosiphum maidis*
**E.** *Brevicoryne brassicae*
**S1. Ans. (B)**
**Explanation:**

- The scientific name of the **banana aphid** is ***Pentalonia nigronervosa*** **Coquerel**.
- It is a sap-sucking insect belonging to the family **Aphididae**.
- Banana is its preferred host, although the aphid can occur on several tropical and subtropical plants.
- It feeds by inserting its stylets into plant tissues and sucking phloem sap.
- More importantly, *P. nigronervosa* is associated with the transmission of **Banana bunchy top virus**, making it economically important beyond its direct feeding damage.

**Why other options are incorrect:**

- ***Aphis gossypii*****:** Commonly known as cotton aphid/melon aphid.
- ***Myzus persicae*****:** Green peach aphid.
- ***Rhopalosiphum maidis*****:** Corn leaf aphid.
- ***Brevicoryne brassicae*****:** Cabbage aphid.

**Information Booster:**
Banana aphid → ***Pentalonia nigronervosa*** → important vector associated with **Banana bunchy top virus**.

**Q5.** Muck soil is rich in which nutrient?
A. Nitrogen (N)
B. Phosphorus (P)
C. Potassium (K)
D. Magnesium (Mg)
E. Copper (Cu)
**S5. Ans. (A)**
**Explanation:**
Muck soils are organic soils formed from highly decomposed plant residues under poorly drained conditions. Due to the accumulation and decomposition of organic matter, **nitrogen (N)** is generally present in relatively high amounts.
The high organic matter content acts as an important reservoir of nitrogen, although its availability to plants depends on the rate of mineralization and other soil conditions.
**Information Booster:**
Muck soil contains a high proportion of well-decomposed organic matter and is generally darker and more mineralized than peat soil.

**Q7. Drum seeding of rice can reduce the seed requirement by approximately what percentage compared with conventional methods?**
A. 10–15%
B. 20–25%
C. 25–30%
D. 35–40%
E. 45–50%
**S7. Ans. (D)**

**Explanation:**
Drum seeding is a direct-seeding method in which pre-germinated rice seeds are sown directly in the puddled field. Under appropriate conditions, it can result in approximately **35–40% saving in seed requirement** compared with conventional establishment practices.
**Information Booster:**
Drum seeding can also reduce the **labour and time requirement** associated with conventional rice transplanting.

**Q8.** Brown blood disease in freshwater fish is caused by toxicity of:
A. Ammonia
B. Nitrite
C. Nitrate
D. Hydrogen sulfide
E. Carbon dioxide
**S8. Ans. (B)**
**Explanation:** Brown blood disease is caused by **high nitrite concentration** in water. Nitrite enters the bloodstream through the gills and converts haemoglobin into **methemoglobin**, which cannot efficiently carry oxygen.
**Information Booster:** Brown blood disease → Nitrite toxicity → Methemoglobinemia.

**Q9.** The term **heterosis** was coined by which scientist?
A. G. H. Shull
B. E. M. East
C. Charles Darwin
D. W. L. Johannsen
E. Gregor Mendel
**S9. Ans. (A)**
**Explanation:** The term **heterosis** was coined by **George Harrison Shull (G. H. Shull)** in 1914 to describe the superior performance of hybrids over their parents.
**Information Booster:** Heterosis is also known as **hybrid vigour**.

**Q10.** If the crop evapotranspiration (ETc) is 5 mm/day and the crop coefficient (Kc) is 0.8, what will be the reference evapotranspiration (ETo)?
A. 3.0 mm/day
B. 4.0 mm/day
C. 4.8 mm/day
D. 5.8 mm/day
E. 6.25 mm/day
**S10. Ans. (E)**
**Explanation:**
The relationship is:
**ETc = Kc × ETo**
Therefore,

**ETo = ETc / Kc = 5 / 0.8 = 6.25 mm/day**
Hence, the reference evapotranspiration is **6.25 mm/day**.
**Information Booster:** Crop evapotranspiration is commonly estimated using **ETc = Kc × ETo**.

**Q11.** Which mango variety is highly susceptible to spongy tissue disorder?
A. Dashehari
B. Alphonso
C. Langra
D. Kesar
E. Banganapalli
**S11. Ans. (B)**
**Explanation: Alphonso** mango is highly susceptible to **spongy tissue disorder**, a physiological disorder characterized by the development of abnormal spongy tissue in the fruit pulp.
**Information Booster:** Spongy tissue is particularly associated with **Alphonso mango**.

**Q12.** Indian soils showing pronounced swelling and shrinking belong to which soil order?
A. Alfisols
B. Aridisols
C. Vertisols
D. Ultisols
E. Entisols
**S12. Ans. (C)**
**Explanation: Vertisols** are characterized by high content of expanding clay minerals, particularly **smectite**, causing pronounced swelling when wet and shrinking and cracking when dry.
**Information Booster:** Black cotton soils of India are predominantly **Vertisols**.

**Q13.** Which zoonotic disease can be transmitted through the consumption of contaminated milk?
A. Brucellosis
B. Foot-and-Mouth Disease
C. Anthrax
D. Mastitis
E. Black Quarter
**S13. Ans. (A)**
**Explanation: Brucellosis** is a zoonotic disease that can be transmitted to humans through consumption of **unpasteurized milk or dairy products** from infected animals.
**Information Booster:** The causative bacteria of bovine brucellosis is mainly **Brucella abortus**.

**Q14.** What is the primary use of lime in biofloc technology?
A. To increase salinity
B. To buffer pH
C. To reduce dissolved oxygen
D. To increase ammonia
E. To control water temperature

**S14. Ans. (B)**
**Explanation:** Lime is used in biofloc systems primarily to **buffer and stabilize pH**, thereby maintaining suitable water quality for cultured organisms.
**Information Booster:** Maintaining stable pH is important for microbial activity and fish/shrimp health in biofloc systems.

**Q15.** Which of the following cattle diseases is correctly matched with its causative organism?
A. Black Quarter — *Bacillus anthracis*
B. Anthrax — *Clostridium chauvoei*
C. Black Quarter — *Clostridium chauvoei*
D. Foot-and-Mouth Disease — *Brucella abortus*
E. Brucellosis — *Clostridium septicum*
**S15. Ans. (C)**
**Explanation:** Black Quarter (Blackleg) is caused by ***Clostridium chauvoei***, a Gram-positive, spore-forming anaerobic bacterium.
**Information Booster:**
Anthrax → *Bacillus anthracis*
FMD → Foot-and-mouth disease virus
Brucellosis → *Brucella abortus*

**Q16.** Which of the following is correctly matched regarding sheep reproduction?
A. Mating — Lambing
B. Parturition — Lambing
C. Female sheep — Ram
D. Male sheep — Ewe
E. Young one of sheep — Calf
**S16. Ans. (B)**
**Explanation: Lambing** is the term used for **parturition (giving birth) in sheep**.
**Information Booster:**
Male sheep → Ram
Female sheep → Ewe
Young one → Lamb
Parturition → Lambing

**Q17.** The red colour of ripe tomato is mainly due to:
A. Carotene
B. Lycopene
C. Xanthophyll
D. Anthocyanin
E. Chlorophyll
**S17. Ans. (B)**
**Explanation:** The red colour of ripe tomato is mainly due to **lycopene**, a red carotenoid pigment.
**Information Booster:** Lycopene is also an important antioxidant present in tomato.

**Q18.** Drip irrigation was first developed in which country?
A. India
B. Israel
C. USA
D. Australia
E. Netherlands
**S18. Ans. (B)**
**Explanation:** Modern **drip irrigation** was developed and commercialized in **Israel**, particularly through the work of Simcha Blass and later Netafim.
**Information Booster:** Drip irrigation supplies water directly to the root zone through emitters, reducing water losses.

**Q19.** Which of the following is a common causative organism of mastitis in dairy cattle?
A. *Staphylococcus aureus*
B. *Brucella abortus*
C. *Bacillus anthracis*
D. *Clostridium chauvoei*
E. *Mycobacterium bovis*
**S19. Ans. (A)**
**Explanation:** ***Staphylococcus aureus*** is one of the important bacterial causes of **bovine mastitis** and is commonly associated with contagious mastitis.
**Information Booster:** Other important mastitis pathogens include *Streptococcus agalactiae* and *Escherichia coli*.

**Q20.** Which hormone is used in hypophysation for induced breeding of fish?
A. Thyroxine
B. Gonadotropin
C. Insulin
D. Progesterone
E. Adrenaline
**S20. Ans. (B)**
**Explanation:** **Gonadotropins** present in pituitary extract stimulate gonadal development and induce spawning in mature fish during hypophysation.
**Information Booster:** Hypophysation involves the administration of **pituitary gland extract** to induce spawning.

**Q21.** Which method is most effective for rapidly obtaining completely homozygous progeny?
A. Bulk breeding
B. Pedigree method
C. Backcross method
D. Double haploid method
E. Mass selection

**S21. Ans. (D)**
**Explanation:** The **double haploid (DH) method** can produce completely homozygous lines in a single generation after chromosome doubling of haploid plants.
**Information Booster:** SSD also helps in rapid attainment of homozygosity, but several generations of selfing are required.
Standardize the answer-option formatAdd detailed explanations for distractors

**Q22.** The *Indian Journal of Entomology* is published by:
A. Indian Council of Agricultural Research (ICAR)
B. Entomological Society of India
C. Indian Society of Agronomy
D. Indian Society of Plant Protection
E. Indian Academy of Agricultural Sciences
**S22. Ans. (B)**
**Explanation:** The *Indian Journal of Entomology* is published by the **Entomological Society of India (ESI)**.
**Information Booster:** The journal covers research related to insect taxonomy, ecology, physiology, pest management and applied entomology.

**Q23.** The formation of air bubbles in xylem vessels under drought conditions is known as:
A. Embolism
B. Cavitation
C. Guttation
D. Transpiration
E. Imbibition
**S23. Ans. (B)**
**Explanation: Cavitation** is the formation of air bubbles in the xylem due to tension in the water column, particularly under drought or water-stress conditions.
**Information Booster:** Cavitation can lead to **xylem embolism**, which disrupts the upward movement of water.

**Q24.** Which of the following is a zoonotic disease?
A. Brucellosis
B. Mastitis
C. Ranikhet disease
D. Black Quarter
E. Bloat
**S24. Ans. (A)**
**Explanation: Brucellosis** is a zoonotic disease that can be transmitted from infected animals to humans, particularly through unpasteurized milk and dairy products.
**Information Booster:** Important zoonotic diseases include **brucellosis, anthrax, rabies, and tuberculosis**.

**Q25.** Beekeeping is promoted under which scheme?
A. National Beekeeping and Honey Mission

B. National Food Security Mission
C. National Horticulture Mission
D. Rashtriya Krishi Vikas Yojana
E. Paramparagat Krishi Vikas Yojana

**S25. Ans. (A)**

**Explanation:** Beekeeping is promoted under the **National Beekeeping and Honey Mission (NBHM)**, which aims to promote scientific beekeeping and honey production.

**Information Booster:** NBHM is implemented through the **National Bee Board (NBB)**.

**Q26.** The flower-bearing habit of jackfruit is:
A. Terminal
B. Cauliflorous
C. Basiflorous
D. Acrocauliflorous
E. Racemose

**S26. Ans. (B)**

**Explanation:** Jackfruit exhibits a **cauliflorous** habit, in which flowers develop directly on the trunk and older branches.

**Information Booster:** Other examples of cauliflory include **cocoa and papaya**.

**Q27.** Which of the following statements regarding **Gokul Gram** under the Rashtriya Gokul Mission is correct?
A. Gokul Gram is established exclusively for promoting crossbred cattle.
B. Gokul Gram is an integrated cattle development centre for conservation and development of indigenous bovine breeds.
C. Gokul Gram is primarily established for increasing wool production in sheep.
D. Gokul Gram focuses exclusively on commercial milk processing and dairy marketing.
E. Gokul Gram is a programme for providing crop insurance to livestock farmers.

**S27. Ans. (B)**

**Explanation: Gokul Gram** is an integrated cattle development centre established for the **conservation and development of indigenous bovine breeds** and improvement of their genetic potential.

**Information Booster:** Gokul Gram is an important component associated with the **Rashtriya Gokul Mission (RGM)**.

**Q28.** Straighthead disorder in rice is associated with toxicity of:
A. Arsenic
B. Zinc
C. Boron
D. Manganese
E. Iron

**S28. Ans. (A)**

**Explanation: Straighthead disorder** in rice is associated with **arsenic toxicity**, particularly in arsenic-contaminated soils. It is characterized by poor grain formation and erect, straight panicles.

**Information Booster:** Straighthead → Rice → **Arsenic toxicity**.

**Q29.** Which hormone is commonly used for fruit thinning in apple?
A. Gibberellic acid
B. Naphthalene acetic acid (NAA)
C. Ethylene
D. Abscisic acid
E. Cytokinin
**S29. Ans. (B)**
**Explanation: Naphthalene acetic acid (NAA)** is a synthetic auxin commonly used for **fruit thinning in apple**.
**Information Booster:** NAA is also used as a plant growth regulator for reducing excessive fruit set and improving fruit size.

**Q30.** Which of the following statements regarding Body Condition Score (BCS) of dairy cows is correct?
A. BCS 1–1.5 indicates that the cow is carrying excessive body fat.
B. BCS 1.5–2 indicates the ideal body condition for most stages of lactation.
C. BCS 2.5–3 indicates that the cow is too thin and requires immediate attention.
D. BCS 3.5 indicates that the cow is severely underweight.
E. BCS 4.5 indicates that the cow is carrying excessive body fat.
**S30. Ans. (E)**
**Explanation:** A **BCS of 4.5** indicates that the cow is carrying **excessive body fat**. BCS is used to assess the body reserves and nutritional status of dairy animals.
**Information Booster:**
BCS 2.5–3 → Ideal condition
BCS 3.5 → Higher end of ideal
BCS 4.5 → Excessive body fat

**Q31.** What is the usual concentration of brine solution used in vegetable canning?
A. 1–3%
B. 5–7%
C. 10–12%
D. 12–15%
E. 15–20%
**S31. Ans. (A)**
**Explanation:** A **1–3% salt (NaCl) brine solution** is commonly used in vegetable canning to provide the desired salt concentration and improve preservation and flavour.
**Information Booster:** The required brine concentration may vary depending on the type of vegetable and processing method.

**Q32.** In aquaculture, calcium carbonate ($CaCO_3$) is commonly applied to ponds mainly to:
A. Increase salinity
B. Neutralize acidity and buffer pH

C. Increase ammonia concentration
D. Reduce dissolved oxygen
E. Control water temperature

**S32. Ans. (B)**

**Explanation:** Calcium carbonate, commonly known as **agricultural limestone**, is used in fish ponds mainly to **neutralize acidity and increase alkalinity**, thereby helping to stabilize the pH of pond water.

**Information Booster:** Liming also improves the availability of nutrients and creates favourable conditions for aquatic organisms.

**Q33.** The approximate heritability of milk yield in dairy cattle is:
A. 0.05
B. 0.15
C. 0.30
D. 0.60
E. 0.90

**S33. Ans. (C)**

**Explanation:** Milk yield generally has **moderate heritability**, with estimates commonly around **0.30** (approximately 0.29–0.34). This indicates that genetic differences account for a substantial proportion of the variation in milk yield among animals.

**Information Booster:** Traits with moderate heritability can respond effectively to **selection in animal breeding**.

**Q34.** Under the Paramparagat Krishi Vikas Yojana (PKVY), each organic farming cluster generally covers how much area?
A. 10 hectares
B. 15 hectares
C. 20 hectares
D. 25 hectares
E. 30 hectares

**S34. Ans. (C)**

**Explanation:** Under **PKVY**, farmers are organized into organic farming clusters, with **each cluster covering 20 hectares** of land. The cluster-based approach facilitates collective adoption of organic farming practices, certification and market linkages.

**Information Booster:** PKVY provides financial assistance of **₹31,500 per hectare over three years** for promotion of organic farming.

**Q35. Which of the following categories is eligible for benefits under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) Scheme, subject to fulfilment of other prescribed conditions?**
A. Tenant farmer cultivating the same land continuously for 5 years
B. Sharecropper cultivating the same agricultural land for 5 years
C. Marginal landholding farmer having cultivable land in his/her name
D. Farmer cultivating government land without legal landholding rights
E. Institutional landholder operating agricultural land

**S35. Ans. (C)**
**Explanation:**
Under PM-KISAN, **cultivable landholding in the farmer's name is the primary eligibility criterion**. Landholding farmers, including small and marginal farmers, are eligible subject to the prescribed exclusion criteria. Tenant farmers and sharecroppers are not eligible merely on the basis of cultivating land for a specified period.
**Information Booster:**
PM-KISAN provides **₹6,000 per year in three equal instalments** through DBT to eligible landholding farmer families. The scheme is a Central Sector Scheme with 100% funding by the Government of India.

**Q36. Which of the following viral diseases is associated with yellowish discoloration of the cephalothorax in cultured shrimp?**
A. White Spot Disease
B. Yellow Head Disease
C. Taura Syndrome
D. Infectious Myonecrosis
E. Infectious Hypodermal and Hematopoietic Necrosis
**S36. Ans. (B)**
**Explanation:**
Yellow Head Disease (YHD) is caused by **Yellow Head Virus (YHV)**. Infected shrimp characteristically show yellowish or bleached discoloration of the cephalothorax. YHV is an enveloped, positive-sense single-stranded RNA virus.
**Information Booster:**
Other important viral diseases of shrimp include White Spot Disease, Taura Syndrome, Infectious Myonecrosis and IHHN.

**Q37. What is the primary function of RNA interference (RNAi) in the context of disease management in shrimp aquaculture?**
A. Increasing protein synthesis
B. Enhancing viral replication
C. Specific silencing of target gene expression
D. Increasing mutation frequency
E. Preventing DNA replication
**S37. Ans. (C)**
**Explanation:**
RNA interference is a **sequence-specific gene-silencing mechanism** in which double-stranded RNA can trigger degradation or suppression of complementary RNA, thereby reducing expression of the target gene. In shrimp aquaculture, RNAi has been investigated for suppressing viral genes and reducing viral replication.
**Information Booster:**
Important components of the RNAi pathway include **Dicer and Argonaute (Ago)** proteins.

**Q38. Cooperative marketing has been particularly successful and widely developed in which of the following sectors in India?**

A. Dairy
B. Pulses
C. Oilseeds
D. Plantation crops
E. Medicinal plants

**S38. Ans. (A)**

**Explanation:**

The **dairy sector** is one of the most prominent examples of successful cooperative organisation and marketing in India. Dairy cooperatives aggregate milk from producers, provide associated services and facilitate collective marketing, helping farmers obtain better market access. The Ministry of Cooperation reports a large network of primary dairy cooperatives across the country.

**Information Booster:**

The cooperative dairy movement in India is strongly associated with the **White Revolution and Operation Flood**.

**Q39. Why is it risky to rely on the sight, smell, or taste of raw or improperly handled milk to determine whether it is safe for consumption?**

A. Pathogens always cause milk to instantly curdle and change colour.
B. Milk completely loses its natural odour whenever harmful bacteria are introduced.
C. Harmful pathogens can contaminate milk and cause severe foodborne illness without altering its appearance, smell, or taste.
D. Pathogens only reduce the vitamin content of milk rather than posing any threat of infection.
E. None of these

**S39. Ans. (C)**

**Explanation:**

Harmful pathogens such as *Salmonella*, *E. coli*, *Listeria* and *Campylobacter* can contaminate raw milk without producing detectable changes in its **appearance, smell or taste**. Therefore, sensory evaluation cannot be considered a reliable method for determining microbiological safety.

**Information Booster:**

Pasteurization is used to destroy disease-causing microorganisms in milk and is a key milk-safety measure.

**Q40. Peat soils are generally characterized by a high content of which of the following nutrients?**

A. Nitrogen (N)
B. Copper (Cu)
C. Phosphorus (P)
D. Magnesium (Mg)
E. Potassium (K)

**S40. Ans. (A)**

**Explanation:**

Peat soils are rich in **organic matter**, which results from the accumulation and partial decomposition of plant residues under waterlogged conditions. Consequently, they generally contain a relatively high amount of **nitrogen (N)**.

**Information Booster:**

Peat soils are commonly associated with **waterlogged conditions, high organic-matter content and poor decomposition** due to limited oxygen availability.

**Q41. What is the approximate sulphur (S) content in Single Super Phosphate (SSP)?**
**A. 4%**
**B. 6%**
**C. 8%**
**D. 11%**
**E. 16%**
**S41. Ans. (D)**
**Explanation:**
Single Super Phosphate (SSP) is commonly represented by the grade 0-16-0-11, indicating approximately 16% $P_2O_5$ and 11% sulphur.
**Information Booster:**
SSP is a phosphatic fertilizer that also supplies sulphur, making it particularly useful in sulphur-deficient soils.

**Q42. Which plant hormone plays a major role in the physiological response of plants to drought stress by promoting stomatal closure?**
A. Auxin
B. Gibberellin
C. Cytokinin
D. Abscisic acid
E. Ethylene
**S42. Ans. (D)**
**Explanation:**
**Abscisic acid (ABA)** is a major stress hormone involved in drought response. Under water-deficit conditions, ABA promotes **stomatal closure**, thereby reducing transpiration and conserving water.
**Information Booster:**
ABA is also involved in **seed dormancy, seed maturation and responses to various abiotic stresses**.

**Q43. Which breeding technique can produce completely homozygous lines in a single generation?**
A. Mass selection
B. Bulk method
C. Single-seed descent
D. Doubled haploid technique
E. Recurrent selection
**S43. Ans. (D)**
**Explanation:**
The **doubled haploid (DH) technique** can produce completely homozygous or near-100% homozygous lines in a single generation. Haploid plants are first produced and their chromosomes are subsequently doubled to restore fertility and create homozygous diploid lines.
**Information Booster:**

The doubled haploid method is particularly useful in plant breeding because it **significantly shortens the time required to develop genetically fixed pure lines**.

**Q44. Which of the following is an example of a crop variety developed through interspecific hybridization and subsequently used for genetic improvement through GM technology?**
A. H4 cotton
B. IR8 rice
C. Sonalika wheat
D. Kalyan Sona wheat
E. Jaya rice
**S44. Ans. (A)**
**Explanation:**
**H4 cotton** is an important Indian cotton variety developed through **interspecific hybridization**, involving *Gossypium hirsutum* and *G. arboreum*. It is an important example in cotton breeding history.
**Information Booster:**
Interspecific hybridization involves crossing **two different species within the same genus** to combine desirable traits.

**Q45. Which chemical is most commonly used for inducing polyploidy in plants?**
A. Ethyl methanesulfonate (EMS)
B. Colchicine
C. Maleic hydrazide
D. Sodium azide
E. Gibberellic acid
**S45. Ans. (B)**
**Explanation:**
**Colchicine** is widely used as a chemical polyploidizing agent. It disrupts spindle formation during cell division, preventing chromosome separation and thereby resulting in chromosome doubling.
**Information Booster:**
**EMS** is primarily used as a **chemical mutagen** to induce gene mutations rather than as the standard chemical for chromosome doubling.

**Q46. At approximately which storage temperature can the shelf life of many perishable foods be substantially extended compared with storage at higher temperatures?**
A. 2°C
B. 4°C
C. 8°C
D. 10°C
E. 15°C
**S46. Ans. (B)**
**Explanation:**

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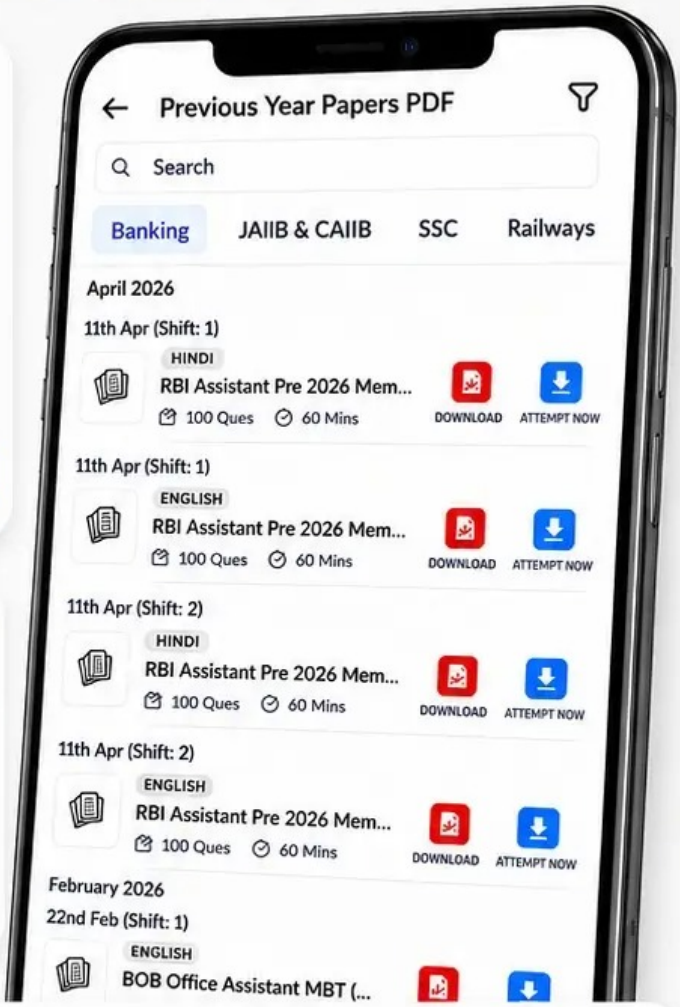
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**READ THEIR STORIES !**

A temperature of around **4°C** is commonly used for refrigerated storage of perishable foods. Lowering the temperature slows the growth of many spoilage microorganisms and reduces the rate of chemical and enzymatic deterioration, thereby extending shelf life.

**Information Booster:**

The exact temperature required to **double the shelf life** is food-specific; therefore, the 4°C answer should be understood as a general refrigeration principle rather than a universal rule for every food product.

**Q47. In agroforestry, approximately what moisture content is generally present in freshly harvested wood on a wet-weight basis?**

A. 10–15%
B. 20–25%
C. 30–35%
D. 45–50%
E. 60–65%

**S47. Ans. (D)**

**Explanation:**

Freshly harvested wood generally contains a substantial amount of moisture. A moisture content of approximately **45–50% on a wet-weight basis** is commonly used as a general reference for green wood, although the actual value varies with species and growing conditions.

**Information Booster:**

Wood moisture content is an important factor affecting its **weight, drying behaviour, storage, processing and fuel value**.

**Q48. Tripura Queen, a GI-tagged variety of which fruit, is associated with Tripura?**

A. Mango
B. Pineapple
C. Banana
D. Papaya
E. Guava

**S48. Ans. (B)**

**Explanation:**

Tripura Queen Pineapple is a GI-tagged agricultural product of Tripura. It is known for its sweet taste, golden-yellow colour, distinctive aroma and low fibre content. The variety received GI recognition in 2018.

**Information Booster:**

Tripura is particularly known for its **Queen and Kew varieties of pineapple**. The Queen Pineapple is also the state fruit of Tripura.

These are **memory-based questions** prepared on the basis of feedback and recollections shared by candidates who appeared for the examination. Therefore, the **wording, sequence, options, or presentation of the questions may differ from the exact questions asked in the actual examination**.

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