

## 3 Plant Genetic Resources ICAR SEPT 2022

Topic:- GEN KNOW COMMON PHD

1) Colour of the tag used on certified seed bags is[Question ID = 16958][Question Description = 101\_221\_GKD\_SEP22\_Q01]

1. Blue [Option ID = 37829]
2. Purple [Option ID = 37830]
3. White [Option ID = 37831]
4. Golden Yellow [Option ID = 37832]

2) Following are the statements regarding the Usar soil -

- A. It is reclaimed by adding lime.
- B. This soil has pH more than seven.
- C. Paddy crop can be grown in this soil.

Choose the *correct* answer from the options given below:

[Question ID = 16959][Question Description = 102\_221\_GKD\_SEP22\_Q02]

1. A and B only [Option ID = 37833]
2. B and C only [Option ID = 37834]
3. C only [Option ID = 37835]
4. A only [Option ID = 37836]

3) When total utility of a commodity increases, marginal utility will be

[Question ID = 16960][Question Description = 103\_221\_GKD\_SEP22\_Q03]

1. Negative but increasing  
[Option ID = 37837]
2. Positive but decreasing  
[Option ID = 37838]
3. Constant  
[Option ID = 37839]
4. Either positive or negative  
[Option ID = 37840]

4) Where is the headquarter of International Fund for Agriculture Development located?

[Question ID = 16961][Question Description = 104\_221\_GKD\_SEP22\_Q04]

1. Vienna, Austria  
[Option ID = 37841]
2. Rome, Italy  
[Option ID = 37842]
3. New York, USA  
[Option ID = 37843]
4. Berlin, Germany  
[Option ID = 37844]

5) Mid-Oceanic Ridges are one of the important divisions of the ocean floor. In this respect, point out the incorrect statement regarding the 'Mid-Oceanic Ridges'. [Question ID = 16962][Question Description = 105\_221\_GKD\_SEP22\_Q05]

1. It is the largest mountain chain on the surface of the earth [Option ID = 37845]
2. It is a series of interconnected chain within the ocean. [Option ID = 37846]
3. It is characterised by a central rift system [Option ID = 37847]
4. The rift system at the crest is the zone of very low volcanic activity. [Option ID = 37848]

6) Consider the following facts about the union territory of India and point out the one which is incorrect in relation to union territory. [Question ID = 16963][Question Description = 106\_221\_GKD\_SEP22\_Q06]

1. These are the areas under the direct control of central government. [Option ID = 37849]
2. Also known as the 'centrally administered territories. [Option ID = 37850]

3. These territories constitute a conspicuous departure from the unitary feature of India. [Option ID = 37851]
4. There is no uniformity in their administrative systems. [Option ID = 37852]

**7) Variety of flora and fauna are found in the different types of forest in India. In this regard, species of trees like teak, *sal shisham*, *sandalwood*, etc. are found in which of the following type of forests in India?**[Question ID = 16964][Question Description = 107\_221\_GKD\_SEP22\_Q07]

1. Tropical evergreen forests [Option ID = 37853]
2. Tropical thorn forests [Option ID = 37854]
3. Tropical deciduous forests [Option ID = 37855]
4. Montane forests [Option ID = 37856]

**8) The Marginal Preference Theory of consumption behaviour was proposed by**

**[Question ID = 16965][Question Description = 108\_221\_GKD\_SEP22\_Q08]**

1. Armstrong  
[Option ID = 37857]
2. J.K.Hicks  
[Option ID = 37858]
3. Neumann  
[Option ID = 37859]
4. Edmund Cannon  
[Option ID = 37860]

**9) Point out the incorrect statements regarding the service sector in India.**[Question ID = 16966][Question Description = 109\_221\_GKD\_SEP22\_Q09]

1. It is the highest contributor to GDP [Option ID = 37861]
2. It requires skilled labour [Option ID = 37862]
3. It is the fastest growing sector [Option ID = 37863]
4. It is restricted to very few sectors. [Option ID = 37864]

**10) Consider the statements regarding the agriculture sector in India and point out the incorrect statement.**[Question ID = 16967][Question Description = 110\_221\_GKD\_SEP22\_Q10]

1. Agriculture sector is the largest employer of workforce [Option ID = 37865]
2. It has contributed to the Gross Value Added (GVA) [Option ID = 37866]
3. Growth in allied sectors is the major drivers of overall growth in the sector. [Option ID = 37867]
4. Minimum Support Price (MSP) policy is used as to promote crop uniformity. [Option ID = 37868]

**11) In case of related goods, the cross elasticity of demand is**[Question ID = 16968][Question Description = 111\_221\_GKD\_SEP22\_Q11]

1. Low [Option ID = 37869]
2. High [Option ID = 37870]
3. Zero [Option ID = 37871]
4. Unity [Option ID = 37872]

**12) With reference to organic farming in India, consider the following statements :**

- A. The National Programme for Organic Production' (NPOP) is operated under the guidelines and directions of the Union Ministry of Rural Development.
- B. The Agricultural and Processed Food Products Export Development Authority' (APEDA) functions as the Secretariat for the implementation of NPOP.
- C. Sikkim has become India's first fully organic state.

Choose the *correct* answer from the options given below:

**[Question ID = 16969][Question Description = 112\_221\_GKD\_SEP22\_Q12]**

1. A and B only  
[Option ID = 37873]
2. B and C only  
[Option ID = 37874]
3. C only  
[Option ID = 37875]
4. A, B and C

[Option ID = 37876]

13) With reference to the circumstances in Indian agriculture, the concept of "Conservation Agriculture" assumes significance. Which of the following falls under the Conservation Agriculture ?

- A. Avoiding the monoculture practices.
- B. Adopting minimum tillage.
- C. Avoiding the cultivation of plantation crops.
- D. Using crop residues to cover soil surface.
- E. Adopting spatial and temporal crop sequencing/ crop rotations.

Choose the *correct* answer from the options given below:

[Question ID = 16970][Question Description = 113\_221\_GKD\_SEP22\_Q13]

- 1. A, C and D only [Option ID = 37877]
- 2. B, C, D and E only [Option ID = 37878]
- 3. B, D and E only [Option ID = 37879]
- 4. A, B, C and E only [Option ID = 37880]

14) Consumers are likely to get a variety of goods in which kind of market competition[Question ID = 16971][Question Description = 114\_221\_GKD\_SEP22\_Q14]

- 1. Monopoly [Option ID = 37881]
- 2. Duopoly [Option ID = 37882]
- 3. Oligopoly [Option ID = 37883]
- 4. Monopolistic [Option ID = 37884]

15) What is the correct chronological order of the following laws enacted for the conservation and protection of environment ?

- A. Environment (Protection) Act.
- B. Water (Prevention & Control of Pollution) Act.
- C. Air (Prevention & Control of pollution) Act.
- D. National Green Tribunal Act.

Choose the *correct* answer from the options given below:

[Question ID = 16972][Question Description = 115\_221\_GKD\_SEP22\_Q15]

- 1. B, C, A, D [Option ID = 37885]
- 2. A, B, C, D [Option ID = 37886]
- 3. C, B, A, D [Option ID = 37887]
- 4. D, C, B, A [Option ID = 37888]

16) The scientific study of soil is[Question ID = 16973][Question Description = 116\_221\_GKD\_SEP22\_Q16]

- 1. Earth Study [Option ID = 37889]
- 2. Soil Science [Option ID = 37890]
- 3. Pedology [Option ID = 37891]
- 4. Soil Chemistry [Option ID = 37892]

17) *Triticum aestivum*, the common bread wheat is -

[Question ID = 16974][Question Description = 117\_221\_GKD\_SEP22\_Q17]

- 1. Tetraploid

[Option ID = 37893]

- 2. Hexaploid

[Option ID = 37894]

- 3. Haploid

[Option ID = 37895]

- 4. Diploid

[Option ID = 37896]

18) Sectoral inflation refers to[Question ID = 16975][Question Description = 118\_221\_GKD\_SEP22\_Q18]

- 1. Running inflation [Option ID = 37897]

2. Comprehensive inflation [Option ID = 37898]
3. Sporadic inflation [Option ID = 37899]
4. Creeping inflation [Option ID = 37900]

**19) Keynes Liquidity trap refers to[Question ID = 16976][Question Description = 119\_221\_GKD\_SEP22\_Q19]**

1. Speculative demand for money [Option ID = 37901]
2. Transactions motive of money is inelastic [Option ID = 37902]
3. Precautionary motive of money is inelastic [Option ID = 37903]
4. Transactions motive of money is constant [Option ID = 37904]

**20) A business is solvent if[Question ID = 16977][Question Description = 120\_221\_GKD\_SEP22\_Q20]**

1. Total receipts exceed total expenditures [Option ID = 37905]
2. Total debt exceeds total equity [Option ID = 37906]
3. Total sales exceed total cash expense [Option ID = 37907]
4. Total assets exceed total liabilities [Option ID = 37908]

Topic:- Crop Sc 1\_PHD

**1) Given below are two statements**

**Statement I: SDN-2 involves a template-guided repair of a targeted DNA break using an externally supplied template sequence.**

**Statement II: SDN-3 Involves a template-guided repair of a targeted DNA break using a sequence template, typically double-stranded DNA containing an entire gene or an even longer genetic element(s).**

**In light of the above statements, choose the *correct* answer from the options given below**

**[Question ID = 2401][Question Description = 101\_45\_CRS\_SEP22\_Q01]**

1. Both Statement I and Statement II are true [Option ID = 9601]
2. Both Statement I and Statement II are false [Option ID = 9602]
3. Statement I is true but Statement II is false [Option ID = 9603]
4. Statement I is false but Statement II is true [Option ID = 9604]

**2) Visible manifestations of crossing over is called:**

**[Question ID = 2402][Question Description = 102\_45\_CRS\_SEP22\_Q02]**

1. Chiasmata  
[Option ID = 9605]
2. Dyad  
[Option ID = 9606]
3. Tetrad  
[Option ID = 9607]
4. Synaptonemal complex  
[Option ID = 9608]

**3) A population-based approach which is used to identify marker-trait associations (MTA) by exploiting linkage disequilibrium is called:**

**[Question ID = 2403][Question Description = 103\_45\_CRS\_SEP22\_Q03]**

1. Recombination mapping  
[Option ID = 9609]
2. Association mapping  
[Option ID = 9610]
3. Genome mapping  
[Option ID = 9611]
4. Transcriptome mapping  
[Option ID = 9612]

**4) The class of RNA which is evolutionarily conserved, time, order and tissue specific are called:**

**[Question ID = 2404][Question Description = 104\_45\_CRS\_SEP22\_Q04]**

1. siRNA  
[Option ID = 9613]

2. lncRNA

[Option ID = 9614]

3. miRNA

[Option ID = 9615]

4. Piwi-interacting RNA

[Option ID = 9616]

5) 'Hidden hunger' is also known as:

[Question ID = 2405][Question Description = 105\_45\_CRS\_SEP22\_Q05]

1. Invisible malnutrition

[Option ID = 9617]

2. Concealed malnutrition

[Option ID = 9618]

3. Micronutrient malnutrition

[Option ID = 9619]

4. Zero malnutrition

[Option ID = 9620]

6) Match List I with List II

| List I            | List II                       |
|-------------------|-------------------------------|
| Common name       | Botanical name                |
| A. Finger millet  | I. <i>Panicum sumatrense</i>  |
| B. Little millet  | II. <i>Panicum miliaceum</i>  |
| C. Foxtail millet | III. <i>Eleusine coracana</i> |
| D. Proso millet   | IV. <i>Setaria italica</i>    |

Choose the correct answer from the options given below:

[Question ID = 2406][Question Description = 106\_45\_CRS\_SEP22\_Q06]

1. A - III, B - I, C - IV, D - II [Option ID = 9621]

2. A - III, B - II, C - IV, D - I [Option ID = 9622]

3. A - II, B - I, C - IV, D - III [Option ID = 9623]

4. A - I, B - III, C - IV, D - II [Option ID = 9624]

7) The Protection of Plant Variety and Farmers Right Act, 2001 (PPVFR Act) is an Act of the Parliament of India that was enacted to provide for the establishment of an effective system for protection of ?

[Question ID = 2407][Question Description = 107\_45\_CRS\_SEP22\_Q07]

1. to all forms of intellectual properties.

[Option ID = 9625]

2. to all forms of publication.

[Option ID = 9626]

3. to plant breeders, researchers and farmers who have developed any new plant varieties and not on the extant plant varieties developed.

[Option ID = 9627]

4. to plant breeders, researchers and farmers who have developed any new or extant plant varieties.

[Option ID = 9628]

8) What is the probability of having three girl children by any parent?

[Question ID = 2408][Question Description = 108\_45\_CRS\_SEP22\_Q08]

1.  $1/2$  [Option ID = 9629]

2.  $1/8$  [Option ID = 9630]

3.  $1/4$  [Option ID = 9631]

4.  $3/8$  [Option ID = 9632]

9) Randomization, replication, and local control are considered as the basic principles of:

[Question ID = 2409][Question Description = 109\_45\_CRS\_SEP22\_Q09]

1. Experimental design

[Option ID = 9633]

2. Experimental planning

[Option ID = 9634]

3. Experimental scheduling

[Option ID = 9635]

4. Experimental forecasting

[Option ID = 9636]

10) Mendel crossed pea plants that were yellow seeded (homozygous) with plants of green seed (homozygous). What was/were the phenotype of the seeds on selfed F<sub>1</sub> plants?

[Question ID = 2410][Question Description = 110\_45\_CRG\_SEP22\_Q10]

1. Yellow [Option ID = 9637]

2. Green [Option ID = 9638]

3. 3 Yellow : 1 Green [Option ID = 9639]

4. 1 Yellow : 3 Green [Option ID = 9640]

11) In mitosis, the decondensation of the chromosomes and the restoration of the internal organelles are characteristic of the:

[Question ID = 2411][Question Description = 111\_45\_CRG\_SEP22\_Q11]

1. Anaphase

[Option ID = 9641]

2. Telophase

[Option ID = 9642]

3. Interphase

[Option ID = 9643]

4. Prophase

[Option ID = 9644]

12) The DNA sequences which have been seen to exist in a left-handed, double-helical form are:

[Question ID = 2412][Question Description = 112\_45\_CRG\_SEP22\_Q12]

1. A DNA

[Option ID = 9645]

2. B DNA

[Option ID = 9646]

3. C DNA

[Option ID = 9647]

4. Z DNA

[Option ID = 9648]

13) Match List I with List II

| List I       | List II           |
|--------------|-------------------|
| Crop         | Sequenced         |
| A. Rice      | I. Chinese Spring |
| B. Wheat     | II. Nipponbare    |
| C. Maize     | III. Asha         |
| D. Chick pea | IV. B73           |
| E. Pigeonpea | V. CDC Frontier   |

Choose the correct answer from the options given below:

[Question ID = 2413][Question Description = 113\_45\_CRG\_SEP22\_Q13]

1. A - II, B - IV, C - III, D - V, E - I [Option ID = 9649]

2. A - II, B - I, C - IV, D - V, E - III [Option ID = 9650]

3. A - III, B - I, C - II, D - V, E - IV [Option ID = 9651]

4. A - II, B - III, C - I, D - V, E - IV [Option ID = 9652]

14) The genomic constitution of bread wheat is:

[Question ID = 2414][Question Description = 114\_45\_CRG\_SEP22\_Q14]

1. AABBCC

[Option ID = 9653]

2. AABDD

[Option ID = 9654]

3. AABB

[Option ID = 9655]

4. AABGG

[Option ID = 9656]

15) Given below are two statements

Statement I: RNA polymerase III catalyzes the synthesis of the transfer RNA molecules in eukaryotes

Statement II: It also catalyzes the synthesis of the 5S rRNA molecules in eukaryotes

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 2415][Question Description = 115\_45\_CRIS\_SEP22\_Q15]

1. Both Statement I and Statement II are correct [Option ID = 9657]
2. Both Statement I and Statement II are incorrect [Option ID = 9658]
3. Statement I is correct but Statement II is incorrect [Option ID = 9659]
4. Statement I is incorrect but Statement II is correct [Option ID = 9660]

16) Which of the given hybrid is modified threeway cross:

[Question ID = 2416][Question Description = 116\_45\_CRIS\_SEP22\_Q16]

1. [(A x B) X (C x C')]  
[Option ID = 9661]
2. [(A x B) x C]  
[Option ID = 9662]
3. [(A x A') x B]  
[Option ID = 9663]
4. [(A x B) X (C x D)]  
[Option ID = 9664]

17) Triticale was developed by crossing of [Question ID = 2417][Question Description = 117\_45\_CRIS\_SEP22\_Q17]

1. *Triticum durum* and *Aegilops tauchii* followed by chromosome doubling [Option ID = 9665]
2. *Triticum durum* and *Secale cereale* followed by chromosome doubling [Option ID = 9666]
3. *Triticum durum* and *Aegilops uratu* followed by chromosome doubling [Option ID = 9667]
4. Both 1 and 2 [Option ID = 9668]

18) Pusa RH10 is a single cross hybrid of

[Question ID = 2418][Question Description = 118\_45\_CRIS\_SEP22\_Q18]

1. Maize [Option ID = 9669]
2. Rice [Option ID = 9670]
3. Wheat [Option ID = 9671]
4. Mustard [Option ID = 9672]

19) Certified class of seed under the Indian Seeds Act

- A. Certified Seed
- B. Foundation Seed
- C. Breeder Seed
- D. Nucleus Seed
- E. TL seed

Choose the *correct* answer from the options given below:

[Question ID = 2419][Question Description = 119\_45\_CRIS\_SEP22\_Q19]

1. A and B only [Option ID = 9673]
2. A, B and C only [Option ID = 9674]
3. A, B, C and D only [Option ID = 9675]
4. A, B, C, D and E [Option ID = 9676]

20) What is the working sample size for Thousand-Seed Weight (TSW) determination by ISTA procedure - 'Counting replicates'.

[Question ID = 2420][Question Description = 120\_45\_CRS\_SEP22\_Q20]

1. 100 seeds in four replicates

[Option ID = 9677]

2. 100 seeds in six replicates

[Option ID = 9678]

3. 100 seeds in eight replicates

[Option ID = 9679]

4. 100 seeds in ten replicates

[Option ID = 9680]

21) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R  
Assertion A : Some times, in CGMS based hybrid, nearly 40-50% of the F<sub>1</sub> plants are found to be male sterile.

Reason R : During nucleus seed production of R line of the CGMS based hybrid, progeny testing is done to ensure the homozygosity of the restorer gene.

In light of the above statements, choose the *correct* answer from the options given below

[Question ID = 2421][Question Description = 121\_45\_CRS\_SEP22\_Q21]

1. Both A and R are true and R is the correct explanation of A [Option ID = 9681]

2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 9682]

3. A is true but R is false [Option ID = 9683]

4. A is false but R is true [Option ID = 9684]

22) Foundation seed of female parent and certified seed of hybrid CANNOT be produced in the same season and location even by providing suitable isolation distance in

[Question ID = 2422][Question Description = 122\_45\_CRS\_SEP22\_Q22]

1. CGMS based hybrid [Option ID = 9685]

2. GMS based hybrid [Option ID = 9686]

3. PGMS based hybrid [Option ID = 9687]

4. Petunia hybrid [Option ID = 9688]

23) Hygroscopic epidermis of the seed coat, which becomes mucilaginous during seed imbibition is present in:

[Question ID = 2423][Question Description = 123\_45\_CRS\_SEP22\_Q23]

1. Marigold

[Option ID = 9689]

2. Pomegranate

[Option ID = 9690]

3. Hazelnut

[Option ID = 9691]

4. Flax

[Option ID = 9692]

24) Seed dispersal by reptiles is known as [Question ID = 2424][Question Description = 124\_45\_CRS\_SEP22\_Q24]

1. Amphizoochory [Option ID = 9693]

2. Myrmecochoy [Option ID = 9694]

3. Saurochory [Option ID = 9695]

4. Bovinochory [Option ID = 9696]

25) Match List I with List II

| List I                    | List II                       |
|---------------------------|-------------------------------|
| Seed Processing Equipment | Separation Principle          |
| A. Aspirator              | I. Terminal velocity          |
| B. Roll mill              | II. Surface texture and shape |
| C. Table separator        | III. Specific gravity         |
| D. Dockins seed grader    | IV. Thickness                 |
|                           | V. Length                     |

Choose the correct answer from the options given below:

[Question ID = 2425][Question Description = 125\_45\_CRS\_SEP22\_Q25]

1. A - I, B - III, C - II, D - V [Option ID = 9697]



2. A - V, B - III, C - II, D - IV [Option ID = 9698]
3. A - IV, B - III, C - II, D - V [Option ID = 9699]
4. A - I, B - II, C - III, D - IV [Option ID = 9700]

**26) Processing equipment used to separate cuscuta seeds from alfalfa seeds[Question ID = 2426][Question Description = 126\_45\_CR\_SEP22\_Q26]**

1. Dodder mill [Option ID = 9701]
2. Needle separator [Option ID = 9702]
3. Buckhorn machine [Option ID = 9703]
4. Gravity Separator [Option ID = 9704]

**27) Which among the following is an exclusively seed borne disease**

**[Question ID = 2427][Question Description = 127\_45\_CR\_SEP22\_Q27]**

1. Loose smut of Wheat  
[Option ID = 9705]
2. Blast of Paddy  
[Option ID = 9706]
3. Tikka disease of Groundnut  
[Option ID = 9707]
4. Downy Mildew of Bajra  
[Option ID = 9708]

**28) The causal organism of purple stain of Soybean is a**

- A. Seed borne fungus
- B. Soil borne fungus
- C. Seed borne bacteria
- D. Soil borne bacteria

Choose the *correct* answer from the options given below:

**[Question ID = 2428][Question Description = 128\_45\_CR\_SEP22\_Q28]**

1. C and D only [Option ID = 9709]
2. A and B only [Option ID = 9710]
3. A only [Option ID = 9711]
4. C only [Option ID = 9712]

**29) Match List I with List II**

| List I                      | List II                                |
|-----------------------------|--|
| Scientists                  | Contribution                           |
| A. Roberts E.H.             | I. Intermediate seed storage behaviour |
| B. Ellis R.H.               | II. Controlled deterioration test      |
| C. George Lakon             | III. Seed viability equation           |
| D. Powell A. and Mathews S. | IV. TTZ test                           |
|                             | V. Electrical conductivity test        |

Choose the correct answer from the options given below:

**[Question ID = 2429][Question Description = 129\_45\_CR\_SEP22\_Q29]**

1. A - I, B - III, C - IV, D - V [Option ID = 9713]
2. A - III, B - II, C - IV, D - I [Option ID = 9714]
3. A - III, B - I, C - IV, D - II [Option ID = 9715]
4. A - I, B - IV, C - II, D - V [Option ID = 9716]

**30) The common name of storage pest *Sitotroga cerealella* is:**

**[Question ID = 2430][Question Description = 130\_45\_CR\_SEP22\_Q30]**

1. Rice weevil  
[Option ID = 9717]
2. Lesser grain borer  
[Option ID = 9718]
3. Khapra beetle

[Option ID = 9719]

4. Angoumois grain moth

[Option ID = 9720]

**31) The phenomenon observed in mangrove species where seeds germinate before they are dispersed, but the seedlings do not emerge from the fruit prior to dispersal is called[Question ID = 2431][Question Description = 131\_45\_CRIS\_SEP22\_Q31]**

1. Amphicarp [Option ID = 9721]
2. Geocarp [Option ID = 9722]
3. Cryptovivipary [Option ID = 9723]
4. Pseudovivipary [Option ID = 9724]

**32) Arrange the following crops in the decreasing order of seed longevity under best storage conditions:**

- A. Groundnut
- B. Sorghum
- C. Lettuce
- D. Sunflower
- E. Rice

Choose the *correct* answer from the options given below

**[Question ID = 2432][Question Description = 132\_45\_CRIS\_SEP22\_Q32]**

1. B, A, D, C, E

[Option ID = 9725]

2. A, C, B, E, D

[Option ID = 9726]

3. A, C, D, B, E

[Option ID = 9727]

4. B, E, C, A, D

[Option ID = 9728]

**33) The certificate of registration issued by PPVFRA for an extant variety of paddy shall be valid for a total period (including renewal) of:**

**[Question ID = 2433][Question Description = 133\_45\_CRIS\_SEP22\_Q33]**

1. 15 years from date of registration of variety

[Option ID = 9729]

2. 15 years from date of notification of variety under Seed Act

[Option ID = 9730]

3. 18 years from date of registration of variety

[Option ID = 9731]

4. 18 years from date of notification of variety under Seed Act

[Option ID = 9732]

**34) The International Seed Federation (ISF) has its secretariat headquarters at**

**[Question ID = 2434][Question Description = 134\_45\_CRIS\_SEP22\_Q34]**

1. Thailand [Option ID = 9733]

2. Switzerland [Option ID = 9734]

3. USA [Option ID = 9735]

4. France [Option ID = 9736]

**35) Plant germplasm evaluation as described by ICAR-NBPGR and Bioversity International refers to:[Question ID = 2435][Question Description = 135\_45\_CRIS\_SEP22\_Q35]**

1. The description of germplasm for quantitative or breeder driven traits including yield performance, biotic and abiotic stresses and biochemical traits. [Option ID = 9737]
2. The description of germplasm for all characters essential to identify each accession including DNA sequences and markers [Option ID = 9738]
3. Screening of plant germplasm collection for specific biotic and abiotic stresses as required in a breeding programme. [Option ID = 9739]
4. Characterization of germplasm accessions with high heritability. [Option ID = 9740]

36) A common list of various characteristics and their expression states for a crop help a germplasm curator to classify and manage germplasm accessions in a genetic resources management programme. Such documents are known as:[Question ID = 2436][Question Description = 136\_45\_CRIS\_SEP22\_Q36]

1. Germplasm catalogues [Option ID = 9741]
2. Crop Germplasm descriptors [Option ID = 9742]
3. Genetic resources list [Option ID = 9743]
4. PGR portals [Option ID = 9744]

37) Characterisation and evaluation of germplasm accessions in a gene bank is an essential activity in germplasm curation. The requirement arises due to which of the following reasons:

- A. Promoting germplasm utilization
- B. Estimation of diversity represented in gene bank collections
- C. Identification of gaps in the germplasm collection
- D. Scientific management of germplasm collections

Choose the *correct* answer from the options given below:

[Question ID = 2437][Question Description = 137\_45\_CRIS\_SEP22\_Q37]

1. A, C and D only [Option ID = 9745]
2. A, B and D only [Option ID = 9746]
3. A, B and C only [Option ID = 9747]
4. A, B, C and D [Option ID = 9748]

38) PGR Portal, PGR Map, CWR Portal, PGR Clim, are plant genetic resources informatics related databases from which country?

[Question ID = 2438][Question Description = 138\_45\_CRIS\_SEP22\_Q38]

1. USA  
[Option ID = 9749]
2. ICRISAT, IRRI, CIMMYT  
[Option ID = 9750]
3. AVRDC, Taiwan  
[Option ID = 9751]
4. India  
[Option ID = 9752]

39) Who enumerated the Biological Species Concept?[Question ID = 2439][Question Description = 139\_45\_CRIS\_SEP22\_Q39]

1. Van Valen, 1976 [Option ID = 9753]
2. Mayr, 1970 [Option ID = 9754]
3. Mishler and Brandon, 1987 [Option ID = 9755]
4. Darwin, 1859 [Option ID = 9756]

40) Responsibility for implementation of plant quarantine regulation and the PQ order is with which organization:[Question ID = 2440][Question Description = 140\_45\_CRIS\_SEP22\_Q40]

1. ICAR- National Bureau of Plant Genetic Resources [Option ID = 9757]
2. Indian Council of Agricultural Research, DARE [Option ID = 9758]
3. The Directorate of Plant Protection, Quarantine and Storage (DPPQS) of Ministry of Agriculture and Farmers Welfare [Option ID = 9759]
4. Council of Scientific and Industrial Research [Option ID = 9760]

41) Which of the following statements is incorrect for chromatin:

[Question ID = 2441][Question Description = 141\_45\_CRIS\_SEP22\_Q41]

1. It is a complex of DNA and proteins [Option ID = 9761]
2. It is found in Eukaryotic cells [Option ID = 9762]
3. Composed of an octamer of two sets of 4 histones namely, H2, H3A, H3B and H4 [Option ID = 9763]
4. It is composed of nucleosomes [Option ID = 9764]

42) Which of the following is NOT a gene editing technique?

[Question ID = 2442][Question Description = 142\_45\_CRIS\_SEP22\_Q42]

1. CRISPR-Cas9 [Option ID = 9765]
2. Zinc Finger Nucleases (ZFN) [Option ID = 9766]
3. TALEN [Option ID = 9767]

4. Gene Gun [Option ID = 9768]

43) Which of the following is not correct statement about the 'Plant Genome Saviour Award'

[Question ID = 2443][Question Description = 143\_45\_CRD\_SEP22\_Q43]

1. It is conferred by PPV& FR Authority

[Option ID = 9769]

2. It is given to community of farmers/ farmers community-based organizations

[Option ID = 9770]

3. It is given to farmers who adopt newer crop varieties rapidly

[Option ID = 9771]

4. It is given annually

[Option ID = 9772]

44) Which one of the following plant parts gives rise to perisperm :[Question ID = 2444][Question Description = 144\_45\_CRD\_SEP22\_Q44]

1. Ovary [Option ID = 9773]

2. Persistent nucellus [Option ID = 9774]

3. Synergids [Option ID = 9775]

4. Inner integument [Option ID = 9776]

45) Which one of the following options is not correct in relation to hops, kiwi fruit, tree tomato and sunflower :

[Question ID = 2445][Question Description = 145\_45\_CRD\_SEP22\_Q45]

1. All are relatively new crops for India [Option ID = 9777]

2. All are exotic crops introduced into India [Option ID = 9778]

3. All have been exploited commercially in India [Option ID = 9779]

4. All were unintentionally associated with weed introduction [Option ID = 9780]

46) Which one of the following plant species has been reported to show more than 100 years of seed longevity :

[Question ID = 2446][Question Description = 146\_45\_CRD\_SEP22\_Q46]

1. *Shorea robusta* [Option ID = 9781]

2. *Phoenix sylvestris* [Option ID = 9782]

3. *Azadirachta indica* [Option ID = 9783]

4. *Pongamia pinnata* [Option ID = 9784]

47) Which one of the following would be most preferred/ suitable explant for *in vitro* conservation of a particular genotype :

[Question ID = 2447][Question Description = 147\_45\_CRD\_SEP22\_Q47]

1. Callus [Option ID = 9785]

2. Chimeric tissues [Option ID = 9786]

3. Seeds [Option ID = 9787]

4. Nodal cuttings [Option ID = 9788]

48) In maize seed the food is stored in :

[Question ID = 2448][Question Description = 148\_45\_CRD\_SEP22\_Q48]

1. Endosperm [Option ID = 9789]

2. Aleurone layer [Option ID = 9790]

3. Nucellar tissue [Option ID = 9791]

4. Scutellum [Option ID = 9792]

49) Which of the following is not an example of an aggregate fruit :[Question ID = 2449][Question Description = 149\_45\_CRD\_SEP22\_Q49]

1. *Rubus* spp. [Option ID = 9793]

2. *Ficus* spp. [Option ID = 9794]

3. *Fragaria ananassa* [Option ID = 9795]

4. *Annona* spp. [Option ID = 9796]

50) Characteristics of Non-drying oils are :

A. They are largely glycerides of unsaturated acids such as the oleics

B. They remain in a liquid state when exposed to air

C. They are used in the manufacture of soaps and detergents and as raw materials for other industrial purposes

D. Linseed, safflower, soybean, and tung are oils of this type

Choose the *correct* answer from the options given below:

[Question ID = 2450][Question Description = 150\_45\_CRIS\_SEP22\_Q50]

1. C and D only [Option ID = 9797]
2. A and D only [Option ID = 9798]
3. B and C only [Option ID = 9799]
4. A and B only [Option ID = 9800]

Topic:- 3 Plant Genetic Resources\_PHD

1) Core collections first defined as a limited set of accessions "representing, with a minimum of repetitiveness, the genetic diversity of a crop species and its wild relatives" as a concept was given by?

[Question ID = 2551][Question Description = 101\_44\_EBPG\_SEP22\_Q01]

1. A.H.D. Brown in 1989 [Option ID = 10201]
2. Theo J.L. Van Hintum in 2000 [Option ID = 10202]
3. O.H. Frankel in 1984 [Option ID = 10203]
4. J. Crossa, I.H. DeLacy and S. Taba in 1995 [Option ID = 10204]

2) Indian Gene Bank is resorting to field evaluation of full set of 5000 to 30000 germplasm accessions of different crops in highly limited number of locations with no replications. There are major pitfalls in such a strategy. The most correct reason is:

- A. Large set of diverse germplasm collections collected from different ecologies require varied ecological conditions for their full phenotypic expression.
- B. The field fertility conditions are not uniform for growing out such large number of accessions.
- C. The field experimental designs used are not suitable for field experimentation of such large number of accessions.

Choose the *correct* answer from the options given below:

[Question ID = 2552][Question Description = 102\_44\_EBPG\_SEP22\_Q02]

1. A and B only [Option ID = 10205]
2. B and C only [Option ID = 10206]
3. A and C only [Option ID = 10207]
4. A, B and C [Option ID = 10208]

3) Given below are two statements, one is labelled as Assertion A and the other is labelled as B:

Assertion A : 'Hot spots' are used in germplasm evaluations for the purpose of screening and identification of accessions with tolerance to biotic stresses.

Assertion B : 'Hot spots' are used in germplasm evaluations for the purpose of screening and identification of accessions with tolerance to abiotic stresses

In light of the above statements, choose the *correct* answer from the options given below

[Question ID = 2553][Question Description = 103\_44\_EBPG\_SEP22\_Q03]

1. Both A and B are correct [Option ID = 10209]
2. Both A and B are incorrect [Option ID = 10210]
3. A is incorrect and only B is correct [Option ID = 10211]
4. Only A is correct and B is incorrect [Option ID = 10212]

4) Heterogenous and predominantly homozygous group of individuals in a crop like rice are found in case of:[Question ID = 2554][Question Description = 104\_44\_EBPG\_SEP22\_Q04]

1. Extant pureline varieties [Option ID = 10213]
2. Improved varieties [Option ID = 10214]
3. Landraces and farmers varieties [Option ID = 10215]
4. Hybrids [Option ID = 10216]

5) Pollination control is essential for maintenance and regeneration of germplasm accessions with the ability to cross-bred. Which one of the following statement is incorrect?

[Question ID = 2555][Question Description = 105\_44\_EBPG\_SEP22\_Q05]

1. Self-pollinated crops [Option ID = 10217]
2. Cross pollinated crops [Option ID = 10218]

3. Often-cross pollinated crops [Option ID = 10219]
4. Germplasm with self-incompatibility mechanisms [Option ID = 10220]

**6) One of the efforts for digitisation of information on knowledge on Indian medicinal plants by CSIR-Central Drug Research Institute, Lucknow is:[Question ID = 2556][Question Description = 106\_44\_EBPG\_SEP22\_Q06]**

1. Digital database of indigenous knowledge [Option ID = 10221]
2. Digital Library of Indian Medicine Plants and their Metabolites [Option ID = 10222]
3. PGR Portal [Option ID = 10223]
4. PGR Map [Option ID = 10224]

**7) PGR Clim, an interactive geo-informatics based application that links germplasm accessions to changing climatic regimes such as soil type; AEZ; temperature and rainfall is hosted by:[Question ID = 2557][Question Description = 107\_44\_EBPG\_SEP22\_Q07]**

1. ICRISAT [Option ID = 10225]
2. CIAT [Option ID = 10226]
3. ICAR-NBPGR [Option ID = 10227]
4. IRRRI [Option ID = 10228]

**8) The factors that DO NOT directly influence the sample size while collecting representative genetic diversity in rice landraces:**

**[Question ID = 2558][Question Description = 108\_44\_EBPG\_SEP22\_Q08]**

1. Number of plants sampled per landrace per site [Option ID = 10229]
2. Extent of heterogeneity in the landrace [Option ID = 10230]
3. The original population size [Option ID = 10231]
4. Traditional use of the landrace [Option ID = 10232]

**9) The allele and genotype frequencies remain constant as per Hardy-Weinberg population equilibrium in a population. Which one of the following conditions disturb the equilibrium =**

**[Question ID = 2559][Question Description = 109\_44\_EBPG\_SEP22\_Q09]**

1. Large random mating population [Option ID = 10233]
2. Absence of migration and mutation [Option ID = 10234]
3. Presence of random genetic drift [Option ID = 10235]
4. Equal viability of gametes [Option ID = 10236]

**10) Fragmentation of large habitats and mating of individuals within subgroups result in which one of the following:**

**[Question ID = 2560][Question Description = 110\_44\_EBPG\_SEP22\_Q10]**

1. Population substructure [Option ID = 10237]
2. Speciation [Option ID = 10238]
3. Reduced kinships between individuals from different groups [Option ID = 10239]
4. Increase in frequency of heterozygotes [Option ID = 10240]

**11) Internet Directory for Botany, IDB contains links to a very large number of botanical sites. The most prominent ones are listed below. Which is the incorrect database in the list?**

**[Question ID = 2561][Question Description = 111\_44\_EBPG\_SEP22\_Q11]**

1. Plant chromosome numbers database of Missouri Botanical Garden [Option ID = 10241]
2. Database of aquatic, wetland and invasive plants [Option ID = 10242]
3. International Plant Names Index [Option ID = 10243]
4. PGR Portal [Option ID = 10244]

**12) Given below are two statements regarding - The specific cpDNA genomic regions are recommended for molecular taxonomy and phylogeny studies:**

**Statement I: The uniparental inheritance and lack of recombination make it ideal to trace identity by descent of character states**

**Statement II: Presence of recombination events and higher rates of mutations in the chloroplast genome**

**In light of the above statements, choose the *correct* answer from the options given below**

**[Question ID = 2562][Question Description = 112\_44\_EBPG\_SEP22\_Q12]**

1. Both Statement I and Statement II are true [Option ID = 10245]
2. Both Statement I and Statement II are false [Option ID = 10246]
3. Statement I is true but Statement II is false [Option ID = 10247]
4. Statement I is false but Statement II is true [Option ID = 10248]

**13) The cpDNA regions designated to be suitable for DNA barcoding of plant species:[Question ID = 2563][Question Description = 113\_44\_EBPG\_SEP22\_Q13]**

1. matK and rbcL [Option ID = 10249]
2. trnE-trnF intergenic region [Option ID = 10250]
3. COI, adh [Option ID = 10251]
4. ITS1 and ITS2 [Option ID = 10252]

**14) An account of the plants occurring in a particular area, including keys, descriptions and illustrations is known as: [Question ID = 2564][Question Description = 114\_44\_EBPG\_SEP22\_Q14]**

1. Flora [Option ID = 10253]
2. Checklist [Option ID = 10254]
3. Monograph [Option ID = 10255]
4. Vegetation [Option ID = 10256]

**15) Presence of undifferentiated embryo and absence of or scanty endosperm is characteristic feature of:[Question ID = 2565][Question Description = 115\_44\_EBPG\_SEP22\_Q15]**

1. Orchidales [Option ID = 10257]
2. Arecales [Option ID = 10258]
3. Asperagales [Option ID = 10259]
4. Liliales [Option ID = 10260]

**16) Numerical taxonomic procedures such as UPGMA depend on pairwise coefficients of similarity or distances to draw inferences on species relationships. However, these procedures depend on the principle of:[Question ID = 2566][Question Description = 116\_44\_EBPG\_SEP22\_Q16]**

1. Multivariate analyses [Option ID = 10261]
2. Identity by State [Option ID = 10262]
3. Identity by Descent [Option ID = 10263]
4. Maximum parsimony [Option ID = 10264]

**17) Continuum of character states from wild progenitors to cultivated species and persistence of these wild character states such as fruit dehiscence, indeterminate growth habit, non-synchronized flowering and fruit maturity are indicators of semi-domesticates. One such crop from the Indian sub-continent is:**

**[Question ID = 2567][Question Description = 117\_44\_EBPG\_SEP22\_Q17]**

1. Brinjal  
[Option ID = 10265]
2. Okra  
[Option ID = 10266]
3. Sesame  
[Option ID = 10267]
4. Mungbean  
[Option ID = 10268]

**18) Crops originating in the Indian subcontinent along with their progenitor species:**

**[Question ID = 2568][Question Description = 118\_44\_EBPG\_SEP22\_Q18]**

1. *Sesamum indicum* subsp *malabaricum* - *Sesamum indicum*  
[Option ID = 10269]
2. *Macrotyloma uniflorum* - *Macrotyloma axillare*  
[Option ID = 10270]
3. *Lycopersicon esculentus* - *L. pimpinellifolium*  
[Option ID = 10271]
4. *Abelmoschus caillei*- *Abelmoschus tetraphyllus*  
[Option ID = 10272]

**19) The crops originating in the Indian subcontinent are :**

**[Question ID = 2569][Question Description = 119\_44\_EBPG\_SEP22\_Q19]**

1. Sesame, Okra, Brinjal, Mungbean, Urd bean, Moth bean  
[Option ID = 10273]
2. Sunflower, maize, tomato, chillies, potato, frenchbean  
[Option ID = 10274]

3. Pineapple, Litchi, Apple, Clusterbean, Cabbage, Cauliflower

[Option ID = 10275]

4. Rose, Dahlia, Gerbera, Marigold, Chrysanthemum, Tulip

[Option ID = 10276]

**20) The nomenclature of cultivated plants follows the guidelines from:[Question ID = 2570][Question Description = 120\_44\_EBPG\_SEP22\_Q20]**

1. *ICN* - The International Code of Nomenclature for algae, fungi, and plants [Option ID = 10277]
2. *ICNCP* - International Code for the Nomenclature for Cultivated Plants [Option ID = 10278]
3. *IAPT* - The International Code of Nomenclature for algae, fungi, and plants [Option ID = 10279]
4. *IUCN* - International Union for Conservation of Nature [Option ID = 10280]

**21) Which one of the following activity is NOT a requirement for the import of plant germplasm into the country?**

**[Question ID = 2571][Question Description = 121\_44\_EBPG\_SEP22\_Q21]**

1. Obtaining Import Permit for the material to be imported [Option ID = 10281]
2. Obtaining Phytosanitary Certificate from the exporter country [Option ID = 10282]
3. Pest Risk Analyses based on information is supplied by the country of export [Option ID = 10283]
4. Exemption certificate from PEQ inspection [Option ID = 10284]

**22) Which of the following procedures are used presently for the detection of plant viruses in imported plant germplasm:**

- A. Whole genome sequencing to determine freedom from pathogens
- B. Post-entry quarantine growing to observe for presence of virus expression
- C. Post-entry quarantine inspection (PEQ) at indenter's site
- D. Electron microscopy (EM), ELISA, RT-PCR

Choose the *correct* answer from the options given below:

**[Question ID = 2572][Question Description = 122\_44\_EBPG\_SEP22\_Q22]**

1. B and D only [Option ID = 10285]
2. A and C only [Option ID = 10286]
3. B, C and D only [Option ID = 10287]
4. A, B, C and D [Option ID = 10288]

**23) UG99, TR4 are two of the most recent pathogens that induced scare of invasion into India necessitating surveillance measures to prevent their entry. Which of the two crop do these pathogen are related?**

**[Question ID = 2573][Question Description = 123\_44\_EBPG\_SEP22\_Q23]**

1. Mango and apple

[Option ID = 10289]

2. Rice and maize

[Option ID = 10290]

3. Wheat and banana

[Option ID = 10291]

4. Groundnut and mustard

[Option ID = 10292]

**24) Given below are two statements regarding -**

**Protection of Plant Varieties and Farmer's Rights Authority recognizes use of what type of markers to supplement information from DUS testing for protection of cultivars:**

**Statement I: Simple Sequence Repeats, Single Nucleotide Polymorphisms and RFLP**

**Statement II: Molecular markers with ability to distinguish DUS related QTLs**

**In light of the above statements, choose the *correct* answer from the options given below**

**[Question ID = 2574][Question Description = 124\_44\_EBPG\_SEP22\_Q24]**

1. Both Statement I and Statement II are true [Option ID = 10293]
2. Both Statement I and Statement II are false [Option ID = 10294]
3. Statement I is true but Statement II is false [Option ID = 10295]
4. Statement I is false but Statement II is true [Option ID = 10296]



25) The qualitative and quantitative PCR and real-time PCR assays have been developed to detect 50 events of 14 crops available at ICAR-NBPGR. Out of the list below, in which crops there are no GM varieties available in India so far?

[Question ID = 2575][Question Description = 125\_44\_EBPG\_SEP22\_Q25]

1. Brinjal, cabbage, cauliflower, tomato, cotton [Option ID = 10297]
2. Wheat, maize, mustard, oilseed rape, okra [Option ID = 10298]
3. Papaya, potato, rice, soybean [Option ID = 10299]
4. Mango, Jackfruit, Apple, groundnut [Option ID = 10300]

26) Hindustani Centre of Diversity reportedly comprises of \_\_\_\_\_ number of major and minor crop species of agricultural importance :

[Question ID = 2576][Question Description = 126\_44\_EBPG\_SEP22\_Q26]

1. less than 100 [Option ID = 10301]
2. About 150 [Option ID = 10302]
3. More than 300 [Option ID = 10303]
4. More than 400 [Option ID = 10304]

27) Match the renowned Scientists (A) with their major contribution (B)

| A                  | B  |
|--------------------|--|
| A. Sir J.D. Hooker | I. Plant explorer and geneticist                                     |
| B. G. Watt         | II. Seven volumes of 'Flora of British India'                        |
| C. Dr BP Pal       | III. Books detailing economic plants/ products of India in 1889-1893 |
| D. N.I. Vavilov    | IV. Published 'Agricultural crop origins: Centers and non-Centers    |
| E. J.R. Harlan     | V. Search for New Genes  |

Choose the correct answer from the options given below:

[Question ID = 2577][Question Description = 127\_44\_EBPG\_SEP22\_Q27]

1. A-III, B-I, C-IV, D-II, E-V [Option ID = 10305]
2. A-II, B-III, C-V, D-I, E-IV [Option ID = 10306]
3. A-I, B-II, C-III, D-IV, E-V [Option ID = 10307]
4. A-V, B-IV, C-I, D-II, E-III [Option ID = 10308]

28) Based on the Report of FAO (2010), which one of the following contributions of Plant Genetic Resources (PGR) is incorrect :

[Question ID = 2578][Question Description = 128\_44\_EBPG\_SEP22\_Q28]

1. About 30 species "Feed the World" providing more than 90% of calories or proteins for human nutrition [Option ID = 10309]
2. PGR comprises 40% of species of identified higher plants Worldwide, while the crop plants (cultivated as agricultural or horticultural spp.) cover only about 2.8% of the species [Option ID = 10310]
3. Amongst the total number of species of higher plants identified Worldwide, PGR comprises 80% of species, while the crop plants cover about 20% of the species [Option ID = 10311]
4. Four crops namely rice, wheat, maize and potato supply nearly 60% of plant derived calories and proteins [Option ID = 10312]

29) Which one of the following Institutional mechanisms is NOT associated with effective implementation of Biodiversity Act (BDA) in India :

[Question ID = 2579][Question Description = 129\_44\_EBPG\_SEP22\_Q29]

1. National Biodiversity Authority [Option ID = 10313]
2. Biodiversity Management Committees [Option ID = 10314]
3. Eco-village Committees [Option ID = 10315]
4. State Biodiversity Boards [Option ID = 10316]

30) Online Reporting Tool for countries of the World to submit their Country Reports to FAO for the preparation of Country-driven global assessments of the status of conservation and use of PGRFA is:

[Question ID = 2580][Question Description = 130\_44\_EBPG\_SEP22\_Q30]

1. WIEWS [Option ID = 10317]
2. CITES [Option ID = 10318]
3. CoP [Option ID = 10319]
4. CBD [Option ID = 10320]

31) Which one of the following softwares is NOT useful in GIS related work on PGR :

[Question ID = 2581][Question Description = 131\_44\_EBPG\_SEP22\_Q31]

1. DIVA-GIS [Option ID = 10321]
2. IDRIS [Option ID = 10322]
3. GRIN [Option ID = 10323]
4. Flora Map [Option ID = 10324]

32) Onion, Leek and Garlic all belong to one of the following families :

[Question ID = 2582][Question Description = 132\_44\_EBPG\_SEP22\_Q32]

1. Apiaceae [Option ID = 10325]
2. Alliaceae [Option ID = 10326]
3. Cyperaceae [Option ID = 10327]
4. Liliaceae [Option ID = 10328]

33) Which one of the following statements is NOT correct:

[Question ID = 2583][Question Description = 133\_44\_EBPG\_SEP22\_Q33]

1. The import and export of seeds, plants, plant products and planting materials in India are regulated by the rules and regulations framed under the Destructive Insects and Pests Act (DIP Act) [Option ID = 10329]
2. The import in India of any seed / planting material for research purpose is governed by PQ Order, 2003 [Option ID = 10330]
3. Duly filled Indent in Form 08 for request to import germplasm is to be submitted to Director, NBPGR [Option ID = 10331]
4. Import Permit (IP) in Form PQ 09 is issued by MoEF for facilitating import [Option ID = 10332]

34) Which one of the following regulatory frameworks deal with Biosafety issues related to transboundary trade in products of agricultural biotechnology:[Question ID = 2584][Question Description = 134\_44\_EBPG\_SEP22\_Q34]

1. Nagoya protocol [Option ID = 10333]
2. Cartagena protocol [Option ID = 10334]
3. ABS framework [Option ID = 10335]
4. Ramsar Convention [Option ID = 10336]

35) The Great Bengal Famine of 1942 in India was caused by :

[Question ID = 2585][Question Description = 135\_44\_EBPG\_SEP22\_Q35]

1. Peanut Stripe Virus [Option ID = 10337]
2. Banana Bunchy Top virus [Option ID = 10338]
3. *Helminthosporium oryzae*, brown spot of rice [Option ID = 10339]
4. *Urocystis tritici*, Flag smut of wheat [Option ID = 10340]

36) All the sophisticated techniques used in plants like DAS-ELISA, ISEM, Electron microscopy, DIBA are most useful for accurate detection of :

[Question ID = 2586][Question Description = 136\_44\_EBPG\_SEP22\_Q36]

1. Viruses [Option ID = 10341]
2. Fungi [Option ID = 10342]
3. Insects [Option ID = 10343]
4. Nematodes [Option ID = 10344]

37) Following are the main features/ characteristics of *In situ* conservation, one of which is incorrect :

[Question ID = 2587][Question Description = 137\_44\_EBPG\_SEP22\_Q37]

1. It is done in the original habitats of the species concerned [Option ID = 10345]
2. It is represented in Biosphere reserves, national parks, Gene Sanctuaries and On-farm conservation [Option ID = 10346]
3. It's advantage is that it does not create any new variation with time [Option ID = 10347]
4. It is most beneficial for perennial species which are vegetatively propagated [Option ID = 10348]

38) Following statements pertain to storage conditions, invariably recommended to ensure healthy seed storage with reduced general ageing :

- A. Seeds should be stored at the lowest possible temperature and moisture content to avoid damage to seeds
- B. Seeds should be stored under light conditions
- C. Ensure that pathogens are kept away
- D. Store in airtight containers specifically the intermediate and recalcitrant seeds

Choose the *correct* answer from the options given below:

[Question ID = 2588][Question Description = 138\_44\_EBPG\_SEP22\_Q38]

1. A, B and D only [Option ID = 10349]

2. B, C and D only [Option ID = 10350]
3. A and C only [Option ID = 10351]
4. C and D only [Option ID = 10352]

39) Following are some facts about the global plant germplasm collections conserved in a permafrost bank, one of which is NOT correct :

[Question ID = 2589][Question Description = 139\_44\_EBPG\_SEP22\_Q39]

1. It is named as 'The Svalbard Global Seed Vault' [Option ID = 10353]
2. It was established in 2020 [Option ID = 10354]
3. It is a global security back up of crop diversity [Option ID = 10355]
4. Seed Vault has partial funding from Crop Trust (Formerly the Global Crop Diversity Trust ) for Vault's management [Option ID = 10356]

40) Out of the following crops, which one reportedly has its different species exhibiting different types of seed storage behaviour characteristics (intermediate and recalcitrant) : [Question ID = 2590][Question Description = 140\_44\_EBPG\_SEP22\_Q40]

1. Black pepper [Option ID = 10357]
2. Rubber [Option ID = 10358]
3. Coffee [Option ID = 10359]
4. Coconut [Option ID = 10360]

41) Which one of the following statements/ requirements related to liquid nitrogen cryostorage of germplasm of various types, is NOT correct :

[Question ID = 2591][Question Description = 141\_44\_EBPG\_SEP22\_Q41]

1. Seeds and explants should not be preferably packed in airtight cryocontainers [Option ID = 10361]
2. Germplasm of all the accessions should be stored in replicates instead of storing them in a single cryocontainer [Option ID = 10362]
3. Seeds and explants should be preferably packed in cryocontainers made of polypropylene or aluminum [Option ID = 10363]
4. Inventory/ Holders to hold the cryocontainers should be sturdy made of steel or aluminum [Option ID = 10364]

42) Which one of the following approaches/ criterion, used for checking genetic stability of *in vitro* grown and cryopreserved-regrown plant explants, DOES NOT yield correct information :

[Question ID = 2592][Question Description = 142\_44\_EBPG\_SEP22\_Q42]

1. Phenotypic [Option ID = 10365]
2. Biochemical [Option ID = 10366]
3. Cytological/ molecular level [Option ID = 10367]
4. Microscopic examination of cell organelles [Option ID = 10368]

43) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R

Assertion A : Use of Scanning Electron Microscope (SEM) for studying micro-morphological growth features of *in vitro* conserved and cryopreserved explants while being grown *in vitro*, is appropriate and useful

Reason R : Several of the surface structural features of different parts of plant are known to be conservative and constant and hence SEM is useful

In light of the above statements, choose the correct answer from the options given below

[Question ID = 2593][Question Description = 143\_44\_EBPG\_SEP22\_Q43]

1. Both A and R are true and R is the correct explanation of A [Option ID = 10369]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 10370]
3. A is true but R is false [Option ID = 10371]
4. A is false but R is true [Option ID = 10372]

44) Which one of the following is NOT an Umbelliferous spices:

[Question ID = 2594][Question Description = 144\_44\_EBPG\_SEP22\_Q44]

1. *Coriandrum sativum* [Option ID = 10373]
2. *Trachyspermum ammi* [Option ID = 10374]
3. *Pimenta dioica* [Option ID = 10375]
4. *Ferula asafoetida* [Option ID = 10376]

45) In the following table, match the features of forages and fodder crop species (A) with their origin/ growth characteristics (B) :

| A | B |
|---|---|
|   |   |

|   |  |
|---|--|
| A. <i>Panicum maximum/Megathyrsus maximus</i> | I. Sturdy plant, Poaceae, Indo-China origin, South China is Secondary Centre of diversity used as a fodder and as a minor cereal |
| B. <i>Coix lacryma-jobi</i>                   | II. Annual legume, Kharif crop, grown in arid and semi-arid areas, also a source of gum  |
| C. <i>Cyamopsis tetragonoloba</i>             | III. Rabi fodder crop, succulent, provide fodder over long season, multicut  |
| D. <i>Trifolium alexandrinum</i>              | IV. Non-legume perennial shrub, forage, multicut   |

[Question ID = 2595][Question Description = 145\_44\_EBPG\_SEP22\_Q45]

1. A-IV, B-I, C-II, D-III [Option ID = 10377]
2. A- II, B-III, C-IV, D-I, [Option ID = 10378]
3. A-IV, B-III, C-I, D-II [Option ID = 10379]
4. A-III, B-I, C-IV, D-II [Option ID = 10380]

46) Which one of the following species/ variety/ type is NOT a salt tolerant genotype :

[Question ID = 2596][Question Description = 146\_44\_EBPG\_SEP22\_Q46]

1. Pokkali rice [Option ID = 10381]
2. *Porteresia coarctata* [Option ID = 10382]
3. Nona Bokra rice [Option ID = 10383]
4. Sahbhagi Dhan rice [Option ID = 10384]

47) All of the following, except one, are the New World crops :

[Question ID = 2597][Question Description = 147\_44\_EBPG\_SEP22\_Q47]

1. Maize [Option ID = 10385]
2. Tomato [Option ID = 10386]
3. Cocoa [Option ID = 10387]
4. Brinjal [Option ID = 10388]

48) Perilla oil has reportedly following features and uses, one of which is incorrect :

[Question ID = 2598][Question Description = 148\_44\_EBPG\_SEP22\_Q48]

1. Oil is very rich in Omega-3 fatty acids [Option ID = 10389]
2. It also has high alpha-linolenic acid [Option ID = 10390]
3. It is recommended as a cooking oil [Option ID = 10391]
4. It is recommended as a non cooking oil for salads and dressings [Option ID = 10392]

49) Parboiling of rice is done before milling to have some advantages listed below, one of which is NOT correct:

[Question ID = 2599][Question Description = 149\_44\_EBPG\_SEP22\_Q49]

1. To add nutritive value, as micro-nutrients move from bran to endosperm [Option ID = 10393]
2. To reduce breakage during milling [Option ID = 10394]
3. To change texture of cooked rice [Option ID = 10395]
4. To have a stickier cooked rice [Option ID = 10396]

50) Which one of the following plant genera yield a drug for treatment of hypertension / high blood pressure :

[Question ID = 2600][Question Description = 150\_44\_EBPG\_SEP22\_Q50]

1. *Atropa* sp. [Option ID = 10397]
2. *Zingiber* sp. [Option ID = 10398]
3. *Rauwolfia* sp. [Option ID = 10399]
4. *Digitalis* sp. [Option ID = 10400]