

1 Genetics and Plant Breeding 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 F₁ 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. AAB

[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_CRD_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 three-way cross:

[Question ID = 2416][Question Description = 116_45_CRD_SEP22_Q16]

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

17) Triticale was developed by crossing of [Question ID = 2417][Question Description = 117_45_CRD_SEP22_Q17]

1. *Triticum durum* and *Aegilops tauschii* 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_CRD_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_CRD_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 F₁ 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. Myrmecochochory [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_CRG_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_CRG_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_CRG_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_CRG_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_CRG_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_CRG_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_CRG_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_CR_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_CR_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_CR_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_CR_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_CR_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_CR_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_CR_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_CRS_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:- 1 Genetics and Plant Breeding_PHD

1) During DNA methylation, a methyl group gets added to which carbon of the cytosine ring?

[Question ID = 2451][Question Description = 101_42_GPB_SEP22_Q01]

1. 2nd Carbon [Option ID = 9801]
2. 3rd Carbon [Option ID = 9802]
3. 4th Carbon [Option ID = 9803]
4. 5th Carbon [Option ID = 9804]

2) Given below are two statements

Statement I: Long non-coding RNAs (lncRNAs) are widely expressed and have key roles in gene regulation.

Statement II: Biogenesis of lncRNAs is distinct from that of mRNAs and is linked with their specific subcellular localizations and functions.

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

[Question ID = 2452][Question Description = 102_42_GPB_SEP22_Q02]

1. Both Statement I and Statement II are correct
[Option ID = 9805]
2. Both Statement I and Statement II are incorrect
[Option ID = 9806]
3. Statement I is correct but Statement II is incorrect
[Option ID = 9807]
4. Statement I is incorrect but Statement II is correct
[Option ID = 9808]

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

Assertion A: In blue white selection method, b-galactosidase converts colorless substrate Xgal into a blue product.

Reason R: Cells having b-galactosidase activity produce blue colonies when grown on Xgal.

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

[Question ID = 2453][Question Description = 103_42_GPB_SEP22_Q03]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 9809]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 9810]
3. A is correct but R is not correct [Option ID = 9811]
4. A is not correct but R is correct [Option ID = 9812]

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

Assertion A: Small non-coding RNAs (sncRNAs) are not involved in gene regulation.

Reason R: sncRNAs function through either RNA interference, RNA modification or spliceosomal involvement.

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

[Question ID = 2454][Question Description = 104_42_GPB_SEP22_Q04]

1. Both A and R are correct and R is the correct explanation of A
[Option ID = 9813]
2. Both A and R are correct but R is NOT the correct explanation of A
[Option ID = 9814]
3. A is correct but R is not correct

[Option ID = 9815]

4. A is not correct but R is correct

[Option ID = 9816]

5) Match List I with List II

List I	List II
Parameters/Technology	Developer
A. RFLP	I. D. Botstein
B. Genetic Fingerprinting	II. Alec Jeffreys
C. Polygenes	III. K. Mather
D. Quantitative Trait Loci	IV. H. Gelderman

Choose the correct answer from the options given below:

[Question ID = 2455][Question Description = 105_42_GPB_SEP22_Q05]

1. A - I, B - II, C - III, D - IV [Option ID = 9817]
2. A - I, B - III, C - II, D - IV [Option ID = 9818]
3. A - IV, B - III, C - II, D - I [Option ID = 9819]
4. A - IV, B - II, C - III, D - I [Option ID = 9820]

6) Which of the following are used as mapping populations

- A. F_1
- B. F_2
- C. $F_{2:3}$
- D. Near Isogenic Lines

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

[Question ID = 2456][Question Description = 106_42_GPB_SEP22_Q06]

1. A, B and D only [Option ID = 9821]
2. B, C and D only [Option ID = 9822]
3. A, C and D only [Option ID = 9823]
4. A, B, C and D [Option ID = 9824]

7) Given below are two statements

Statement I: Linkage disequilibrium (LD) may exist between linked or unlinked genes (due to epistatic interaction).

Statement II: Bigger the size of LD block (>100 kb) indicates low rates of recombination in that region.

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

[Question ID = 2457][Question Description = 107_42_GPB_SEP22_Q07]

1. Both Statement I and Statement II are true
[Option ID = 9825]
2. Both Statement I and Statement II are false
[Option ID = 9826]
3. Statement I is true but Statement II is false
[Option ID = 9827]
4. Statement I is false but Statement II is true
[Option ID = 9828]

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

Assertion A: Reverse breeding is a novel breeding tool which is used to generate homozygous parental lines from a hybrid plant through engineered meiosis.

Reason R: Exogenous application of compounds (e.g. mirin) enhances the meiotic recombination.

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

[Question ID = 2458][Question Description = 108_42_GPB_SEP22_Q08]

1. Both A and R are correct and R is the correct explanation of A
[Option ID = 9829]
2. Both A and R are correct but R is NOT the correct explanation of A

[Option ID = 9830]

3. A is correct but R is not correct

[Option ID = 9831]

4. A is not correct but R is correct

[Option ID = 9832]

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

Assertion A: During DNA sequencing multiplexing of samples can be done in one lane or flowcell using barcodes.

Reason R: Phred Quality Score = 20 means, probability of incorrect base call is 1 in 1000.

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

[Question ID = 2459][Question Description = 109_42_GPB_SEP22_Q09]

1. Both A and R are correct and R is the correct explanation of A

[Option ID = 9833]

2. Both A and R are correct but R is NOT the correct explanation of A

[Option ID = 9834]

3. A is correct but R is not correct

[Option ID = 9835]

4. A is not correct but R is correct

[Option ID = 9836]

10) Given below are two statements

Statement I: The term 'biofortification' was coined in the year 2001 by Steve Beebe.

Statement II: Howarth Bouis, Maria Andrade, Robert Mwangi and Jan Low won the World Food Prize-2016 for their work on vitamin A-rich orange-fleshed sweet potato.

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

[Question ID = 2460][Question Description = 110_42_GPB_SEP22_Q10]

1. Both Statement I and Statement II are false

[Option ID = 9837]

2. Both Statement I and Statement II are true

[Option ID = 9838]

3. Statement I is true but Statement II is false

[Option ID = 9839]

4. Statement I is false but Statement II is true

[Option ID = 9840]

11) L4717 is a 'biofortified variety' of which crop

[Question ID = 2461][Question Description = 111_42_GPB_SEP22_Q11]

1. Wheat [Option ID = 9841]

2. Lentil [Option ID = 9842]

3. Rice [Option ID = 9843]

4. Maize [Option ID = 9844]

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

Assertion A : 'Hidden hunger' occurs when people consume foods lacking enough micronutrients such as iron, zinc and vitamin A, which are needed for healthy and productive lives.

Reason R : Micronutrients and vitamins are the class of essential nutrients which are required by human body in very small quantity for the normal growth and development.

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

[Question ID = 2462][Question Description = 112_42_GPB_SEP22_Q12]

1. Both A and R are true and R is the correct explanation of A

[Option ID = 9845]

2. Both A and R are true but R is NOT the correct explanation of A

[Option ID = 9846]

3. A is true but R is false

[Option ID = 9847]

4. A is false but R is true

[Option ID = 9848]

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

Assertion A: Stay-green trait in plants is a physiological adaptation mechanism under salt stress conditions.

Reason R: Stay green trait helps in withstanding chlorophyll loss and maintains photosynthesis levels under high temperature stress.

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

[Question ID = 2463][Question Description = 113_42_GPB_SEP22_Q13]

1. Both A and R are correct and R is the correct explanation of A

[Option ID = 9849]

2. Both A and R are correct but R is NOT the correct explanation of A

[Option ID = 9850]

3. A is correct but R is not correct

[Option ID = 9851]

4. A is not correct but R is correct

[Option ID = 9852]

14) Low molecular weight antibiotic polyphenolic or terpenoid compounds produced by the plant cells are called

[Question ID = 2464][Question Description = 114_42_GPB_SEP22_Q14]

1. Elicitors [Option ID = 9853]
2. Phytoalexins [Option ID = 9854]
3. PR proteins [Option ID = 9855]
4. Enhancers [Option ID = 9856]

15) Match List I with List II

List I	List II
Diseases in paddy	Causal organism
A. Brown spot	I. <i>Ustilagoidea virens</i>
B. Sheath rot	II. <i>Rhizoctonia solani</i>
C. Sheath blight	III. <i>Sarocladium oryzae</i>
D. False smut	IV. <i>Helminthosporium oryzae</i>

Choose the correct answer from the options given below:

[Question ID = 2465][Question Description = 115_42_GPB_SEP22_Q15]

1. A - I, B - II, C - III, D - IV [Option ID = 9857]
2. A - IV, B - III, C - II, D - I [Option ID = 9858]
3. A - IV, B - II, C - III, D - I [Option ID = 9859]
4. A - IV, B - I, C - II, D - III [Option ID = 9860]

16) A cell compatible solute which is known to get accumulated during moisture deficit stress is:

[Question ID = 2466][Question Description = 116_42_GPB_SEP22_Q16]

1. Lysine

[Option ID = 9861]

2. Proline

[Option ID = 9862]

3. Leucine

[Option ID = 9863]

4. Tryptophan

[Option ID = 9864]

17) The gene(s) governing plant height in rice genotype Dee-Geo-Woo-Gen (DGWG) was/were:

[Question ID = 2467][Question Description = 117_42_GPB_SEP22_Q17]

1. rht1

[Option ID = 9865]

2. rht2

[Option ID = 9866]

3. both rht1 and rht2

[Option ID = 9867]

4. sd1

[Option ID = 9868]

18) The first mega variety of India named Jaya was derived from the cross:

[Question ID = 2468][Question Description = 118_42_GPB_SEP22_Q18]

1. TN141 with Type 41

[Option ID = 9869]

2. TN1 with Type 14

[Option ID = 9870]

3. TN1 with Type 41

[Option ID = 9871]

4. TN1 with Type 141

[Option ID = 9872]

19) Pavon, Veery, Bobwhite, Attila and Kaus are the lines, which have been used extensively in the breeding programme of which crop?

[Question ID = 2469][Question Description = 119_42_GPB_SEP22_Q19]

1. Lentil [Option ID = 9873]

2. Barley [Option ID = 9874]

3. Wheat [Option ID = 9875]

4. Maize [Option ID = 9876]

20) Given below are two statements

Statement I: Barnase-Barstar System is a part of GURT (Gene Use Restriction Technologies).

Statement II: India has banned GURT in plant variety registration under PPV&FR Act, 2001.

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

[Question ID = 2470][Question Description = 120_42_GPB_SEP22_Q20]

1. Both Statement I and Statement II are true

[Option ID = 9877]

2. Both Statement I and Statement II are false

[Option ID = 9878]

3. Statement I is true but Statement II is false

[Option ID = 9879]

4. Statement I is false but Statement II is true

[Option ID = 9880]

21) Given below are two statements

Statement I: The focus of Convention of Biodiversity (CBD-1992) was 'Transboundary movement of living modified organisms (LMOs) through internationally acceptable framework'

Statement II: The focus of Cartagena Protocol on Biosafety (CPB-2000) was 'Conservation & sustainable use of biodiversity'

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

[Question ID = 2471][Question Description = 121_42_GPB_SEP22_Q21]

1. Both Statement I and Statement II are correct

[Option ID = 9881]

2. Both Statement I and Statement II are incorrect

[Option ID = 9882]

3. Statement I is correct but Statement II is incorrect

[Option ID = 9883]

4. Statement I is incorrect but Statement II is correct

[Option ID = 9884]

22) The ANOVA or analysis of variance was devised in the year 1918 by:

[Question ID = 2472][Question Description = 122_42_GPB_SEP22_Q22]

1. F.W. Went

[Option ID = 9885]

2. W. S. Gosset

[Option ID = 9886]

3. Karl Pearson

[Option ID = 9887]

4. R. A. Fischer

[Option ID = 9888]

23) A statistical measure of the 'tailedness' of the probability distribution is known as:

[Question ID = 2473][Question Description = 123_42_GPB_SEP22_Q23]

1. Skewness

[Option ID = 9889]

2. Kurtosis

[Option ID = 9890]

3. Normal distribution

[Option ID = 9891]

4. Scedasticity

[Option ID = 9892]

24) For the given cross (*AaBbCCdd* x *AabbCcDd*), what is the probability of getting offspring with the recessive phenotype for all four traits?

[Question ID = 2474][Question Description = 124_42_GPB_SEP22_Q24]

1. 1/64 [Option ID = 9893]

2. 1/32 [Option ID = 9894]

3. 0 [Option ID = 9895]

4. 3/16 [Option ID = 9896]

25) A design that is mostly used for the initial evaluation of a large set of germplasm accessions for the selection of genotypes for various crop breeding purposes.

[Question ID = 2475][Question Description = 125_42_GPB_SEP22_Q25]

1. Augmented block design [Option ID = 9897]

2. Alpha-lattice design [Option ID = 9898]

3. Split-plot design [Option ID = 9899]

4. Honey comb design [Option ID = 9900]

26) The heterosis in F_1 is $H_{F_1} = \Sigma dy^2$. Where the maximum possible value of y can be:

[Question ID = 2476][Question Description = 126_42_GPB_SEP22_Q26]

1. 0

[Option ID = 9901]

2. 0.5

[Option ID = 9902]

3. 1

[Option ID = 9903]

4. ∞

[Option ID = 9904]

27) The Hi-Bred Corn Company was established under the leadership of:

[Question ID = 2477][Question Description = 127_42_GPB_SEP22_Q27]

1. G H Shull

[Option ID = 9905]

2. D F Jones

[Option ID = 9906]

3. H A Wallace

[Option ID = 9907]

4. H K Hayes

[Option ID = 9908]

28) The founder editor of journal "Genetics" published by Genetics Society of America was:

[Question ID = 2478][Question Description = 128_42_GPB_SEP22_Q28]

1. E M East

[Option ID = 9909]

2. G H Shull

[Option ID = 9910]

3. H K Hayes

[Option ID = 9911]

4. D F Jones

[Option ID = 9912]

29) In a single cross hybrid seed production plot of maize, the seed set was found only at the tip of the cob on female lines. The probable reasons could be

Statement I: Too late silking in the female line compared to pollen shedding in the male line

Statement II: Too early silking in female line compared to pollen shedding in the male line

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

[Question ID = 2479][Question Description = 129_42_GPB_SEP22_Q29]

1. Both Statement I and Statement II are true

[Option ID = 9913]

2. Both Statement I and Statement II are false

[Option ID = 9914]

3. Statement I is true but Statement II is false

[Option ID = 9915]

4. Statement I is false but Statement II is true

[Option ID = 9916]

30) A hybrid was developed by crossing the bread wheat and khapli wheat. In the meiosis of the F₁ plant, there will be the formation of:

[Question ID = 2480][Question Description = 130_42_GPB_SEP22_Q30]

1. 14^{II} and 7^I

[Option ID = 9917]

2. 14^I and 7^{II}

[Option ID = 9918]

3. 21^{II}

[Option ID = 9919]

4. 21^I and 7^I

[Option ID = 9920]

31) The domesticated emmer wheat is:

[Question ID = 2481][Question Description = 131_42_GPB_SEP22_Q31]

1. *Triticum turgidum* var. *dicoccum*

[Option ID = 9921]

2. *Triticum turgidum* var. *dicoccoides*

[Option ID = 9922]

3. *Triticum turgidum* var. *durum*

[Option ID = 9923]

4. *Triticum turgidum* var. *polonicum*

[Option ID = 9924]

32) For haploid production using the paternal haploid inducer line, the haploid inducer is used as the:

[Question ID = 2482][Question Description = 132_42_GPB_SEP22_Q32]

1. Female parent

[Option ID = 9925]

2. Male parent

[Option ID = 9926]

3. Bridge parent

[Option ID = 9927]

4. Intermediate parent

[Option ID = 9928]

33) B73, the maize inbred line used in genome sequencing, was developed from:

[Question ID = 2483][Question Description = 133_42_GPB_SEP22_Q33]

1. Iowa Stiff Stalk Synthetic

[Option ID = 9929]

2. Lancaster sure crop

[Option ID = 9930]

3. Leaming Corn

[Option ID = 9931]

4. Mexican Landrace

[Option ID = 9932]

34) "Stock 6" a line of maize known is for:

[Question ID = 2484][Question Description = 134_42_GPB_SEP22_Q34]

1. Paternal haploid production

[Option ID = 9933]

2. Maternal haploid production

[Option ID = 9934]

3. Donor of Provitamin enrichment

[Option ID = 9935]

4. Donor of QPM trait

[Option ID = 9936]

35) The number of all possible four way crosses among a group of 'n' parents is:

[Question ID = 2485][Question Description = 135_42_GPB_SEP22_Q35]

1. $[n(n-1)]/2$

[Option ID = 9937]

2. $[n(n-1)(n-2)]/2$

[Option ID = 9938]

3. $[n(n-1)(n-2)(n-3)]/8$

[Option ID = 9939]

4. $[n(n+1)]/2$

[Option ID = 9940]

36) Number of possible pathogen races differentiated using 5 differential lines using dichotomous system can be:

[Question ID = 2486][Question Description = 136_42_GPB_SEP22_Q36]

1. 25

[Option ID = 9941]

2. 10

[Option ID = 9942]

3. 32

[Option ID = 9943]

4. 5

[Option ID = 9944]

37) How many nullisomics are possible in a plant with chromosome number $2n=20$:

[Question ID = 2487][Question Description = 137_42_GPB_SEP22_Q37]

1. 20

[Option ID = 9945]

2. 10

[Option ID = 9946]

3. 5

[Option ID = 9947]

4. 0

[Option ID = 9948]

38) Given below are two statements

Statement I: Polypeptide chain elongation undergoes termination when any of three chain-termination codons (UAA, UAG, or UGA) enters the A site on the ribosome

Statement II: Polypeptide chain elongation undergoes termination when any of three chain-termination codons (UAA, UAG, or UGA) enters the P site on the ribosome

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

[Question ID = 2488][Question Description = 138_42_GPB_SEP22_Q38]

1. Both Statement I and Statement II are true

[Option ID = 9949]

2. Both Statement I and Statement II are false

[Option ID = 9950]

3. Statement I is true but Statement II is false

[Option ID = 9951]

4. Statement I is false but Statement II is true

[Option ID = 9952]

39) Assertion A : The genetic code for Tryptophan is NOT degenerate

Reason R : As the tryptophan is coded only by UGG

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

[Question ID = 2489][Question Description = 139_42_GPB_SEP22_Q39]

1. Both A and R are correct and R is the correct explanation of A

[Option ID = 9953]

2. Both A and R are correct but R is NOT the correct explanation of A

[Option ID = 9954]

3. A is correct but R is not correct

[Option ID = 9955]

4. A is not correct but R is correct

[Option ID = 9956]

40) The wheat line "Transfer"

Statement I: is an alien translocation line carrying the segment of *Ae. umbellulata*

Statement II: the line was found to carry *Lr24* for leaf rust resistance

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

[Question ID = 2490][Question Description = 140_42_GPB_SEP22_Q40]

1. Both Statement I and Statement II are true [Option ID = 9957]

2. Both Statement I and Statement II are false [Option ID = 9958]

3. Statement I is true but Statement II is false [Option ID = 9959]

4. Statement I is false but Statement II is true [Option ID = 9960]

41) Which statement is NOT true about B chromosome

Statement I: They can be used for chromosome mapping through B-A interchange

Statement II: They always follow Mendelian inheritance

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

[Question ID = 2491][Question Description = 141_42_GPB_SEP22_Q41]

1. Both Statement I and Statement II are true [Option ID = 9961]
2. Both Statement I and Statement II are false [Option ID = 9962]
3. Statement I is true but Statement II is false [Option ID = 9963]
4. Statement I is false but Statement II is true [Option ID = 9964]

42) Genetic advance under selection is NOT dependent on

[Question ID = 2492][Question Description = 142_42_GPB_SEP22_Q42]

1. Extent of phenotypic variability in base population [Option ID = 9965]
2. Heritability of character under selection [Option ID = 9966]
3. Intensity of selection [Option ID = 9967]
4. Extent of genotypic variability in selected progenies [Option ID = 9968]

43) Given below are two statements

Statement I: alkylating agents are mutagenic to both replicating and nonreplicating DNA

Statement II: base analogs are mutagenic only to non-replicating DNA

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

[Question ID = 2493][Question Description = 143_42_GPB_SEP22_Q43]

1. Both Statement I and Statement II are true [Option ID = 9969]
2. Both Statement I and Statement II are false [Option ID = 9970]
3. Statement I is true but Statement II is false [Option ID = 9971]
4. Statement I is false but Statement II is true [Option ID = 9972]

44) If the parents of a cross are differing for n number of genes the size of smallest perfect backcross population will be:

[Question ID = 2494][Question Description = 144_42_GPB_SEP22_Q44]

1. 2^n
[Option ID = 9973]
2. 3^n
[Option ID = 9974]
3. 4^n
[Option ID = 9975]
4. n
[Option ID = 9976]

45) G. J. Mendel is known as the Father of Genetics. He was born on:

[Question ID = 2495][Question Description = 145_42_GPB_SEP22_Q45]

1. July 20, 1722
[Option ID = 9977]
2. July 18, 1822
[Option ID = 9978]
3. July 19, 1822
[Option ID = 9979]
4. July 20, 1822
[Option ID = 9980]

46) What will be the expected frequency of heterozygous individuals in an intervarietal cross of two OPVs of maize having 36/100 and 16/100 individuals of genotype aa:

[Question ID = 2496][Question Description = 146_42_GPB_SEP22_Q46]

1. 52/100
[Option ID = 9981]
2. 48/100

[Option ID = 9982]

3. 24/100

[Option ID = 9983]

4. 36/100

[Option ID = 9984]

47) Which among the following is NOT one of the assumption for Biparental cross analysis?

[Question ID = 2497][Question Description = 147_42_GPB_SEP22_Q47]

1. Absence of multiple allele [Option ID = 9985]
2. Absence of epistasis [Option ID = 9986]
3. Absence of regular diploid segregation [Option ID = 9987]
4. Absence of maternal effect [Option ID = 9988]

48) With minimum available resources, which mating design should be used for Biparental cross-analysis[Question ID = 2498][Question Description = 148_42_GPB_SEP22_Q48]

1. NCD I [Option ID = 9989]
2. NCDII [Option ID = 9990]
3. NCD III [Option ID = 9991]
4. TTC [Option ID = 9992]

49) Pseudo-overdominance results mainly from[Question ID = 2499][Question Description = 149_42_GPB_SEP22_Q49]

1. Coupling phase linkage [Option ID = 9993]
2. Repulsion phase linkage [Option ID = 9994]
3. Additive x additive interaction [Option ID = 9995]
4. Additive x dominance interaction [Option ID = 9996]

50) Match List I with List II

List I	List II
Crop	Primary centre of origin
A. Barley	I. Hindustan
B. Rice	II. Central Asia
C. <i>T. aestivum</i>	III. China
D. Maize	IV. Abyssynian
E. Soybean	V. Central America

Choose the correct answer from the options given below:

[Question ID = 2500][Question Description = 150_42_GPB_SEP22_Q50]

1. A-IV, B-III, C-II, D-V, E-I [Option ID = 9997]
2. A-V, B-I, C-III, D-IV, E-II [Option ID = 9998]
3. A-I, B-IV, C-II, D-V, E-III [Option ID = 9999]
4. A-IV, B-I, C-II, D-V, E-III [Option ID = 10000]