

17 Animal Genetics and 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:- Veterinary and Animal Sciences 1_PHD

1) Which of the following statements is not true about Qualitative traits?[Question ID = 3451][Question Description = 101_60_BVE_SEP22_Q01]

1. Governed by many genes [Option ID = 13801]
2. Less affected by the environment [Option ID = 13802]
3. Traits differ in kind [Option ID = 13803]
4. Shows discontinuous variations [Option ID = 13804]

2) Genetic Cline means[Question ID = 3452][Question Description = 102_60_BVE_SEP22_Q02]

1. Gene frequency is not variable [Option ID = 13805]
2. Single measurement of a character [Option ID = 13806]
3. Discontinuity of a trait in a population [Option ID = 13807]
4. Measurable gradient of phenotype or genotype [Option ID = 13808]

3) Pien niu is the species hybrid obtained from

[Question ID = 3453][Question Description = 103_60_BVE_SEP22_Q03]

1. Mithun X Cow
[Option ID = 13809]
2. Zebra X horse
[Option ID = 13810]
3. Mithun X Buffalo
[Option ID = 13811]
4. Cattle X Yak
[Option ID = 13812]

4) Which of the following is an example of multiple allelism?[Question ID = 3454][Question Description = 104_60_BVE_SEP22_Q04]

1. Eye colour in Drosophila [Option ID = 13813]
2. Pigmented Iris [Option ID = 13814]
3. Ear Lobes [Option ID = 13815]
4. PTC tasting [Option ID = 13816]

5) The mating system in which sire of a pure breed are mated to the females of non - descript type is known as:

[Question ID = 3455][Question Description = 105_60_BVE_SEP22_Q05]

1. Top crossing [Option ID = 13817]
2. Out crossing [Option ID = 13818]
3. Grading up [Option ID = 13819]
4. Species hybridization [Option ID = 13820]

6) National Dairy Development Board (NDDB) has developed a software for monitoring dairy animal productivity & health[Question ID = 3456][Question Description = 106_60_BVE_SEP22_Q06]

1. HERD MAN [Option ID = 13821]
2. INAPH [Option ID = 13822]
3. ANIMAL [Option ID = 13823]
4. WOMBAT [Option ID = 13824]

7) Genetic marker-based selection is quite effective as it shows higher genetic gain for the traits[Question ID = 3457]
[Question Description = 107_60_BVE_SEP22_Q07]

1. Having high heritability [Option ID = 13825]
2. Having moderate heritability [Option ID = 13826]
3. Having low heritability [Option ID = 13827]
4. Having negligible heritability [Option ID = 13828]

8) Who discovered the Chromosome for the first time?[Question ID = 3458][Question Description = 108_60_BVE_SEP22_Q08]

1. Waldeyer [Option ID = 13829]
2. Walther Fleming [Option ID = 13830]
3. Wheler [Option ID = 13831]
4. Watson [Option ID = 13832]

9) The scientific name of Hamster is[Question ID = 3459][Question Description = 109_60_BVE_SEP22_Q09]

1. Langomorphs [Option ID = 13833]
2. Guniea Pig [Option ID = 13834]
3. Cavia porcellus [Option ID = 13835]
4. Cricetinae [Option ID = 13836]

10) Which one of them according to CPCSEA is used for a maintaining a breeding record in laboratory animal[Question ID = 3460][Question Description = 110_60_BVE_SEP22_Q10]

1. Form A [Option ID = 13837]
2. Form B [Option ID = 13838]
3. Form C [Option ID = 13839]
4. Form D [Option ID = 13840]

11) Match List I with List II

List I	List II
(Book/Theory proposed/Characteristic, etc.)	(Author/Thinker/Name of Theory, etc.)
A. Halter and canister	I. Gross energy estimation
B. Bypass fat	II. Biohydrogenation of linoleic acid
C. Bomb calorimeter	III. Protein encapsulation
D. CLA	IV. SF6 technique

Choose the correct answer from the options given below:

[Question ID = 3461][Question Description = 111_60_BVE_SEP22_Q11]

1. A - II, B - I, C - III, D - IV
[Option ID = 13841]
2. A - IV, B - II, C - III, D - I
[Option ID = 13842]
3. A - III, B - II, C - IV, D - I
[Option ID = 13843]
4. A - IV, B - III, C - I, D - II
[Option ID = 13844]

12) The ratio of ME to DE of roughage in ruminant is[Question ID = 3462][Question Description = 112_60_BVE_SEP22_Q12]

1. 0.79 [Option ID = 13845]
2. 0.96 [Option ID = 13846]
3. 0.82 [Option ID = 13847]
4. 0.72 [Option ID = 13848]

13) Quality control of livestock feed in India is regulated by[Question ID = 3463][Question Description = 113_60_BVE_SEP22_Q13]

1. ICAR [Option ID = 13849]

2. BIS [Option ID = 13850]
3. CLFMA [Option ID = 13851]
4. NDDDB [Option ID = 13852]

14) Allotriophagia is caused in cattle due to[Question ID = 3464][Question Description = 114_60_BVE_SEP22_Q14]

1. Calcium deficiency [Option ID = 13853]
2. Phosphorus deficiency [Option ID = 13854]
3. Sodium deficiency [Option ID = 13855]
4. Potassium deficiency [Option ID = 13856]

15) Reference standard used in bomb calorimeter is[Question ID = 3465][Question Description = 115_60_BVE_SEP22_Q15]

1. Benzoic acid [Option ID = 13857]
2. Butyric acid [Option ID = 13858]
3. Oxalic acid [Option ID = 13859]
4. Citric acid [Option ID = 13860]

16) The atmospheric pressure of oxygen required for sample analysis in Bomb calorimeter is[Question ID = 3466][Question Description = 116_60_BVE_SEP22_Q16]

1. 15 [Option ID = 13861]
2. 25 [Option ID = 13862]
3. 35 [Option ID = 13863]
4. 45 [Option ID = 13864]

17) The decreasing order of susceptibility to animal species from Gossypol toxicity is

A.Goat

B.Horse

C. Pig

D.Poultry

Choose the *correct* answer from the options given below

[Question ID = 3467][Question Description = 117_60_BVE_SEP22_Q17]

1. A, B, C, D [Option ID = 13865]
2. D,C,B,A [Option ID = 13866]
3. B,C,D, A [Option ID = 13867]
4. A,D,B,C [Option ID = 13868]

18) Rumen microbes that breaks down the fibrous structure of roughages by penetrating the feed are[Question ID = 3468][Question Description = 118_60_BVE_SEP22_Q18]

1. Bacteria [Option ID = 13869]
2. Archea [Option ID = 13870]
3. Fungi [Option ID = 13871]
4. Protozoa [Option ID = 13872]

19) Surface area law of body heat production was given by[Question ID = 3469][Question Description = 119_60_BVE_SEP22_Q19]

1. O. Kellner [Option ID = 13873]
2. T. B. Osborne [Option ID = 13874]
3. H. H. Mitchell [Option ID = 13875]
4. Max Rubner [Option ID = 13876]

20) The Maillard reaction involves a reaction between[Question ID = 3470][Question Description = 120_60_BVE_SEP22_Q20]

1. ϵ -amino groups of lysine and carbonyl compounds of reducing sugars [Option ID = 13877]
2. ϵ -amino groups of lysine and carbonyl compounds of non-reducing sugars [Option ID = 13878]
3. ϵ -amino groups of arginine and carbonyl compounds of non-reducing sugars [Option ID = 13879]
4. ϵ -amino groups of methionine and carbonyl compounds of non-reducing sugars [Option ID = 13880]

21) According to FAO how many types of livestock management systems are there[Question ID = 3471][Question Description = 121_60_BVE_SEP22_Q21]

1. 3 [Option ID = 13881]
2. 4 [Option ID = 13882]
3. 2 [Option ID = 13883]
4. 5 [Option ID = 13884]

22) The breed of cattle used for the game of *Jalikkattu*[Question ID = 3472][Question Description = 122_60_BVE_SEP22_Q22]

1. Kangayam and Pullikulam [Option ID = 13885]
2. Kangayam and Ponwar [Option ID = 13886]
3. Hallikar and Kangayam [Option ID = 13887]
4. Kangayam and Kankrej [Option ID = 13888]

23) Based on milk production of a cattle an extra 1 kg of concentrate is given for each[Question ID = 3473][Question Description = 123_60_BVE_SEP22_Q23]

1. 5 litres of milk produced [Option ID = 13889]
2. 10 litres of milk produced [Option ID = 13890]
3. 2.5 litres of milk produced [Option ID = 13891]
4. 1.5 litres of milk produced [Option ID = 13892]

24) The breed reared for the production of Pashmina is[Question ID = 3474][Question Description = 124_60_BVE_SEP22_Q24]

1. Chokla [Option ID = 13893]
2. Patanwadi [Option ID = 13894]
3. Chegu [Option ID = 13895]
4. Muzzaffarnagri [Option ID = 13896]

25) The organization / committee known for regulating animal experimentation[Question ID = 3475][Question Description = 125_60_BVE_SEP22_Q25]

1. PFA [Option ID = 13897]
2. CPSCEA [Option ID = 13898]
3. CPCSEA [Option ID = 13899]
4. CPSEA [Option ID = 13900]

26) National Dairy Research Institute was established in Bangalore in the year[Question ID = 3476][Question Description = 126_60_BVE_SEP22_Q26]

1. 1921 [Option ID = 13901]
2. 1922 [Option ID = 13902]
3. 1923 [Option ID = 13903]
4. 1924 [Option ID = 13904]

27) Intermittent milking is a characteristic feature of which of the following breed of buffaloes[Question ID = 3477][Question Description = 127_60_BVE_SEP22_Q27]

1. Jaffarabadi [Option ID = 13905]
2. Banni [Option ID = 13906]
3. Pandharpuri [Option ID = 13907]
4. Gojri [Option ID = 13908]

28) Which of the following Camel in India is endangered?[Question ID = 3478][Question Description = 128_60_BVE_SEP22_Q28]

1. Bikaneri [Option ID = 13909]
2. Jaisalmeri [Option ID = 13910]
3. Double humped [Option ID = 13911]
4. Kutchchi [Option ID = 13912]

29) Colostrum feeding should be done to calves within (time) of their birth[Question ID = 3479][Question Description = 129_60_BVE_SEP22_Q29]

1. 1 hour [Option ID = 13913]
2. 10 hours [Option ID = 13914]
3. 3 hours [Option ID = 13915]
4. 30 minutes [Option ID = 13916]

30) Karan Fries strain of cattle is evolved by crossing[Question ID = 3480][Question Description = 130_60_BVE_SEP22_Q30]

1. Sahiwal with Brown Swiss [Option ID = 13917]
2. Red Sindhi with Jersey [Option ID = 13918]
3. Tharparkar with Holstein [Option ID = 13919]
4. Nondescript with Brown Swiss [Option ID = 13920]

31) The method of choice for determining fecal coliform densities[Question ID = 3481][Question Description = 131_60_BVE_SEP22_Q31]

1. SPC [Option ID = 13921]
2. MPN [Option ID = 13922]
3. Agar droplets [Option ID = 13923]
4. HGMP [Option ID = 13924]

32) In sous vide method of cooking of meat

- A. Cooking is done at temperature <100°C under vacuum**
- B. Cooking is continued for extended period of time followed by cooling**
- C. has positive effect on tenderness compared with conventional cooking**
- D. disadvantageous because of non-uniformity in doneness**

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

[Question ID = 3482][Question Description = 132_60_BVE_SEP22_Q32]

1. A, B and D only [Option ID = 13925]
2. A, B and C only [Option ID = 13926]
3. B, C and D only [Option ID = 13927]
4. A, C and D only [Option ID = 13928]

33) The predominant unsaturated fatty acids in muscle fat is [Question ID = 3483][Question Description = 133_60_BVE_SEP22_Q33]

1. Palmitic acid [Option ID = 13929]
2. Stearic acid [Option ID = 13930]
3. Oleic acid [Option ID = 13931]
4. linoleic acid [Option ID = 13932]

34) Muscle food is an excellent source of [Question ID = 3484][Question Description = 134_60_BVE_SEP22_Q34]

1. Vit A [Option ID = 13933]
2. Vit B [Option ID = 13934]
3. Vit D [Option ID = 13935]
4. Vit E [Option ID = 13936]

35) A weight lifter requires phasic action of muscle and depends on [Question ID = 3485][Question Description = 135_60_BVE_SEP22_Q35]

1. Red muscle fibers [Option ID = 13937]
2. White muscle fibers [Option ID = 13938]
3. Intermediate type muscle fibers [Option ID = 13939]
4. better capillarized muscle fibers [Option ID = 13940]

36) The most abundant myofibrillar protein in adult mammalian muscle is [Question ID = 3486][Question Description = 136_60_BVE_SEP22_Q36]

1. Collagen [Option ID = 13941]
2. Myosin [Option ID = 13942]
3. Actin [Option ID = 13943]
4. M-protein [Option ID = 13944]

37) The poultry birds in which PSE is more prevalent is [Question ID = 3487][Question Description = 137_60_BVE_SEP22_Q37]

1. Duck [Option ID = 13945]
2. Pigeon [Option ID = 13946]
3. Turkey [Option ID = 13947]
4. Quail [Option ID = 13948]

38) As per AGMARK standards for table egg the medium grade eggs weigh approx [Question ID = 3488][Question Description = 138_60_BVE_SEP22_Q38]

1. 60-72g [Option ID = 13949]
2. 53-59g [Option ID = 13950]
3. 45-52g [Option ID = 13951]
4. 38-44g [Option ID = 13952]

39) BIS (Bureau of Indian Standards) erstwhile ISI works under the aegis of [Question ID = 3489][Question Description = 139_60_BVE_SEP22_Q39]

1. Ministry of Health and Family Welfare [Option ID = 13953]
2. Ministry of Agriculture and Farmer Welfare [Option ID = 13954]

3. Ministry of Consumer Affairs, Food and Public Distribution [Option ID = 13955]
4. Ministry of Food Processing and Consumer Affairs [Option ID = 13956]

40) Cod liver oil has high levels of[Question ID = 3490][Question Description = 140_60_BVE_SEP22_Q40]

1. Vitamin K [Option ID = 13957]
2. Vitamin B [Option ID = 13958]
3. Vitamin C [Option ID = 13959]
4. Vitamin D [Option ID = 13960]

41) Who coined the term "Genetics"

[Question ID = 3491][Question Description = 141_60_BVE_SEP22_Q41]

1. Johanssen [Option ID = 13961]
2. Sutton [Option ID = 13962]
3. Mendel [Option ID = 13963]
4. Bateson [Option ID = 13964]

42) Crossing of inbred lines take advantage of[Question ID = 3492][Question Description = 142_60_BVE_SEP22_Q42]

1. Inbreeding depression [Option ID = 13965]
2. Hybrid vigour [Option ID = 13966]
3. Loss of vigour [Option ID = 13967]
4. Increase in homozygosity [Option ID = 13968]

43) Percent of crossing over is more when

[Question ID = 3493][Question Description = 143_60_BVE_SEP22_Q43]

1. genes are located in a different cell [Option ID = 13969]
2. genes are located in same chromosome [Option ID = 13970]
3. linked genes are located close to each other [Option ID = 13971]
4. linked genes are located far apart from each other [Option ID = 13972]

44) Aneuploidy is mostly caused by

[Question ID = 3494][Question Description = 144_60_BVE_SEP22_Q44]

1. Nondisjunction [Option ID = 13973]
2. Disjunction [Option ID = 13974]
3. Crossing over [Option ID = 13975]
4. Mating [Option ID = 13976]

45) Which of the following system of mating changes the genetic composition without creating new genes?

[Question ID = 3495][Question Description = 145_60_BVE_SEP22_Q45]

1. Top crossing [Option ID = 13977]
2. Back crossing [Option ID = 13978]
3. Grading up [Option ID = 13979]
4. Rotational crossing [Option ID = 13980]

46) Selection of an animal based on its own performance is

[Question ID = 3496][Question Description = 146_60_BVE_SEP22_Q46]

1. Family selection [Option ID = 13981]
2. Mass selection [Option ID = 13982]
3. Sib selection [Option ID = 13983]
4. Pedigree selection [Option ID = 13984]

47) Choose the correct equation

[Question ID = 3497][Question Description = 147_60_BVE_SEP22_Q47]

1. $i = \sigma P / S$ [Option ID = 13985]
2. $S = \sigma P / i$ [Option ID = 13986]
3. $s = i\sigma P$ [Option ID = 13987]
4. $i = S\sigma P$ [Option ID = 13988]

48) Which of the following is incorrect[Question ID = 3498][Question Description = 148_60_BVE_SEP22_Q48]

1. Mule: Jack X Mare [Option ID = 13989]
2. Pien niu: Cattle X Yak [Option ID = 13990]
3. Hinny: Jack X Mare [Option ID = 13991]
4. Zeriad: Zebra X Horse [Option ID = 13992]

49) Frieswal breed of cattle was developed by crossing of[Question ID = 3499][Question Description = 149_60_BVE_SEP22_Q49]

1. Holstein Friesian and Tharparker [Option ID = 13993]
2. Holstein Friesian and Sahiwal [Option ID = 13994]
3. Holstein Friesian and Red Sindhi [Option ID = 13995]
4. Holstein Friesian and nondescript cattle [Option ID = 13996]

50) Interaction between alleles resulting in superiority of heterozygous individuals over others is called as[Question ID = 3500][Question Description = 150_60_BVE_SEP22_Q50]

1. Dominance [Option ID = 13997]
2. Partial dominance [Option ID = 13998]
3. Overdominance [Option ID = 13999]
4. Complete dominance [Option ID = 14000]

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1) Germ Plasm theory was postulated by-

[Question ID = 3401][Question Description = 101_164_AGB_SEP22_Q01]

1. Lamark [Option ID = 13601]
2. Weisman [Option ID = 13602]
3. Kolliker [Option ID = 13603]
4. Hertwig [Option ID = 13604]

2) Chromatin consists of[Question ID = 3402][Question Description = 102_164_AGB_SEP22_Q02]

1. DNA & protein only [Option ID = 13605]
2. RNA & protein only [Option ID = 13606]
3. RNA & DNA only [Option ID = 13607]
4. DNA, RNA & protein [Option ID = 13608]

3) Match List I with List II

List I	List II
A. DNA is genetic material	I. Thomas Hunt Morgan
B. Transforming principle	II. Ronald Fisher
C. Analysis of variance (ANOVA)	III. Griffith's experiment
D. Work with the fruit fly	IV. Motoo Kimura
	V. Hershey-Chase experiments

Choose the correct answer from the options given below:

[Question ID = 3403][Question Description = 103_164_AGB_SEP22_Q03]

1. A - V, B - III, C - II, D - I [Option ID = 13609]
2. A - III, B - IV, C - II, D - I [Option ID = 13610]
3. A - IV, B - V, C - II, D - III [Option ID = 13611]
4. A - V, B - III, C - I, D - II [Option ID = 13612]

4) Which one from those given below is the period for Mendel's hybridisation experiments?

[Question ID = 3404][Question Description = 104_164_AGB_SEP22_Q04]

1. 1856-1863 [Option ID = 13613]
2. 1857-1869 [Option ID = 13614]
3. 1840-1850 [Option ID = 13615]
4. 1870-1877 [Option ID = 13616]

5) A person showing two cell lines derived from two different zygotes is known as-[Question ID = 3405][Question Description = 105_164_AGB_SEP22_Q05]

1. Pseudo-dominance [Option ID = 13617]
2. Segregation [Option ID = 13618]
3. Chimerism [Option ID = 13619]
4. Mosaicism [Option ID = 13620]

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

Assertion A : Mutations happen due to insertion, deletion, substitution or inversion of base pairs.

Reason R : Mutations can be advantageous, disadvantageous, or have no effect.

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

[Question ID = 3406][Question Description = 106_164_AGB_SEP22_Q06]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13621]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13622]
3. A is true but R is false [Option ID = 13623]
4. A is false but R is true [Option ID = 13624]

7) Match List I with List II

List I	List II
A. Karyotype	I. C-banding
B. Heterochromatin	II. Q Banding
C. Silver staining	III. T banding
D. Fluorescent	IV. NOR- banding
	V. G-banding

Choose the correct answer from the options given below:

[Question ID = 3407][Question Description = 107_164_AGB_SEP22_Q07]

1. A - V, B - I, C - IV, D - II [Option ID = 13625]
2. A - I, B - IV, C - II, D - V [Option ID = 13626]
3. A - IV, B - II, C - V, D - I [Option ID = 13627]
4. A - II, B - V, C - I, D - III [Option ID = 13628]

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

Assertion A : During cell division, cell divides in two, resulting in daughter cells with identical DNA.

Reason R : The chromatid which is one of the two identical halves of a chromosome gets replicated in preparation for cell division.

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

[Question ID = 3408][Question Description = 108_164_AGB_SEP22_Q08]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13629]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13630]
3. A is true but R is false [Option ID = 13631]
4. A is false but R is true [Option ID = 13632]

9) Which of the following are true of G-banding?

- A. G-banding stains a striped pattern on chromosomes.
- B. The metaphase chromosomes are treated with trypsin & stained with Giemsa stain.
- C. G-banding stains chromosomes fluorescent yellow.
- D. AT-rich DNA stain more darkly in contrast, to GC-rich DNA.
- E. G-banding stains the region distant from centromeres

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

[Question ID = 3409][Question Description = 109_164_AGB_SEP22_Q09]

1. A, B and D only [Option ID = 13633]
2. A and B only [Option ID = 13634]
3. A, B and E only [Option ID = 13635]
4. A, C and D only [Option ID = 13636]

10) Gel electrophoresis is a techniques for separating DNA molecules by size. which of the following is statement is correct about gel electrophoresis?

- A. Ordinary gel electrophoresis fails to separate very long DNA molecules.
- B. Longer molecules move more faster than shorter ones.
- C. A variation of agarose gel electrophoresis, called pulsed-field gel electrophoresis, makes it possible to separate even extremely long DNA molecules.
- D. In Ordinary gel electrophoresis, by contrast to pulsed-field gel electrophoresis, the direction of the electric field is changed periodically.

E. An entire bacterial or yeast chromosomes can be separated into discrete bands in pulsed-field gels.

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

[Question ID = 3410][Question Description = 110_164_AGB_SEP22_Q10]

1. A, B and D only [Option ID = 13637]
2. A, C and E only [Option ID = 13638]
3. B and D only [Option ID = 13639]
4. A, B and E only [Option ID = 13640]

11) Which of the following statements are corrects about Purnea breed of cattle?

- A. These are small sized animals.
- B. Distributed in Dahod, Chhotaudepur and Narmada district of Gujarat.
- C. Most of the Purnea cattle has flat poll.
- D. These cattle have three different coat colours viz. grey, red and black
- E. The horns in Purnea cattle are large in size, curved and mostly carried downward.

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

[Question ID = 3411][Question Description = 111_164_AGB_SEP22_Q11]

1. A, B and D only [Option ID = 13641]
2. A, C and D only [Option ID = 13642]
3. A, D and E only [Option ID = 13643]
4. A, C and E only [Option ID = 13644]

12) Which one of the folloing is NOT the breed of cattle?

[Question ID = 3412][Question Description = 112_164_AGB_SEP22_Q12]

1. Poda Thurpu [Option ID = 13645]
2. Thutho [Option ID = 13646]
3. Dagri [Option ID = 13647]
4. Maithili [Option ID = 13648]

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

Assertion A : Out-crossing is the practice of mating of animals within the same breed, but having no common ancestors on either side of their pedigree.

Reason R : It is the best breeding method for animals that are below average in productivity in milk production or growth rate in meat production animals.

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

[Question ID = 3413][Question Description = 113_164_AGB_SEP22_Q13]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13649]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13650]
3. A is true but R is false [Option ID = 13651]
4. A is false but R is true [Option ID = 13652]

14) Given below are two statements

Statement I: Genetic explanation of heterosis is based on the heterozygosity involving genes with non-additive effect.

Statement II: Interaction between non-allelic genes, referred to as dominance, could be another explanation of heterosis.

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

[Question ID = 3414][Question Description = 114_164_AGB_SEP22_Q14]

1. Both Statement I and Statement II are correct [Option ID = 13653]
2. Both Statement I and Statement II are incorrect [Option ID = 13654]
3. Statement I is correct but Statement II is incorrect [Option ID = 13655]
4. Statement I is incorrect but Statement II is correct [Option ID = 13656]

15) Given below are two statements

Statement I: Indian buffaloes are less populated as compared to cattle.

Statement II: More than half of the total milk produced in the country is being contributed by milch buffaloes.

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

[Question ID = 3415][Question Description = 115_164_AGB_SEP22_Q15]

1. Both Statement I and Statement II are correct [Option ID = 13657]
2. Both Statement I and Statement II are incorrect [Option ID = 13658]
3. Statement I is correct but Statement II is incorrect [Option ID = 13659]
4. Statement I is incorrect but Statement II is correct [Option ID = 13660]

16) In a population of 100 rabbits, where 80 of them are gray and 20 are black. The black color is a recessive trait to gray color in these rabbits. Using the Hardy-Weinberg Equilibrium equation, ($p^2 + 2pq + q^2 = 1$), what number would be heterozygous rabbit with gray Fur?[Question ID = 3416][Question Description = 116_164_AGB_SEP22_Q16]

1. 10 [Option ID = 13661]
2. 20 [Option ID = 13662]
3. 35 [Option ID = 13663]
4. 50 [Option ID = 13664]

17) Hardy-Weinberg equilibrium—meaning that the genotypic proportions are constant from generation to generation, if-

[Question ID = 3417][Question Description = 117_164_AGB_SEP22_Q17]

1. Population do not mate at random. [Option ID = 13665]
2. Population is unaffected by evolutionary forces such as selection, mutation etc. [Option ID = 13666]
3. There is some migration in population. [Option ID = 13667]
4. The population size is not large. [Option ID = 13668]

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

Assertion A : In an Idealized population all breeding individual contribute equally to a pool of gametes from which zygote is formed.

Reason R : In idealized population, generations are distinct, migration is excluded, mutation is disregarded and there is no selection at any stage.

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

[Question ID = 3418][Question Description = 118_164_AGB_SEP22_Q18]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13669]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13670]
3. A is true but R is false [Option ID = 13671]
4. A is false but R is true [Option ID = 13672]

19) Given below are two statements

Statement I: Heritability is not the proportion of a phenotype that is genetic, but rather the proportion of phenotypic variance that is due to genetic factors.

Statement II: Heritability is immutable. Since heritability reflects the balance between the effects of genetic and environmental factors, even if you change the environment you cannot change the trait's heritability.

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

[Question ID = 3419][Question Description = 119_164_AGB_SEP22_Q19]

1. Both Statement I and Statement II are true [Option ID = 13673]
2. Both Statement I and Statement II are false [Option ID = 13674]
3. Statement I is true but Statement II is false [Option ID = 13675]
4. Statement I is false but Statement II is true [Option ID = 13676]

20) Which of the following statements are true about heritability?

- A. Heritability has an important role for selection of polygenic traits.
- B. When the trait is highly heritable, selection is less important than crossbreeding and management.
- C. When the trait is highly heritable, selection is more important than crossbreeding and management.
- D. High heritability estimates indicate that additive gene action is more important for that trait, and selective breeding will produce more desirable progeny.
- E. Heritability can not be estimated from empirical data on the observed and expected resemblance between relatives.

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

[Question ID = 3420][Question Description = 120_164_AGB_SEP22_Q20]

1. A, C and D only [Option ID = 13677]

2. A, B and D only [Option ID = 13678]
3. A, C and E only [Option ID = 13679]
4. E only [Option ID = 13680]

21) Which of the following deviation is not considered for calculation of Environmental correlations?[Question ID = 3421]
[Question Description = 121_164_AGB_SEP22_Q21]

1. Dominance [Option ID = 13681]
2. Epistasis [Option ID = 13682]
3. Maternal effects [Option ID = 13683]
4. Additive genes governing any two trait [Option ID = 13684]

22) Given below are two statements related to Hardy Weinberg equilibrium

Statement I: Genotype frequencies in the progeny depend only on gene frequencies in parent and not on genotype frequencies.

Statement II: Frequency of the heterozygotes cannot be greater than 50 percent, and this maximum occurs when the gene frequencies are $p = q = 0.5$.

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

[Question ID = 3422][Question Description = 122_164_AGB_SEP22_Q22]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13685]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13686]
3. A is true but R is false [Option ID = 13687]
4. A is false but R is true [Option ID = 13688]

23) Which of the following methods used in QTL analysis is more powerful and precise in comparison to others?

[Question ID = 3423][Question Description = 123_164_AGB_SEP22_Q23]

1. Single-marker analysis [Option ID = 13689]
2. Simple interval mapping [Option ID = 13690]
3. Composite interval mapping [Option ID = 13691]
4. Multiple QTL mapping [Option ID = 13692]

24) Which one of the following is NOT an advantage of simple interval mapping over analysis of variance at the marker loci for QTL identification?

[Question ID = 3424][Question Description = 124_164_AGB_SEP22_Q24]

1. It provides a curve, which indicates the evidence for QTL location. [Option ID = 13693]
2. It allows for the inference of QTL to positions between markers. [Option ID = 13694]
3. It provides improved estimates of QTL effects [Option ID = 13695]
4. Simple interval mapping statistically tests for a multiple QTL at each increment across the ordered markers in the genome. [Option ID = 13696]

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

Assertion A: QTL are classified as: (1) suggestive, (2) significant and (3) highly significant, Significant and highly significant QTL were given significance levels of 5 and 0.1%, respectively, whereas a suggestive QTL is one that would be expected to occur once at random in a QTL-mapping study.

Reason R: This classification was mainly proposed to avoid large numbers of false positive claims and also ensure that real linkage was not missed.

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

[Question ID = 3425][Question Description = 125_164_AGB_SEP22_Q25]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 13697]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 13698]
3. A is correct but R is not correct [Option ID = 13699]
4. A is not correct but R is correct [Option ID = 13700]

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

Assertion A : Multi stage selection is a complex process completed in different stages and ages of the livestock.

Reason R : Multi stage selection is broadly classified into 2 stages - initial selection based on pedigree and final selection based on phenotypic value.

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

[Question ID = 3426][Question Description = 126_164_AGB_SEP22_Q26]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13701]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13702]
3. A is true but R is false [Option ID = 13703]
4. A is false but R is true [Option ID = 13704]

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

Assertion A : In case the selection on individuals is not possible, for sex limited traits.

Reason R : The performance of relatives is used to estimate breeding value of the individual.

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

[Question ID = 3427][Question Description = 127_164_AGB_SEP22_Q27]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13705]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13706]
3. A is true but R is false [Option ID = 13707]
4. A is false but R is true [Option ID = 13708]

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

Assertion A : Linkage disequilibrium (LD) is the accuracy with which nearby variants such that the alleles at neighbouring polymorphisms are observed.

Reason R : LD is observed between alleles of the same chromosome.

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

[Question ID = 3428][Question Description = 128_164_AGB_SEP22_Q28]

1. Both A and R are true and R is the correct explanation of A [Option ID = 13709]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 13710]
3. A is true but R is false [Option ID = 13711]
4. A is false but R is true [Option ID = 13712]

29) Match List I with List II

List I	List II
A. Genetic slippage	I. Dickerson
B. Selection Index	II. Show purpose
C. Multi trait selection	III. Hazel and Smith
D. ICL	IV. Henderson
	V. Index method

Choose the correct answer from the options given below:

[Question ID = 3429][Question Description = 129_164_AGB_SEP22_Q29]

1. A - II, B - IV, C - V, D - III [Option ID = 13713]
2. A - I, B - III, C - IV, D - V [Option ID = 13714]
3. A - III, B - V, C - IV, D - I [Option ID = 13715]
4. A - IV, B - I, C - II, D - III [Option ID = 13716]

30) Match List I with List II

List I	List II
A. One unit increase in profit	I. Parameter
B. Population	II. Lush
C. MPPA	III. Half of EBV
D. Progeny Transmitting ability	IV. Economic value
	V. Twice of EBV

Choose the correct answer from the options given below:

[Question ID = 3430][Question Description = 130_164_AGB_SEP22_Q30]

1. A - IV, B - I, C - II, D - V [Option ID = 13717]
2. A - III, B - IV, C - I, D - V [Option ID = 13718]
3. A - II, B - I, C - IV, D - V [Option ID = 13719]
4. A - IV, B - I, C - II, D - III [Option ID = 13720]

31) The average gestation in female Chincella is[Question ID = 3431][Question Description = 131_164_AGB_SEP22_Q31]

1. 1 day [Option ID = 13721]
2. 10 days [Option ID = 13722]

3. 111 days [Option ID = 13723]
4. 90 days [Option ID = 13724]

32) The average litter size Rabbit is[Question ID = 3432][Question Description = 132_164_AGB_SEP22_Q32]

1. 1-9 [Option ID = 13725]
2. 1-2 [Option ID = 13726]
3. 1-4 [Option ID = 13727]
4. 4-12 [Option ID = 13728]

33) Which one of them is the laboratory animal is used for toxicity testing and serum antibody production?

[Question ID = 3433][Question Description = 133_164_AGB_SEP22_Q33]

1. Mouse [Option ID = 13729]
2. Guinea Pig [Option ID = 13730]
3. Rabbit [Option ID = 13731]
4. Chinese Hamster [Option ID = 13732]

34) Which one of them is an outbred mouse?

[Question ID = 3434][Question Description = 134_164_AGB_SEP22_Q34]

1. CD1 [Option ID = 13733]
2. BALB/c [Option ID = 13734]
3. C57Bl/6 [Option ID = 13735]
4. CD2F1 [Option ID = 13736]

35) Which of the following statements is NOT true in context of *Bos taurus indicus*?

[Question ID = 3435][Question Description = 135_164_AGB_SEP22_Q35]

1. X & Y chromosomes Acrocentric [Option ID = 13737]
2. X Sub-metacentric [Option ID = 13738]
3. Total Autosomes = 58 [Option ID = 13739]
4. $2n = 60$ [Option ID = 13740]

36) Regulated unit of genetic engineering is which of the following?

[Question ID = 3436][Question Description = 136_164_AGB_SEP22_Q36]

1. Operator gene [Option ID = 13741]
2. Operon [Option ID = 13742]
3. Promoter gene [Option ID = 13743]
4. Regulator gene [Option ID = 13744]

37) Lack of symmetry in a distribution is known as[Question ID = 3437][Question Description = 137_164_AGB_SEP22_Q37]

1. Kurtosis [Option ID = 13745]
2. Mesokurtic [Option ID = 13746]
3. Skewness [Option ID = 13747]
4. Leptokurtic [Option ID = 13748]

38) Which of the following statement is NOT true about the normal distribution in statistics?

[Question ID = 3438][Question Description = 138_164_AGB_SEP22_Q38]

1. The ordinate at the mean is highest [Option ID = 13749]
2. Mean, median and mode will coincide [Option ID = 13750]
3. Mean and variance are equal [Option ID = 13751]
4. Q1 and Q3 are equidistant [Option ID = 13752]

39) Two matrix can be added if[Question ID = 3439][Question Description = 139_164_AGB_SEP22_Q39]

1. Rows of both the matrices are same [Option ID = 13753]
2. Columns of both the matrices are same [Option ID = 13754]
3. Rows and Columns of both the matrices are same [Option ID = 13755]
4. Number of rows of first matrix should be equal to number of columns of second [Option ID = 13756]

40) Which of the following is NOT correct for the Genomic Selection?

[Question ID = 3440][Question Description = 140_164_AGB_SEP22_Q40]

1. A promising approach in genetics [Option ID = 13757]
2. Molecular markers are used [Option ID = 13758]
3. A novel design for a breeding program [Option ID = 13759]
4. Suitable for a small population [Option ID = 13760]

41) A technique in which the oocytes are extracted from a donor cows' reproductive tract

- A. Follicular aspiration
- B. Ex-Vivo puncture
- C. Trans Vaginal Ovum pickup
- D. ETT
- E. AI

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

[Question ID = 3441][Question Description = 141_164_AGB_SEP22_Q41]

- 1. A, B and D only [Option ID = 13761]
- 2. A and D only [Option ID = 13762]
- 3. A, B and C only [Option ID = 13763]
- 4. C only [Option ID = 13764]

42) Who among the following genetists is considered as the Father of modern-day animal breeding?

[Question ID = 3442][Question Description = 142_164_AGB_SEP22_Q42]

- 1. C. Henderson [Option ID = 13765]
- 2. J L Lush [Option ID = 13766]
- 3. Jay L Lush [Option ID = 13767]
- 4. C R Henderson [Option ID = 13768]

43) The transgenic animals are those which have[Question ID = 3443][Question Description = 143_164_AGB_SEP22_Q43]

- 1. Foreign DNA in some of its cells [Option ID = 13769]
- 2. Foreign DNA in all of its cells [Option ID = 13770]
- 3. Foreign DNA and RNA in some of its cells [Option ID = 13771]
- 4. Foreign DNA and RNA in all of its cells [Option ID = 13772]

44) Random and controlled breeding are included in the

- A. Scientific Method of breeding
- B. Natural Method of breeding
- C. Cultural Method of breeding
- D. Comunity based breeding
- E. Family based breeding

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

[Question ID = 3444][Question Description = 144_164_AGB_SEP22_Q44]

- 1. A, B and D only [Option ID = 13773]
- 2. B only [Option ID = 13774]
- 3. A and B only [Option ID = 13775]
- 4. C, D and E only [Option ID = 13776]

45) QTL can be easily identified for which type of traits?

- A. Threshold traits
- B. Qualitative traits
- C. Quantitative traits
- D. Correlated traits
- E. Marker linked traits

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

[Question ID = 3445][Question Description = 145_164_AGB_SEP22_Q45]

- 1. A, B and D only [Option ID = 13777]
- 2. C, D and E only [Option ID = 13778]
- 3. B and E only [Option ID = 13779]
- 4. E only [Option ID = 13780]

46) Progress expected from multi-trait selection can be expected by maximizing[Question ID = 3446][Question Description

= 146_164_AGB_SEP22_Q46]

1. Correlation between true breeding value and Index developed [Option ID = 13781]
2. Correlation between true breeding value and accuracy developed [Option ID = 13782]
3. Correlation between breeding value and Transmittance [Option ID = 13783]
4. Correlation between true breeding value and intensity of selection [Option ID = 13784]

47) Which of the following measure DOES NOT divides the population into equal parts?

[Question ID = 3447][Question Description = 147_164_AGB_SEP22_Q47]

1. Percentile [Option ID = 13785]
2. Decile [Option ID = 13786]
3. Median [Option ID = 13787]
4. Quartile [Option ID = 13788]

48) Mule is the hybrid between male ass (Jack) and female horse (mare). It has the stamina of Ass and size of Horse but is reproductively[Question ID = 3448][Question Description = 148_164_AGB_SEP22_Q48]

1. Fertile [Option ID = 13789]
2. Sterile [Option ID = 13790]
3. Fertile after attaining an age [Option ID = 13791]
4. Sterile after attaining an age [Option ID = 13792]

49) Twins born in a population can be useful for studying the following genetic phenomenon[Question ID = 3449][Question Description = 149_164_AGB_SEP22_Q49]

1. Additive gene action [Option ID = 13793]
2. Overdominance [Option ID = 13794]
3. Epistatic effect [Option ID = 13795]
4. Genotype Environment interaction [Option ID = 13796]

50) Sum total of genes in a population is called as[Question ID = 3450][Question Description = 150_164_AGB_SEP22_Q50]

1. Phenotype [Option ID = 13797]
2. Genotype [Option ID = 13798]
3. Breeding value [Option ID = 13799]
4. Gene pool [Option ID = 13800]