1000 MCQs PBG department for exit test preparation

1)The germplasm theory was given by:

a. Von Baer
b. Galton
c. Weisemann
d. Johennsen

2) Darwin said that all body parts produce a rudimentary copy which is delivered to get cells through blood and named these copies as:

a) Clone
b) Gemmule
c) Blue prints
d) Photocopy

3) Oligogenic characters are governed by:

a) One gene
b) Few genes
c) Several genes
d) Both a and b

4)The reproductive branches of cotton plant are called:

a) Monopodial
b) Sympodial
c) Fruiting
d) Non-fruiting

5) Excess of Nitrogen:

a) Delay ripening
b) Delays growth
c) Delays germination
d) Delays tillering

6) Crop rotation must be planned so as to include:

a) Legume crops
b) Broad leaf crops
c) Dwarf varieties
d) Tall varieties

7) Polygenic characters are governed by:

a) Few genes
b) Single gene
c) Several genes
d) All of these

8)Schleiden and Schwann(1838) recognized the cell as a unit of structure and function of all living organisms and named the theory as:

a) Epigenesis
b) Box theory
c) Homunculus
d) Cell theory

9) Simultaneous fusion of the generative nuclei one with the egg and other with the endospermic nuclei is termed as:

a) Sterility
b) Single fertilization
c) Double fertilization
d) Cloning

10)Tramsgressive sergeants fall outside the limit of:

a) Male parent.

b) Female parent
c) Both parents
d) None of these

11) Which one is both oilseed and pulse:
a) Sarsoon
b) Sunflower
c) Soybean
d) Sesame

12) Which one is not a Rabi crop?
a) Gram
b) Lentil
c) Mung
d) Barley

13) Hidden variability from homozygotes is released by:
a) Selfing
b) Inbreeding
c) Out crossing
d) All of these

14) At the completion of meiosis cell division a daughter cell will have ___ chromosomes as compared to parents:
a) Triploid
b) Diploid
c) Monoploid
d) Haploid

15) The term "evolution" as "decent with modification" was defined by :
a) Darwin
b) Lamarck
c) Zimmerman
d) Hogi de vries

16) Potential variability from heterozygotes is released by:
a) Slefing
b) Inbreeding
c) Both a and b
d) Out crossing

17) Which is correct?
a) A seed-borne pathogen may or may not be seed transmitted
b) **A seed-borne pathogen is always seed transmitted**
c) A seed-borne pathogen is never seed transmitted
d) Both a and b

18) Production of which oilseed crops is more among the following crops in Pakistan:
a) Groundnut
b) Soybean
c) Sunflower
d) Rapeseed

19) Which one of the following traits exhibit continuous variation?
a) Oligogenic
b) Monogenic
c) Polygenic
d) None of these

20) Missing

21) DNA and RNA are very much similar in their composition except:
a) Adenine
b) Cytosine

c) Uracil
d) Guanine

22) ICARDA is located in:
a) India
b) Syria
c) Mexico
d) Philippines

23) Genetic engineering can be best described as:
a) Application of molecular genetics in Agriculture
b) Application of principles of engineering in plants
c) Genetics of Nitrogen fixing bacteria
d) Synthesis of genes in laboratories

24) Population genetics is based on:
a) Hardy-weinberg law
b) Principles of population control
c) Polygenic inheritance
d) Analysis of variance

25) Chromatids exchange their chromosome portion during the stage
a) Diakinesis
b) Diplotene
c) Leptotene
d) Zygotene

26) Which one of the following traits show discontinuous variation:
a) Oligogenic
b) Monogenic
c) Quantitative
d) All of these

27) Clear cut grouping into different classes is possible for:
a) Monogenic character
b) Oligogenic character
c) Quantitative character
d) All of these

28) The best stage of mitosis when you can observe and count the number of chromosomes during cell division:
a) Telophase
b) Prophase
c) Metaphase
d) All of these

29) The outermost covering of a true seed is called:
a) Radicle
b) Scutellum
c) Testa
d) Raphe

30) RCBD refers to:
a) Randomized complete block design
b) Randomized complete based design
c) Randomized central block design
d) None of these

31) The total number of amino acids are:
a) 35
b) 30
c) 25
d) 20

32) The book "On the origin of species" was written by:
   a) Wallace
   b) Mendel
   c) August Wisemann
   d) Darwin
33) The phenomenon by which two sex chromosomes go together in the same gamete is called:
   a) Duplication
   b) Non-disjunction
   c) Interface
   d) Multiplication
34) Which of the following traits is more sensitive to the environmental stages:
   a) Quantitative
   b) Qualitative
   c) Polygenic
   d) Both a and c
35) Transgenic plants are known as the plants:
   a) Selection from traditional crops
   b) Plant source developed through biotechnology
   c) With superior traits developed through conventional breeding
   d) None of these
36) Plant breeders right's are opening in
   a) Geneva
   b) Moscow
   c) Bonn
   d) All of these
37) Certification is not required for
   a) Nucleus seed
   b) Breeder seed
   c) Foundation seed
   d) Certified seed
38) Clear cut classification in different groups is not possible in case of:
   a) Oligogenic character
   b) Polygenic character
   c) Major gene character
   d) All of these
39) Genotype variation consist of:
   a) Additive variance
   b) Dominance variation
   c) Epistatic variance
   d) All of these
40) If a chromosomes with genes in the order ABCDEFG changed in ABFG, it is called:
   a) Translocation
   b) Inversion
   c) Mutation
   d) Deficiency
41) Missing
42)First quarantine law was passed in 1060 by:
   a) French
   b) American
   c) European
   d) English
43) The traits showing continuous variation in expression are called:
   a) Discontinuous traits

b) Quantitative traits
c) Mendelian traits
d) Qualitative traits

44) A DNA not only replicates into another DNA molecule but also serves as ____ from mRNA:
a) Template
b) Messenger
c) Leader
d) Transfer

45) Error variance is a measure of:
a) Genotypic variation
b) Phenotypic variation
c) Environmental variation
d) None of these

46) Proteins are made up of:
a) Fatty acids
b) Sugars
c) Nucleic acids
d) Amino acids

47). Which one stands for the International Maize and Wheat Improvement Centre:
a) IRRI
b) ICRIAT
c) CIMMYT
d) AVRDC

48) Chloroplasts are present in:
a) Animal cells only
b) Plant cells only
c) Some of the animal cells
d) Both plant and animal cells

49) Which one is concerned with agricultural research in Barani areas:
a) AARI
b) NIAB
c) BARI
d) NIBGE

50) Which one is not a mandate crop of PARC?
a) Wheat
b) Rice
c) Cotton
d) Maize

51. which one is viral disease of mungbean
1. Leaf curl disease
2. Yellow mosaic virus
3. Leaf rust
4. Blight

52. Analysis of metroglyph analysis is based on
1. Means values
2. Variance
3. Co-variance
4. All of these

53.A gene influencing more than one character in an individual simataneously is called
1. Phenotype
2. Phenocopy

3. Pleiotropic
4. Modifier

54.THE concept of .inheritance of accuquired characters was put forward by
1. Thomas Fairchild
2. Bateson
3. Schwann
4. Lamarack

55. A person with blood group AB can receive blood from person with
1. A-group only
2. AB-group only
3. O- group only
4. ALL three

56.you can calculate the total number of phenotypes when dominates is incomplete by using the formula
1. 4^n
2. 3^n-2^n
3. 3^n
4. 2^n

57. Protein contents is the highest among the following seeds
a. Chick pea b Lentil C) Soybean d. Mungbcan

58. Which one is not a variety of cotton
a. MAB-78 b. S-12 c NM-92 d kariShrna

59, Which one is not a variety ofwheat
a. MH-97 b, Inqalab-91 c NOor-91 PE-96

60. Eurcic acid is found in
a. Safflowcr b. Til c soybean @Mustard.

61. If Changed chromosome number exact multiple Of basic Set Of chromosomes the polyploid will be called as:
a Aneuploidy b. Tetrasömic c Euploidy d, Monosomic

62. Land races have,
a) Genetic diversity b Wide adaptability
c) Broad genetic base d All of these

63. Modern cultivars have:
a) Narrow genetic base b Uniformity
c) Poor adaptability d All of these

64, More distance bctween two genes on same chromosome increase the chances Of;
a Mutation b crossing c. Linkage d. Diseases

65 Storage of sample does not require a
Control of temperature b. Control of humidity c.
Protection against insects and rodents d Control ofpressure

66 IPM refers to
a Integrated Pest Management b. Integrated Profit Management
c Intensive Pest Management d. None ofthese

67 Haemophillia is -------- linked disease in human beimg

67. Haemophilia is linked disease in human beings.

a. Autosomal b. Mutant c. Climatic @Sex

68. Who said that "an organ not in use would atrophy. "

a) Sutton d) Lamarck.

a Sutton b Darwin c) Muller d lamarck

69. The sex constitution of female birds is

d. WW

a XY b XX c zw d WW

70. Colour blindness is sex linked character m tnan and is recessive in nature, a female can only be colour blind if she has genetic constitution:

a. XB Y b XbXb C. X^BX^b d XbY

71. In nature, variability is maintained by:

a) Spontaneous mutations b Outcrossing

c) Recombinations d All of these

72. Simple correlation is reprcscnted as:

a r12 b) r 12.3 c r1.23 d) R 1.23

73. Seed is botanically called as a Ripened ovules b Ripened ovary

c Ripened ovules and ovary d. Ripen endosperm

74 ELISA Technique is mostly used for the dctecticn of

a. Fungal diseases b. Nematode c Viral diseases d a & b

75. A cotyledon is

a. Floral leaf, b. Foliage leaf c Leaf of an embryo d. Leaf Of the stem,

76. Crop ideotype refers to a, Model plant type, b Good plant model, c. Ideal plant type d All ofthe above

77. Phenotypic variances and co-variances are used for the estirmtionOf :

a. Genotypic correlation b Phenotypic correlation

c) Environmental correlation d) All of these

78. Colchicine is an important chemical mutagen it prevents the formation of

a. Gamete b. Crossing over c. Spindlefibre d. Nucleolus

79. How many types of heterozygotes will be produced when AaBb individual is selfed?

a 12 b 16 c 10 d 8

80. Growth of living organismis dependent of

a Mitosis , b Meiosis, c. Gametogenesis

81. Seed cotton means

Seed with lint , b. Seed without lint, c: None of the

82.. above Drought tolerance is associate with

a. Deep root system, b Small, waxy and thick leaves,

c Sunken, small and less stomata, d AII of the above

83. Bread wheat is allohexaploid which means the genetic constitution will be:

a. AAAAAA b- AABB c AABBDD d. AABBDDCC

84. The theory Of natural selection" in organisms was given by

a. Strasburger b) Mendel c) Morgan d Charlis Darwin.

85 Multiple alleles control blood groups in man so therefore an individual will have only pair of ------allele at a time-

a 2 b 4 c 3 d 1

cot

86.A gene has three important components, which can be described as single unit called as.

a. Histone b Nucleotide c. Nucleoside d. Nucleoplasm

87 . The coefficient Of determination is represented as:

a R12.3 b SQUARE OF R c R 1.23 d r 12.3

88. The ideotype was coined by

a. Jennmgs (1958), b. Finlay (1968), c. Rasmussion (1987) d Donlad (1968)

89. Norin 10 is the source of dwarfing gene in

a Wheat , b, Rice. c. Barley,d Oat

90, Drought is indicated by

a. Increase in proline level, b. Increase in ethylene level,

c. Leaf rolling, d AII Of the above

91. Analysis Of variance permits examination of

a. Phenotypic variation, b Genotypic variation,

c. Experimental variation, d All of the above

92. The value of simple of correlation lies between:

a. O and I b) 1 and 2

c -1 and d) None of these

93. The value of multiple correlation lies between:

a. -1 and 1 b) 1and 2

c 0 and 1 d) None ofthese

94. Any agent which can bring a heritablc change in an organism is called

a. Lethal b. Mutant c Mutagen d, Syndrome

95 Crossing over occurs in the homologous chromosomes in almost all organisms except

a, Mouse b bastularia c Male Drosophila d, Grasshoppcr

96- Analysis of variance pcrmits examination of

a, Phenotypic variation, b. Genotypic variation,

c. Experimental variation, d All of the above

97- GOT stands for a Ginning out turn , b, Genetic Out c. None Of them

98 CCRI stands for

a Cotton Crop Research Institute, b, Center for Crop Research Institute,

c Central Cotton Reseatrh Institute

98. Fur colour in rabbits has four multiple alleles, a wild type rabbit will be dominant

a Chinchilla b. Himalayan c. Albino d All

100. The survey ship HIMS, Beagle for voyage was used by.

a Darwin b) Hartwig c) Strasburger d) Morgan

101. When two factor affect the same character & the dominent allele of each acts asepostaric the phenomena is:

a. dominanat epistasis

b. duplicate dominanat epistasis

c. recessive epistasis

d. dominanat recessive epistasis

102. Which ofb the following collection is more stable?

a. Genotypic

b. phenotypic

c. Enviormental

d. All of these

103. CLCV stand for

a. Cutton leaf cover virus

b. Cutton lea curl virus

c. Curl lea Cutton virus

104. In B.T cotton **B.T** Stand for

a. **bacilluis thuringiensis**

b. Bemisia tabaci

c. Bemisia trachpterus

105. Botnical name of american cotton is

a. **gossypium hirustum**

b. gossypium arboreum

c. gossypium barbadness

106. AZRI is

a. **ARID ZONE RESEARCH CENTER**

B. Agricultural zonal research insituite

c. Attock zonal research insituite

d. none

107. Genyotopic coorelation due to:

a. plciotropy

b. linkage

c. **both A & B**

d. gene interaction

108. two alleles in the hybrid condation intract to produce expression more or less intermidate between the two orignal forms of the chracter is termed:

a, Dominance

b. over dominance

c. CODominance

d. **INCOMPLETE Dominance**

109. The gene which have no expression of their own but change the expressivaty of the major gene are called as:

a, **Modifying genes**

b. Inhabiting genes

c. complementery genes

d. duplicate

110. Genotypic correlation is also known as:

a. inherenat correlation

b. Heritable correlation

c. genetic correlation

d. **ALL OF THESE**

111. IN plant breeding, correlation are use for determining

a. Gene action

b. Segregation pattern

c. **yield componenets**

d. dominanace pattern

112. A condation in ehich pollen is absent or non funcational in flowering plant is called

a. INCOMPATBILITY

B. Sterility

c. Male Sterility

113. Transfer of **DNA** from agarose is absent or non functionalin flowering plant is called as:

a. **southren blotting**

b. northren blotting

c. westren blotting

114. F.A.O has its headquater in

a. new york

b. geneva

c. paris

d. **ROME**

115. GMO means

a. Genetically mutant organism

b. Genetically modifying organism

c. **Genetically modified organism**

116. path analysis estimate:

a. Direct effect

b, INDirect effect

c. desidual effect

d. **ALL OF THESE**

117. A condtaion in whichbettrogametic sex carrier agene for a particular sex linked character is described as:

a. homozgyous

b. hetrozogyus

c. **hemizygous**

d. hekrozygous

118. genes whose dgree of dominanace is determine by sex of indviual carrying them are called:

a. sex linked

b. **SEX influncexl**

c. holandric

d. Sex limited

119. who was contemporary of drawin:

a. **Alfredb russcl wallace**

b. fisher

c. wright

d pecival

120. :Genotypic path is estimated directly frompath

a. Genotypic variance

b. Genotypic covariancw

c. **Genotypic correlation**

121. analysis help in improving yeild through

a. direct sellection

b. **indirect sellection**

c. recurrent selection

122. path diagram is constructed by using value of

a. **correlaltion**

b. dirrect effect

c. inrrect effect

123. regenration of plant from a single cell in culture medium is refered as

a. **CELL CULTURE**

B**.** MERISTEM CULTURE

c. organ culture

124 pakistan recives most of wheat germplasm from

A. ICARDA

B. FAO

C. **CIMMYT**

125) Karyokinesis Means

a)Cell Division **b)Nuclear Division** c)Nuclear Fusion d)Cytoplasm Fusion

126) Path diagram provide information about:

a) Variability b) Gene Action **c) Cause and Affect** d) All of these

127) in 1953, who proposed the graphical approach of diallel analysis:
a) Mather and Jinks **b) jinks and hayman** c) Jinks and Jones d) None of These
128)That type of choromosme in whichcentromere is near the oneend such that two unequals arms of chromosome are formed is termed as:
a) Telcentric b) Metacentric c)Aerocentric d) Submetacentric
129) Genetic recombination particularly in bacteria whereby a naked DNA from one individual
130) Oilive contain oil in its seed
a) 20% b) 25% c) 30% d)40%
131) Conventional Oil seed crops include
a) Sunflower b)Safflower c)Jojoba **d)Brassica**
132) Seed of maize contain oil in its
a) Germ b) Outer layer of Seed c) Starch d) Whole seed
133) when a condon specifying an armino acid mutates into a chain terminating condon that termionatesthe protein chain synthesis then mutation is called
a) frame shift b) missense c) Silent **d) Nonsense**
134) who proposed the numerical approach of diallel ncluding parents?
a) Mather b) Hayman **c) Griffing** d) Falconer
135) how many entries would be there for evaluation in a 8x8 half diallel including parents?
a) 56 **b)36** c)28 d)64
136)Any protein so far discovered consist of only 20 amino acids repeated several time in a sequesnces but the codons specifying these proteins are:
a)24 b)44 **c)61** d)64
137) The ability of a gene to express itself at all in any way is called
a) Penetrance b)Dominance c) Expressivity d) Recessiveness
138) Most efficient of breeding methods used for improvement of sugarcane:
a) melting pot Technique b)Bulk Breeding Method c)Pedigree method d)recurrent selection
139)We can have tons of oil from peelo from present sources by simple collection of seed
a) 1000 b)2000 c)3000 d)10000
140) Best method of extracting of oil from oil seeds is
a) High Pressure expeller method **b) Chemical extraction method** c) Koloo method d)Low pressure expeller method
141) Most efficient chemical used for extracting of oil from oil seeds is
a) Hexane b) Benzene c) Chlorine d) Mustard gas
142) centre of organ of sugarcane
a) Newguinae b)Brazil c)USA d)Australia
143)Examples of specific population adaption refer to:

a) Composite Variety b) Varietal blends **c) a and b** d) Synthetic Variety

144) Eberhart and Russel proposed a model for stability analysis in:

a) 1953 b) 1963 **c)1966** d)1971

145)Pangenesis theory of inheritance was given by:

a)Winge b)Fisher c)Yule **d)Darwin**

146) In eukaryotes non-chromosomal information in transmitted to another organisms through

a) Ribosomes b)Nucleus c)Lysosomes **d)Cytoplasm**

147) The vast majority of DNA molecules present in the protoplasm of cells is of

a) Z-form **b) B-form** c)C-form d)G-form

148) How many entries including parents are there In 10 x 10 full daillel cross?

a) 45 b) 55 c) 90 **d)100**

149) In daillel cross, a^2 combinations among n parents include:

a) Direct Crosses b) Reciprocal crosses c) Parenta **d)All of these**

150) Numerical approach of daillel analysis provides information about:

a) D and H components b)gca and sca variance c) gca and sca effects **d)All of these**

151- Castor originated in:

a. **Africa**
b. India
c. Nepal
d. Mideast

152- Toria is cultivated in the month of

a. **Sep**
b. August
c. Oct
d. July

153-

154- In diallel analysis the dominance variance is equal to

a. **Sca variance**
b. 2 v-sca
c. 2 v-gca
d. Nne of these

155- Deeply stained regions of chromosomes are the heterochromatin regions which specify that they contain most of the:

a. Exon regions
b. Junk sequences
c. Major genes
d. Minor genes

156- If two are more triplets code for the same amino acids it is called as
a. Codon
b. Genetic code
c. Transforming Principle
d. Degenerate Code

157- Hardy- Weonberg rule formed the basis for a new brash of science known as
a. Genetics
b. Population genetics
c. Evolutionary genetics
d. Modern genetics

158- Coastal clmate of Pakistan is suitable for plantation of
a. Palm
b. Groundnut
c. Jojoba
d. Peelo

159- Sunflower contributes in local edible oils production
a. 6%

160- The transfer of energy from ATP to amino acid requires a specific ---------- which can recognize both amino acid and ATP
A. Enzyme

161- Cultivation of safflower is confined to
a. NWFP

162- Genetic phenomenon mutation was discovered by
a. Hugo de Vries

163- In diallel analysis, the additive genetiv variance is equal to
b. 2v gca

164- Cultivation of sugar beat is restricted to
a. Peshawar valley

165- Ethanol is extracted from sugarcane by product
a. Molasses

166- Flowering of sugarcane occurs in Pakistan in
a. Thatta

167- Deficiency of mineral which cause low yield in Pakistan

a. Magnesium and Boron

168- Full diallel permits estimation of

a. Gca and sca effects
b. Maternal effects
c. Gca and sca variances
d. All of these

169- In 1944 Avery, Macleod and McCarty proved that the DNA was the transforming principle by applying enzyme---------- to the sample and no transformation occurred

a. RNase
b. Ligase
c. Protease
d. DNAse

170- When two heterozygous pairs of alleles with incomplete dominance are involved, what is the possible number of genotypic classes in the F_2.

A. 10
B. 16
C. 9
D. 6

171- Sugar beat contain sugar

a. 13 to 18%
b. 20 to 21%
c. 10 to 12%
d. Above 20%

172- 1 tonne of glutamic acid is obtained from tonnes of molasses

a. 4
b. 5
c. 3
d. 6

173- In sugar beat O type plants are used as parents

a. Recurrent
b. Male parent
c. Female parent
d. None recurrent

174- Growth of sugarcane cease at a temperature below

a. 20 C
b. 10 C

c. O C
d. -5 C

175- Enzyme that relieves super coiling during DNA replication
a. Lygase
b. Gyrase
c. Protease
d. Amylase

176- How many methods of diallel analysis have been given by Griffing (1956)
a. One
b. Two
c. Three
d. Four

177- In Vr-Wr graph when regression line passes through the origin, it indicates
a. Complete dominance
b. Partial dominance
c. Lack of dominance
d. Over dominance

178- In Vr-Wr graph with more dominant genes occupy position
a. Near origin
b. Far away from origin
c. In the middle
d. All of these

179- For starting DNA replication it is important to produce a short
a. RNA primer
b. DNA primer
c. Histones
d. Polypeptides

180- When we used area crosses breeding method for improvement of cane plant is known
a. Female
b. Male
c. Both parent
d. Both unknown

181- Saccharum originated in
a. India

182- We can exploit cultivation of stevia in our area
a. Northern areas

183- Seed of sugarcane is known as

a. Fuzz

184- 5- Bromouracil is an analogue of

a. Thymine

185- Germplasm theory of evolution was developed by

a. August Wiesman

186- In human diploid cells the chromosome number will be

a. 46

187- Diallel crosses does not permit estimation of

a. Epistatic variance

188- Who developed the concept of Line x Tester cross analysis

a. Kempthorne

189- In sugar beat flowering occur in a year

a. Second year

190- Pakistan ranks position from cultivated area point out in world

a. 5^{th}

191- Pakistan ranks position from sucrose extraction point of view In the world

a. 16^{th}

192- Wax is extracted from presumed of cane industry with the help of

a. Benzene

193- In line x tester cross, each male is mated with

a. Same set of females

b. Different set of females

c. Few females of a set

d. All of these

194- The law of segregation was proposed by

a. Mendel

195- In plants the process of male gamete formation is knowm as

a. Microsporogenesis

196- Carbon dioxide is produced by fermentation of molasses by percentage

a. 16%

197- Saturated fatty acids are obtained from

a. Animal fat

198- In saturated fatty acids carbon atom are present with

a. Single bond

199- Cultivation of groundnut is restricted to

a. Rawalpindi division

200- which of the following organelle is missing in plant cell

a. Ribosomes
b. Endoplasmic reticulum
c. Mitochondria
d. Centriole

201.In line × tester cross mating is done between

Males and females

202. Line ×tester analysis does not permit between
a_males and females b. Among males
C.among females **d. B and C**
203.line ×tester provides information about
A.gca and sca variences B .gca and sca effects
C.D and H components **D.All of these.**
204. Productive flowers in sunflower is known as
Disc floret
205.best quality edible oil available from plants is
A. Olive oil b. Corn oil
C. Sunflower oil d.cotton oil
206. Auto polyploidy have been successfully exploited in
A.sugar beat b. Sugarcane c. Maize d. Sunflower
207. Drying capaicty of oil depends upon
A. Iodine percentage b.saponification c.carbon chain length
d. Percentage of erucic acid
208. In spermatogennesis, each each spermatogonium increases in size to form a
A.spermatozoa B. Spermatid c. Primary oocyte **d.spermatocyte**
209. Who said that **sports** are of no significance in evolution.
A. Joseph kolreuter b.vavilo c. Dobzhansky **d. Darwin**
210. A mature ovule is known as.
A. Endosperm **b. Seed** c. Ovary d. Fruit
211.an alternate form of a gene is known as.
A. Gamete b. Chromatids **c. Allele** d.locus
212. In human beings the blood groups are characterized by
A. 2 antigens b. 3 antigens c. 4 antigens d. 5 antigens
213. Line ×tester cross is a modified form of
A. Top cross b. Poly cross c. Back cross d. None of these
214. Maximum number of parents can be evaluated for combining ability at a time by
A. Diallel cross B. Partial diallel cross **c. Line ×tester cross** d.polycross
215. best quality oil for paint industry is made with the help of vegetable oil
A. Linn oil b. Sesame oil c. safflower oil. D. Sunflower oil
216. Canola types of brassica originated in
A. Canada b. Australia c. USA d. China
217. At present number of sugarmills working in pakistan for extraction of sugar

A. 80 b. 70 c. 65 d. 68
218. Bt. Cotton has evolved through
A. Bulk method b. Pedigree **c. Genetic engineering** d.mass selection
219. Which of the following area main fruiting branches in cotton
A. Monopodial **b. Sympodial** c. Both d. None
220. Jute fibre is obtained from.
A. Leaves **b. Stem** c. Root d. Flower
221. The adaptation of a plant to changed climate to a new climate is called as.
A. Diversification b. Introduction **c. Acclimatization** d. Competition
222. Type of infertility due to the failure of plants with normal pollen ad ovules of Set seeds due to some physiological hindrance that prevents fertilization is called
A. pseudogamy b. Sterility **c. Incomparability** d. Parthenogenesis
223. A good tester should poses
A. Broad genetic base b. Wider adaptability c.low yield potential **d.all of these**
224. According to 2nd law of inheritance the members of all gene pairs assort_____ and form all possible combinations.
A. Assortment b. Frequently c. Independently d. simultaneously
225. The individual having genotype TtAa is known as
A. Monohybrid **B. Dihybrid** c. Homologous d. True breeding
226. The plant *OENTHERA LAMARCHIANA* was studied extensively by
HUGO DE VRIES
227. The type of gametes produced by the genotype PpRr will be
A.8
B.6
C.4
d.2
228.the type of combinations produced by cross PpRr × PPPr will be
A. 10 B. 12 **c. 8** d.16
229. A progeny decedent solely by self fertilisation form a single homozygom plant is known as
A.hybrid b. Multiline **c. Pure line** d. None of these.
230. In pedigree selection after hybridization two varieties of a self pollinated crops this selection for the plant is started in
a. F1 **b. F2 X** c. F4 d. f5
231. Selection leads to
A. accumulation of favourable genes
B. Creation of new combinations
C. Both these
D. none of these
232. Genetic variance refers to.
A. Additive variance.
B. dominance variance
C. epispastic variance
D. all of these
233. Intra allelic(intra locus) interaction reffers to.
A. Complete dominance
B. Incomplete dominance
C . over dominance
D. all of these
234.non allelic interactions(inter locus interactions) refers to.
a. Incomplete dominance
B.complete dominance
C. over dominance
D. none of these

235. In fruit fly the total chromosome number is
A. 6 **b.8** c.10 d. 12
236. undifferentiated mass of cells produced in vitro is called
A. Callus b. Tissues c. Organ d. Clone
237. which international centre is responsible for breeding pretty kid barley wheat and corn
A. ICRISAT
B.ICARDA
C.AVARDC
D.CIMMYT
238. Flower contain all four floral organs are known as
A. perfact flower
B. Bisexual flower
C.complete flower
D .Incomplete flower
239. Imperfect flowers are Always
A.complete
B. Incomplete
C. Bisexual
D. Unisexual
240. Einkorm wheat has the chromosome number
A. 7 chromosome
B. 7 chromosome pairs
C.14 chromosome pairs
D.21 chromosome pairs
241. In a DNA molecule dbase cytosine is linked with guanine through

1. one hydrogen bonds
2. two hydrogen bonds
3. **three hydrogen bonds**
4. foor hydrogen bonds

242. Contemporary theory of evolution was developed by

1. Mendel
2. Smith
3. Helot
4. **No one**

243. The enzyme DNAse degrades

1. Protein
2. RNA
3. **DNA**
4. Aminoacids

244. Which of the following types of epistaxis is fixable?

1. **Additive × additive**
2. Additive × dominance
3. Dominance × dominance
4. None of these

245. Important component in plant breeding is to increase genetic variability through

1. Mutation
2. Polyploidy
3. **Hybridization**
4. Genetic engineering

246. Egg and pollen grain receive

1. One pair of genes

2. Two pair of genes
3. **One of a pair Genes**
4. Three pair of genes

247. The transfer of Poland from anther to stigma is known as
1. Fertilisation
2. **pollination**
3. cross fertilisation
4. self pollination

248. Additive gene action refers to
1. Additive variance
2. Additive × additive epistasis
3. **A and b**
4. None of these

249. Fixable gene action includes
1. Additive variance
2. Additive ×additive epistasis
3. **This one**
4. None.

250. In the process of protein synthesis the required a minor issues are brought into a polypeptide chain bye
1. mRNA
2. **tRNA**
3. rRNA
4. snRNA

251, Union of male and female gametes are known as
a. Pollination **b. Fertilization** **c.** Double fertilization d. crossing

252. Fertilization resulting from the union of gametes produced
a. Autogamy b. Allogamy, c. Anemophillus d. Hydrophillus

253. Plant have different alleles in their chromosome are
a. Hemizygous **b. Hetrozygous** c. Homozygous, d. Hetrostylous

254. Recessive mutation are uncovered by
a. Cross fertilization, b Self pollination **c. Self fertilization** d, Cross pollination

255. A group of cells carrying out the same function is known as
a. Tissue b. Organ c. Callus d. Clone

256. The study of living organisms at the cell level is termed as
a. Histology **b. Cytology** c. Biotechnology d. Ecology

257. The genetic makeup of an individual is called as
a. Phenotype **b. Genotype** c. Phenocopy d. Pleiotropy

258. The phenotypic variation in a population is increased through the process of …….
a. meiosis b. linkage c. mitosis d. None of these

259. Additive genes Show:
a. Lack of dominance b) Incomplete dominance
c) Complete dominance d) Over dominance

260. Dominant genes exhibit:
a. Incomplete dominance b) Complete. dominance
c) Over dominance **d) All of these**

261. Which of following is predominant in the natural breeding populations?
a) Dominance variance **(b Additive variance**
c) variance d) Phenotypic variance

262. The study of plant life in relation to its environment is known as

a. plant Ecology b. taxonomy c. Pathology d. Physiology

263. Impact of inbreeding depression in self fertilized plant is

a. Expected **b. None**

264. Plants bear flowers of only one sex on a plant are called

a. Dioecious b. Monoecious, c. Complete, Incomplete

265. Monoecious plants have

a. Separate male and female organs on different plants,

b. **Separate flowers on same plant**

c. Male and female parts in same flower

266. Type of apomoxis when a cell in the integument divides into an embryo s

a. Adventitious embryo b. Apospory c. Diplospory d. Apmoicis

267. Protein synthesis takes place in the part of cell known as

a. Lysosomes **b. Ribosomes** c.Mitochondria d. Centriole

268. When the plants are regenerated in vitro through the vegetative parts of the plants is known a. Cuttings b. Budding c. Layering culture **d. Tissue culturing**

269. In cells the functions of mitochondria is

a. Digestion **b.Power generation** c. Respiration d.Photosynthesis

270. Selection is effective for traits which are governed by:

a) Additive genes b) Additive x additive epistasis

c) a and b d) Dominant genes

271. In cross pollinated species which of the following breeding methods should be used if there is preponderance of additive gene action?

a) Synthetic breeding b) Composite breeding

c) Heterosis breeding **d) a and b**

272. An organism having pair of identical allele is called

a. Heterozygous b. Hemizygous c. Heterogametic **d.Homozygous**

273. Corn ear has grain rows…. **Even number of rows.**

274. Most appropriate centre of origin of maize is

a. Centra1 America, b South America, c. Paraguay d.Mexico

275. Maize plant inflorescence is normally

a. Complete, b. Perfect, c. Dioecious **d.Monoecious**

276. The re-examination of Darwin's theory in the light of discoveries of gene and chromosomes is known as

a. New Darwinism b) law of segregation c) blending inheritance d) mutation theory.

277. The trait which does not express itself in Fl generation is called

a Partially dominant b. Dominant **c. Recessive** d. Codominant

278. DNA molecule Adenine pairs with

a. Proline b. Guanine c. Cytosine **(D Thymine**

279. Type of polyploidy have a chromosome No. other than an exact multiple

a. Euploid **b. Aneuploidy** c. Polyploidy, d. Hetero ploidy

280 Nullisomic are

a. 2n-1 **b. 2n-2** c. 2n+1 d. 2n +2

281. Seed produced from foundation seed is called

a. Breeder seed b, Foundation seed, c. Registered seed **d. Certified seed**

282, One seeded dry fruit with thin pericarp adherent to the seed is called

a. Seed **b. Caryopsis** c. fruit d. ovary

283. The Trna brings the required… to ribosomal RNA during the process of protein synthesis.

a. Fatty acid b. Nitrogen **c. Amino acid** d. Phosphate

284. If there is preponderance of non-additive gene action which of the following breeding method should be used

a) Mutation breeding **b)Heterosis breeding**
c) Line breeding d) Backcross

285. Selection is not effective for a trait which is governed by:

a) Dominance variance b) Additive x dominance epistasis
c) Dcminance x dominance epistasis **d) All of these**

286, Compound inflorescence with pedicielcd flowers usually loose or irregular

a) Spike **b) Panicle** c.) Spikelete, d) Spidex

287. Mature ovary wall around the ovule .**a.Pericarp** b. Mesncarp, c. Endocarp, d. Actocarp

288. Flower pollinated by wind is called

a. Ento mophilous, b. Hydro philous, c. Zoo philouso **d. Ancmo phious**

289. Selection is practiced in segregating germination in F5 or F6

a. Single seed descent method, b, Pedigree method **c. Bulk population method** , d. Double haploid

290 The ratio of genotypic variance to phenotypic variance refers to:

a)**Broad sense heritability** b) Narrow sense heritability
c) a and b above d) None of these

291. The DNA that has been made by combining the segments of DNA from two different organisms is termed as

a. Recombinant DNA b. Repetitive DNA c. Clone d. Ramet

292. Pollination in line seed is accomplished by a, Wind, b. Insects, c. Both **d.None**

293. Peanut belongs to family a. Graminneae, b. Malvaccac **c.Lcguminosae,** d. Cruciferae

294. Genome of brassica carinata

a. AACC, b AABB, c. AACBC **d.BBCC**

295. good source of vegetable protein is in

a. Pulscs , b. Maize c**) Wheat**, d. All three

296. Fertilization in plants in 1879 was first recognized by

a. Sutton b Heltwig **c. Stranburger** d. Von Baer

297. Heritable and non-heritable variation was distinguished by a.Mendel b. Weismann **c. Johannsen** d. Biffen

298. Chromosome theory was proposed in the year:

a. 1902 b. 1947 c. 1910 d. 1884

299. Mendels work as rediscovered by three biologists Tschemak, deVries and Correns In

a. 1857 b 1940 **c. 1900** d. 1865

300. According to blending theory hereditary factors are mixed and give rise to

a. Phenotype of male **b. Intermediate phenotype** c. Other than male and female d. Phenotype Of female

300. According to blending theory hereditary factors are mixed and give rise to

a)Phenotype of male **b) Intermediate phenotype** c) Other than male and female d) Phenotype Of female

301. Most Of the prokaryotes range in size of

a) **1-10 micro m** b) 10-100 gm c) I-5 um d)50-100 µm

302. The ratio of additive variance to phenotypic variance refers to:

a)Broad sense heritability **b)Narrow sense heritability** C) Cohentability d) Repeatability

303. Nicotiana tabacum has 2n chromosome numbe

a)38 b) 40 c).42 **d)48**

304 Genome of spring wheat is

a)AABB b)AABBC c)BBCCDD **d)AABBDD**

305 In Pakistan spring wheat is growing in

a) Spring **b)Winter** c)Summer d)Autumn

306. Pollen grain of *T.turgidum* has c*hromosome* NO.

a)14 b)7 c)21 d)42

307. The formula Vg Wp x K is used for calculation of:

a) Genetic gain **b)GenetiC advance**

C) Selecticn differential d) Selection intensity

308. The formula G CovX1X2 ×100 is used for calculation of
P CovX1X2

a) Combining ability b) Repeatability

c)Coheritability d) None ofthese

309. High value of genetic advance indicates that the character is governed by

a)Additivc genes b) Dominant genes

e) Epislatic genes d) All of these

310. In cotton extra floral nectars are present On

a)Leaves b) steam **c) Bracts** d)None

311. Inflorescence of rice is called

a) Panicle b. Spike, c. Tassel, d. Spadix

312. Which is the crop is cross pollinated

a.Finger millet, b. Foxtail miller, c. proso millet **d)pearl mille**t

313. Which is the crop is self pollinated

a)Red clover **b)Burr clover** c) Yellowclover d) None

314. Low value of genetic advance indicates that the character is governed by

a) Additive genes **b) Non-additive genes**

c) Epistatic genes d) a and b

315. High estimates ofnarrow sense heritability are indicative of.

a)Additive gene action b) Dominance action

c) Non-additive gene action d) Overdominance gene action

316, The chromosomes are organized in the centre on equatorial plate during

a. Telophase b. Prophase **c. Metaphase** Anaphase

317. The gradual replacement Of one allele by another one is known as

a)quantitative inheritance b) qualitative Inheritance **c)transient polymorphism** d) mutation.

318. Chromosomal material duplicates during

a.Interphase b. Prophase c. Diakinesis d. Metaphase

319. One gene may hide the effect of a second gene when both are present

a. Complementary action **b.Masking action** c. Inhibiliug action d. None

320. abnormal type of fertilization in which male gamete fertilizes an egg

321. The tissue culture induce mutation are referred to as

a Induced mutation **b.somaclonal variation** c., Mutation, d None ofthese

322. F1 is crossed back with its parent is called

a. Back cross, b Test cross, c. Cross, d None ofthese

323. Microspores in the anthers mature into pollen grain. During this maturation each haploid nucleus ofmicrospore divides and ultimately gives rise to

a. 1 gamete b.**2 gametes** c. 3 garneteS d 4 gamete

324. The difference between mean phenotypic values of the progeny cf selected plants and original population is Called:

a Genetic advance b) Genetic gain**c.Selection differential**d) None

325. The gca variance includes:

a) Additive variance b) Additive x additive epistasis **c) a and b** d) Dominance variance

326 The petals of a flower are collectively called

a. Calyx **b .corolla** c. Endroceum, d Gyneceium

327. Transfer of pollen grain from anther to stigma called

a.Fertilization, b. Doublc fertilization **c. pollination**, d, Cross pollination

328. The enlarged basal portion of the pistil in which seed are born

a.Ovule **b.Ovary** , c. Stigma. d. Nonc ofthese

329. The transfer of pollen from an anther of flower on one plant to a stigma in a flower Of different plant is called

a. Fertilization b Cross fertilization, c. Selfpollination **d.Cross pollination**

330. The sca variance includes:

a) Dominance variance b) Additive x dominance epistü51s

c) Dominance x dominance **d)All of these** 331.

The phenotype realized depends on the

a) Interaction of genes and environment b. Genotype C. Environment d. Interaction of all the genes

332. AB blood groups in human are due to

a.Co dominant alleles b, Dominant alleles c. Incompletely dominant alleles d. recessive alleles

333, Stalk of stamen which supports the anther is called

a Pedicel, b. Petiole **c Filament**, d. None of these

334. Group of identical plants originating by the vegetative propagation from a single plant

a. Variety, b, Line, c. Species **d. Clone**

335. Group of similar locking plants that has approved for general cultivation in an ecological zone is called

a. Strain, b Advance line, c Clone **d.Variety**

336 The worrd genetics was coined by

a.Beatson b. Mendel c. Weismann d. Watson & Crick

337. Dried fodder used as livestock fccd is called

a.Hay , b. Sillage, c. Pasture, d. None ofthesc

338. A condition in which pollen is absent non functional in flowering plants are Called

a. Sterility **b. Male sterility**, c. Incompatibility, d. None Ofthese

339, Genetic Constitution of an orgarnsrn is refereed as a Phenotype, h Phenocopye **c. Genotype**, d. None ofthese

340. An inflorescence with more or less elongated axis having s essile spikelets are called

a. Raceme, b. Racemose. c _ Panicle, d **Spike**

341, The upper of two bracts enclosing each floret in the grasses termed as a.Lemma
b.Palea, c. Gluves, d. None of these

342. In the Ac-Ds family of transposons in corn, the Ac element is
a Autonomous b. Stable c - Nonautcnomous d. B0th b andc arc correct

343. Develcpment of 'corbonaria' phenotype in Biston is due to
a.Dominant mutation b) recessive mutation c) epistasis d) multiple alleles.

The deficiency ofX chromosome In female results into
a, Intersex b. Khnefelter syndrome c. Down syndrome **d Turner syndromer**

Wh ich breeding method would bc rewarding when there is preponderance of additive gene action?
a) Heterosis breeding b)**Progeny selection**
c) Simple recurrent selection d) None of these

346. The lower ofthe bracts enclosing the grass floret is called
a.Lemma, b. Palea3 c. Glume, d. bracts

347 The outer husks or bracts of each spikelets covering the floret in grasses is called
a. Lemma, b paiea **C Glume**. d. Bracts

348. An individual having single set of chromosome is called
a.Haploid, b Monoploid, c. Diploid, TetraPloid

349. The efficiency of selection depends upon the availability of
a.Breedmg methods, b. Heterosis **c.Variability**, d, Apomixis

350. Which breeding method would be effective when there is preponderance of non-additive gene action?
a Progeny selection b) Reciprocal recurrent selection **c. hetrosissis breeding** d) Al of these

351. Higher value of gca than sca indicates preponderance of:

a) Dominance b) epistasis c) Additive genes d) linkage

352. Quantitative traits are developed as result of the action of
a) Monogene b) Polygenes c) Multiple alleles d) isoalleles

353. Way the yield in cross pollinated crops decreases by continuous selfing
a) out breeding b) inbreeding c) Random mating d) Inbreeding depression

354. A progeny descendent solely by self-pollination from a single homozygous plant is called
a) line breeding b) Advance line c) Pure line d) Inbreeding line

355. A hybrid from a cross between two single crosses is known as
a) Three-way cross b) Multiple hybrid c) Dihybrid d) Double cross

356. The chromosome other than sex chromosomes are called
a) heterochromatin b) euchromatin c) Autosome d) Chromosomes

357. The kind of homozygous recessive genotype in F2 generation derived from a cross of contrasting homozygous parents is always
a) 1 b)2 c)3 d)4

358. Linkage maps of chromosomes are derived from the
a) backcross b) 3- way cross c) F2 data d) Testcross

359. In case of bread wheat the linkage groups are
a) 42 b) 7 c)14 d) 21

360. Gene pool is the sum of total…….. within the reproductive cells of member in a population.
a) genotype b) phenotype c) alleles d) gametes

361. The cross between inbred line and open pollinated variety of maize is known as
a) Three-way cross b) Top cross c) poly cross d) single cross

362. Selection is delayed up to f6 generation in
a) Recurrent selection b) pedigree method c) SSD method d) bulk method

363. The phenomena of change in chromosome number is called

a) Heteroploidy b) euploidy c) Aneuploidy d) Amphiploidy

364. In double cross over there is change in the position

a) None of the gene b) central gene c) Genes on ends d) all of these

365. Higher value of sca variance than gca variance indicates preponderance of:

a) additive gene action b) non- additive gene action c) a and b d) lethal genes

366. The gca variance has positive association with

a) Narrow sense heritability b) adaptability c) Hybrid vigor d) All of these

367. The sca variance has positive association with

a) adaptability b) Heterosis c) linkage d) heritability

368. The ability of plant to grow and breed successfully in the new environment Is called

a) Introduction b) selection c) mass selection d) acclimatization

369. Crossing scheme where one parent is used recurrent is named as

a) recurrent selection b) mass selection c) test cross d) back cross

370. Reciprocal exchange chromosomal segments between non homologous chromosome is called

a) Trans location b) crossing over c) Reciprocal translocation d) inversion

371. In segregation population the appearance of plant superior to the parents is termed as

a) better parent b) heterosis c) heterobeltosis d) transgressive segregate

372. The ability of an inbred line to transmit its average performance to its hybrid progeny is termed

a) General combining ability b) specific combining ability c) combining ability d) Heritability

373. Which of the following type of epistasis contribute to heterosis

a) additive × additive b) additive × dominance c) Dominance × dominance d) All of these

374. Mendel was able to conclude the law of independent assortment because of the absence of

a) Crossing over b) mutation c) Linkage d) Epistasis

375. If the crossing over percentage in two gene is 20 then the distance between the genes would be

a) 20cM b**) 10 cM c) 1cM d) 2cM**

376. In the absence of mutation, genetic drift, migration and selection the proportion of genotypes in outbreeding population ᶻ according to Hardy-Weinberg Law

a)2pq b) p2+ q2 c) 2p2 + 2pq d) p2+2pq+q2

377_ Heterosis Can be fixed by:

a) Asexual reproduction b) Apomixis c) Polyploidy D) All of these

378 Heterobeltosis is estimated over:

a) Mid-parent b) Better parent c) Popular variety d) Popular hybrid

379. Useful heterosis is estimated over:

a) Mid parentb) Popular variety c) Better parent d) Best parent

380. The formula F1 — BP x 100 is used for calculation of BP

a) Heterobeltiosis b) Mean heterosis c) Useful heterosis d) Pseudo heterosis

381.Exchange of segments between non-homologous chromosomes is termed

a. Crossing over b. Deficiency c Translocation d. Duplication

382.Inheritance in M & N blood groups in human beings is due to

a) Partial dominance b) complete dominance c) co-dominance d) over dominance.

383.Watson and Crick model of DNA was descrfloed in

a)"1952 b. 1902 c) 1882 d. 1962

384.Group of similar appearing plants are selected and their seed is composite is known as

a) Mass selection, b composite variety, c. Synthetic variety, d. Pure line selection

385. Selfing of a plant belonging to open-pollinated group is called

a. Pure line, b. line breeding c) Inbred line, d. Synthetic

386. In vegetativly propagated crops segregation occurs in

a)F1 b.E2, c. F4, d)FS

387 First evidence that DNA is genetic rnaterial was repcrted by Avery, Macleod and McCarty in

a) 1900 b) 1944 c) 1857 d) 1902

388, In DNA model of Watson and Crick the diameter Of DNA molecule is about

a) 20 A^O b) 50 c. 10 A0 d) 100 d 100 A^U

389. The distance between One nitrogen base to the next in DNA mclecule is

a. 5_75A^0 b. 10 A^O c)3.4 A^0 d. 4.5 A^O 390,

390. The formula F1— F2 / F1 x 100 is used for estimation of:

a) **Useful heterosis b) Heterobeltosis c) Average heterosis d) Inbreeding depression**

391. The organism with chromosome number not exact multiple of the monoploid Set is called

a. **Euploid, b. Polyploid, c. Heteroploidy d) Aneuploid**

392. Extractinn of sugar from Sorghum is not possible due to the presence Of

a) 1nvert sugar b. Lower percentage of sugar, e Machinery d Crushing problem

393.Sugar beet belong to family

a) Chenopodeace, b. Malvaccac, c. Poaceaes d Curbitaceae

394. Negative heterosis is important for:

a.Earliness b) Plant height in cereals c)Low toxic substances d) All of these

395. A cross bettween two inbred lines is called:

a) Single cross b) Three-way cross c) Double cross d) Multiple cross

396. In general the GC content is assumed as

a. 40.7 b 60.5 c 45.5 d. 50

397. Which species is important from breeding point of view?

a) **morphological species b.biological species c) evolutionary species d) phylogenetic**

398. Replication of DNA is

a) **Discentigrated b. Conservative c. Semi conservative d. Disruptive**

399. In lagging chain of DNA replication is done by fragments called

a) **Okazaki b. Suzuki c) Operon d. Cistron**

400. Highest uniformity is observed in a

A) **single Cross b) Three-way cross c) Double cross d) Multi cross**

401. If you want to have a sugarcane variety grow seedlings

a) 0.1 million b) 0.2 million c) 0.8 million d) 1.5 million

402. Best marcotting media for flowering sugarcane

a) Horse dung+soil+N b)saw of wood+soil+N c)sand+soil+N d) sand+soil

403. Head of sugarcane is known as

a) Arrow b)Capitlum c) spike d)raceme

404. Sugarcane required sets for plantation of one acre

a) 80 mounds b) 60 mounds c)70 mounds d) 50 mounds

405. mating between a single cross and an open pollinated variety is called

a) polycross b)composite cross **c) double top cross** d) top cross

406. Heterosis can be fully exploited in the form of

a) hybrids b) composites c) synthetics d) multilines

407. set roots of sugarcane emerged from

a)Root band of set b)primary roots c)secondry roots d)from bad v

408. sesame contain protein in its seed

a) 60% b)55% c)40%

409. freezing temperature of jojoba oil is

a) -7°C b)-1°C c)0°C d) 4°C

410. The information on DNA molecule is coded in the form of a set of

a)three nucleotides b) two nucleotides c)four nucleotides d) five nucleotides

411. which of the following genotypes is the result of transposable elements?

a) spotted kernels in corn b) spotted peas c) green color in peas d) all of them

412. the cross pollinated species are also called as

a) out breeders b) Allogamous species **c) a and b both** d) autogamous species

413. boiling temperature for oil of jojoba is

a) 398^{o}C b) 400^{o}C c) 410^{o}C d)250^{o}C

414. water of coconut fruit contain carbohydrates

a) 5% b) 8% c) 10% d) 20%

415. safflower originated in the region

a) Ehtiopia and Afghanistan b) USA c)USSR d) Brazil

416. self pollinated species are also termed as

a) autogamous species b) inbreeders **c) a and b both** d) allogamous species

417. the concept of combining ability was first proposed in 1942 by

a) wright b) Hayman **c) Sprague and Tatum** d) jinks and jones

418. genotypes with broad genetic base have

a) Poor adaptability b) average stability **c) wide adaptability** d) none of these

419. which of the following species have highest rate of mutation

a)Human **b)bacteria** c)maize plant d)wheat

420. If a species is divided into two or more races is called

a) evolutionary species **b) polytypic species** c) allopatric species d) morphological species

421. the viruses capable of attacking bacteria are called

a)Bacteriophage b) E.Coli c) Recto virus d) Yellow mosaic

422. lagest production of castor is

a) Brazil b) india c) china d) USSR

423. most common shape of flower of linseed is

a) Funnel b)Tubular c) star d) Crimbed

424. *Brassica juncea* contain genomes with 36 chromosomes

a) AABB b)AACC c) BBCC d) AADD

425. Ground nut ranks in vegetable oil production in the world

a) 10th b) 5th c)15th d) 20th

426. for indirect transformation of DNA into plants-------- are used

a) *Agrobacterium* b) virus c) fungus d) spores

427. stability analysis is based on

a) one season data b) multi seasonal data c) multilocational data **d) b and c**

428. the degree of suitablility on an organism to its environment is called

a) heritability b) co-heritability **c) Adaptability** d) none of these

429. half diallel does not permit estimation of

a) gca effects b) sca effects **c)maternal effects** d) all of these

430. how many genetic assumptions are involved in diallel analysis

a) three b) four c) seven **d) six**

431. to block the translation of a functional mRNA molecule a small complementary sequence of RNA is used

a) tRNA b)rRNA **c)Anti sense RNA** d) primer

432. Pakistan extract percentage of vegetable oil from

a)0% b)10% c)20% d)30%

433. linolenic acid contains carbon chain

a) 18 carbons with 3 double bonds

434. The phenomenon of adaptation of an exotic genotype into new ecological conditions is ---

a) introduction **b) Acclimatization** c) Migration d0 Domestication

435. The modification of genetic material without sexual means is called –

a) Genetic Engineering b) genetics c) Breeding d) Grafting

436. Graphical approach of diallel analysis provides information about

a) D and H_1 B) H_2 and E c) F and h^2 **d) all of these**

437. Griffing proposed the numerical approach of diallel cross analysis in

a) 1947 b) 1953 **c) 1956** d) 1957

438. Estimation of environmental path is based on

a) Environmental correlation b)simple correlation c)partial correlation d) none of these

439. A single Stranded DNA molecule i.e. complementary to complex mRNA is called---

a)zDNA b)tRNA c) mRNA **d)cDNA**

440. Individuals of all species that live in the geographic area are said to be

a)sympatric b)allopatric c) monotypic d) none of these

441. A mutation that changes a gene from its wild form to a mutant form is called

a) nonsense mutation **b) forward mutation** c) missense mutation d) back mutation

442. The technique used to detect RNA from a mixture of nucleic acid is termed as

a) Northern blotting b)SSR c)southern blotting d) PCR

443. All possible genotypic correlation among '**n**' variables are required for estimation of

a) genotypic path **b) phenotypic path** c)environmental path d)all of these

444. Maturation of anthers before stigma of the same flower is called----

a) protandry b)chasmogamy c)protogyny d)Dichogamy

445. ---------- is the type of apomixes in which megaspore mother cell degenerates and unreduced embryo sac is formed from somatic cell of ovule .

a) Diplospory b) parthenogenesis c) apogamy **d) Apospory**

446. ---------- is considered to be the first method of breeding for improvement of crop plants.

a) Hybridization b) back cross **c) selection** d) Introduction

447. path diagram is constructed before estimation of

a) Direct effects b) Indirect effects c) Residual effects **d) all of these**

448. genotypic correlation are used for the estimation of

a) Genotypic path b) phenotypic path c) Environmental path d) all of these

449. the method of introducing DNA directly into the host cell is called

a)Blotting b) bioinformatics **c) Biolistics** d) Blast

450. to obtain quantitative data on any possible effects of X-Ray on Mutation rate CLB method was used by

a) Muller b) Morgan c) Gardner d) Sutton

451 _ phenotypic variance includes:

a. Genotypic variance b) Error variance **c) a and b** d) None of these

452.Phenotypic variation is measured in terms of

a) Genotypic variance **b) Phenotypic variance**

c) Error variance453 A group of plants developed from a single homozygous plant through continuous self-pollination is known as

a) Clone b)Pure line **c)Inbred line**

d)Isogenic linc

454. are the primitive varieties adapted to the ecological conditions of a particular arex

a) Breeding lines c) Cultivars

b) Land races d) Strains

455 of variability from the genetic resources of crop plants is_____

a) Vulnerability c) Adulteration

b) Linkage drag **d) Genetic erosion**

456. Cluster diagram is related to:

a) Path analysis **b) D^2 statistics**

c) Metroglyph analysis d) All of these

457. Glyph is related to:

a) D^2 statistics b) Diallel analysis

c) Metroglyph analysis d) Path analysis

458, one of the fallowing is not inherited disease

a) **Malaria** c) Color blindness

b) hemophilia d) Baldness

459,Phylogenetic species has been defined by

a) Bruce b) McFadden **c) George Gaylord** d) Shull.

460.The plants which are genetically modified by artificial means are called

a. Plasmid b. Cybrids c, Hybrids Plants **d) GM plants**

461. In plant breeding population variability is important for:

a) Disease resistance b) Adaptability

c) Effective selection **d) All of these**

462. Analysis of polygenic traits is based on:

a) Means b) Variances

c) Co-variances **d) all of these**

463. Better performance of segregating generations over the parents is called_____

a) heterosis **c)Transgressive segregation**

b) Inbreeding depressicn d) Hybrid vigour

464. Variation due to the average cumulative effects of the alleles of the genes at all segregating loci is termed as_____

a) Additive variation c) Environmental variation

b) Dominance variation d) Epistatic variation

465. The degree to which variation in a character is transferred to the next generation is

_____

a) Heterobeltiosis **c)Heritability**

b) heredity d) Heterosis

466 Analysis of Oligogenic character is based on:

a) Variances b) Co-variances

c) Means **d)Frequencies**

467,First chemical mutagen discovered hy Auerbach and Robson in

a. 1901 **b) 1941** c. 1931 d. 1921

468. The first transgenic animal produced in 1997 was named

a. Colly b.Bolly **c)Dolly** d. Polly

469. The extra cellular DNA molecules present in bacteria other than the genomic DNA is known

a Virus b. Vector c. Plastid **d)Plasmid**

470. Oligogenic characters are measured in terms of:

a) Colour k) Shape

c) Surface **d) All of these**

471. Polygenic traits are measured in terms of:

a) Height and weight b) Length and width

c) duration **d) all of these**

472.Selection is started in-------generation in bulk population method.

a) F6 c)F10

b) F_4 d) F_8

473. Average performance Of line in hybrid combinations is termed as _____

d) Hybrid vigour **c) General combining ability**

b) Specific combining ability d) Breeding value

474. When the plants of two varieties Of asexually propagated crops arc crossed, the segregation starts in generation

a) F0 **b) F1**

C) F2 d) F3

c)

475. Common features of oligogenic and polygenic characters include:

a) Linkage b) Segregation

c) Mutation **d)All of these**

476. Measure of uncontrolled ‘variation refers to•

a)Standard error b) Standard deviation

c) Mean d) Range

477. In the binomial system of taxonomy developed by C. Linnaus, the first word of an organism's name (e.g. Triticum aestivum) is its a_

a) Specie. **B) Genus** c, Race d. Family

478. Phenomenon of transferring desirable genes from one species to another is called

a) Transgression **b) introgression** c) speciation d) None of these

479.The highest group in the taxonomic classification is

a. Class b. Species c, Order **d) Phylum**

480,The term "linkage drag" is used to explain

a) Transfer of genes along with favorable genes

) Combining recessive alleles of different genes together

c) Episcutic gene masks the effect of lined hyhpostatic gene

d) Process of breaking linkage groups

481. Triticale is the best example Of

a) Auto-ploidy c) litter-specific hybridization

b) Alloploidy d) Aneuploidy

482. The cross between plants Of Triticum aestivum and Triticum durum is

a) Inter-generic hybridization c) Intra-varietal hybridization
b) Inter-varietal hybridization **d) Inter-specific hybridization**

483. In back cross method of breeding self-pollinated crops the parent that is used in each back cross is known as

a) Non-recurrent parent c) Recipient parent
b) Recurrent parent d) maternal parent

484. A variety produced by crossing the lines, which combine well with each other, in all possible combinations is Called

a) Composite variety c) **Synthetic variety**
b) Hybrid Variety d) Cultivar

485. A group of plants that is well adapted to the environmental conditions of a particular area termed as

a) **Ecotype** C) Prototype
Ideotype d) Pathatype

486. Viruses are chemically

a. Nucleic acid b Carbohydrate c**) nucleo Protein** D. Proteins

487. The difference between the lowest and the value in a sample refers to:

a) Range b) Mean
Standard enor d) Standard dcviaticn

488, The square root of the variance refers to:

a) **Standard deviation** b) Mean deviation
b) Standard error d) None of these

489, First degree Of statistics deals with:

a) **Mean** b) variances
c) Co- variances d) All of these

490 Plant viruses contain RNA

a Always **b) Mostly** c. Rarely d. Never

491. is the process Of inducing mutations by using certain agents.

a) Mutation breeding c) Mutant

b) Mutagenesis d) Mutagen

492. is an organism produced by doubling the chromosome number of the hybrid between two diverse

a) Alloploid ***c)Amphiploid***

b) Autoploid) Aneuploid

493. Group of plants raised from a single plant through tissue culture is known as

_____

a) Clone **c) Soma clone**

b) Micropropagation d) Cybrid

494. The seed of the improved variety developed by the breeder by crossing varieties is called

_____

a) Nucleus seed c) Registered seed

b) Foundation seed d None of these

495. Animal viruses contain DNA

a. Always **b) Mostly** c) rarely d. Never

496. Viruses are believed to be living because

a) They can grow - b. Have nucleic acid

b) c. Undergo mutation **d) all Of these**

497. Development of Triticale is the best example Of.

a) Natural evolution **b) artificial evolution** c) natural mutation d) induced mutation.

498. The hereditary material in viruses may be

a. DNA b. RNA **c) DNA or RNA** d. Both

499. The gene expression in eukaryotes involves

a) Transcription b. Translation c. splicing **d) All file these**

500). Second degree Of statistics deals with:

a. Variance b.) C0-variance

c) Variances & Co- variances d) None of these

500.Second degree Of statistics deals with:

b. Variance b.)C0-variance

c) Variances & Co- variances d) None of these

501. group Of similar looking Platts which are recommended for cultivation is a particular area is termed as _____

a).Cultivar b) Land race **c)Variety** d) Strain

502. All the entries are crossed in all possible combinations in mating design.

a) North Carolina **c)Dialell**

b) Line x Tester d) Biparental

503, Third degree statistics deals with:

a) Skewness b) Kurtosis

c) Co-vaiances **a and b**

504. Standard deviation is the square root of .

a) Range **b)Variance**

c) Standard error d) None ofthese

505. *A viron is a*

a)Virus b. Viral prctein c. Viral lysozyme d. Viral gene

506. The recombination Of linked gene is always accompanied by a physical exchange Of segments between

a. Paternal chromosome b. Maternal chromosome

c)The maternal and paternal chromosome d. Other than maternal & paternal

507 In flowering plants, the products of meiosis are called

a) Antipodals **c)Meiospores**

b) Meiocytes d) Synergids

508 Homologous chromosomes synapse during the _____ phase of Prophas-l Of meiosis.

a) Pachytene B) Leptotene **C) Zygotene** d) Diplotene

509.The genes present on Y chromosome are known as _____.

a) Lethal genes c) Oncogenes

B Holandric genes d) Cosmids

510, blood groups in human beings is a good example Of

a) Intermediate dominanace Ovcr dominance

b) Complete dominance **Co dominance**

511 An isolated virus is not considered living, since it

a. Becomes inert **b. Can't metabolize** c. Looses genome d Denatured

512, Tests of significance includes:

a) Z-test t-test

c) F-test **All Of these**

513. Principles of experimental designs include:

a) Replication b) Randomization

c) Local control **All of these**

514. In which design. the number of treatments and replications is the same

A) CRD b)RCBD

C)LSD All of these

515.is the phenomenon when dominant genes are present On one Chromosome.

a) Homozygosity c) Linkage

Coupling d) Recombination

516 .Exchange Of parts between the •non-homologous chromosomes is termed as

Translocation e) Duplication

b) Crossing over d) Intercalary deficiency

517.is _____ the most accepted mechanism to explain the phenomenon of crossing over in the organisms,

a. Belling's hypothesis **Breakage reunion hypothesis**

b. Copy choice model d) Hybrid polaron DNA model

518. A sudden heritablc change at One chromosomal locus is known as

g) Chromosomal mutation **Gene mutation**

b) Forward mutation d) Somatic mutation

519. DNA gyrase is an example Of _____ enzymes responsible for the supercoiling Of DNA.

a) Helicase b) Polymerase **c) Topoisomerase**

d)Ligase

520.proposed the one gene one enzyme hypothesis or gene function.

a) Mese150n and Stahl c) Watson and Crick

b) Beadle and Tatum d)Maxam and Gilbert

521. Non-coding nucleotide sequences in the DNA strand are called _____

a) Cistrons c) Codons

B) **Introns** d) Exons

522.Genus *Triticum* belongs to the family

a)Poaceae b) Malvaceae c) Solanceae d)Leguminoseae

523. The first convincing evidence of meiotic crossing over was repented by Stern (1936) in

a, Arabidopsis b. Bacteria c. Mouse **d)Dorsophilla**

524. Which one of the following reproduces only in the host cell?

a. Bacteria **b)Viruses** c. Nostoc d, Fungus

525. Dihybrid mendelian 9;3;3;31ratio remain same due to which gene interäction

a)**Factor interaction** b. Dominant epistasis c, Recessive epistasis

d. Double dominant epistasis

526. Local control is not adopted in:

a)CRD b) RCBD

C).LSD d)Lattice Design

527, Which or the following designs consist of main plots and subplots:

a) CRD b) Lattice design

Split plot design d) Augmented design

528, Which design is suitable for evaluating several hundred lines Of germplasm:

a) Lattice design b) RCBD **C**) **Augmented**

design d) CRD

529. The process in which the genetic material shifted from one bacterium to another through bacteriophage is called

a)Asexual reproduction b)Conjugation c.)Transformation

d)Transduction

530. Bacteriophage is composed of

A)DNA and RNA B)DNA & Ribose **C)DNA & Protein** d Protein &RNA

531.technique is used to identify RNA fragments separated through gel electrophoresis.

a)Southern blotting c) Western blatting

b) Northern blotting d) Eastern blotting

532. The bead like structures present on the chromosomes are known as

a)Nucleosomes C) knobs

b).Centromeres d)Satellites

533. The type of mutation in which pyrimidine is substituted for a purine is known is

Transition c) Frameshift

Transversion d) Taut.r,meric shift

534. species was crossed in nature with *Gossypium herbaceum* . for the evolution Of *Gossypium Hirsutum*

a) Gossypium tomantosuni **b)Gossypiurn raimondii** c) Gossypium arboretum

c) None of these

535.mRNA is synthesized by

a) DNA polymerase **b) RNA polymerase** c. RNA ligase d. None of these

536. Which Of following are non sense codon

a)AUG **b)UÅA** c. CUA d. All of these

537. Analysis of variance permits estimation Of:

a) Phenotypic variance b Genotypic variance

c) Environmental variance **d. All of these**

538, The value of degree of dominance more than one Indicates the presence of a) a) Intermediate dominance **b)Over dominance**

c)Complete dominance d) No dominance

539. The chromosomes having centrömere In the Centre are called as

a) Telocentric **b) Metacentric** c)Submetacentric d) Acro centric

540 is Not a PCR based method or DNA finger printing.

A) AFLP **C)RFLP**

b) RAPD SSR

541. Multiple molecular forms Of an enzyme exhibiting similar or identical catalytic properties are termed as

a) Holoenzymes b) Taq Polymerase enzymes **c) Isozymes** d) Endonuclease

542 The ratio of treatment variance to error variance is called:

a) Critical difference b) Correction factor

c)F-value d) t-value

543. Application of statistical concepts and procedures to the study of biological problem is called

a) Biometrics b Biometry

c) Biostatistics **All of these**

544. The mutant gene causing sickle cell disease is also responsible for resistance against

a) Flue b) Small pox c)Typhoid **d)Malaria**

545. Great contribution to the understanding Of genes and chromosomes was made by

a. Watson & Crick b. McCarty **c)T.H, Morgan** d. Mendel

546. which one of the following pointed out the relationship of genes and chromosomes

a) Sutton and Boveri b. DeVeries c. Morgan d Beadle

547, In prokaryotes the expression of groups of genes are coordinately controlled by same regulatory' genes. Such a group of is known as

a) Oligo genes **c)Operon**

b) Oncogenes d) Trans genes

c)

548. A triplet of nucleotides carried by tRNA is named as which _____ are complementary to the nucleotide triplet in mRNA,

a)Anticodon c) Exon

b)Codon d) Cistron

549. A fragment Of DNA produced from an RNA sequence by reverse transcription is called

_____

a) Clone c) Intron

b) Codon **d) cDNA**

550.Most of the crop species were evolved through

A) polyploidy b) mutation c) hybridization d) genetic engineering

551-when the phenotypic and genotypic ratio in the F2 generation is the same, it is an example of.

1. Qualitative inheritance
2. Dihybrid cross
3. Cytoplasmic inheritance
4. **Incomplete dominance**

552- if all the genotypes carrying a particular gene show the expected phenotype, then penetrance of gene would be.

1. 80%
2. 45%
3. 90%
4. **100%**

553- oligogenic variation is studied in.

1. Quantitative generation
2. Mandelian genetics
3. Population genetics
4. **Both b and c**

554-quantitative genetics calls with the inheritance of.

1. Polygenic characters
2. Quantitative characters
3. Metric traits
4. **All** of **them**

555-…… is hybrid in which the nucleus is derived from one parent and cytoplasm from both the parents.

1. somaclone
2. **cybrid**
3. callus
4. transgene

556-doubling of chromosome no. without the division of nucleus is called…… .

1. Allopolyploidy
2. Aneuploidy
3. **Endomitosis**
4. Chromosomal aberration

557-a complete basic set of chromosomes inherited as a unit from one parent is…..

1. **Genome**
2. Linkage group
3. Genotype
4. Homologous chromosomes

558-polygenic variation can be assessed through.

1. Metro glyph analysis
2. D^2 statistics
3. Measure of dispersion
4. **All of these**

559-individual cross can be evaluated for component of genetic variance by.

1. **Generation mean analysis**
2. Metroglyph analysis
3. D^2 statistics
4. All of them

560-the central dogma state that biological information flows;
DNA—RNA—PROTEIN

1. RNA—DNA-protein
2. DNA—PROTEIN—RNA
3. RNA—PROTEIN—DNA

561-genes are made up of.

1. Ribonucleotide
2. **Deoxyrib O-neucleotide**
3. Polypeptides
4. Polysaccharides

562-with 4 alleles a gene can exist in diploid form.

1. 4
2. 5
3. **10**
4. 20

563-most of the biological species are the result of.

1. Seasonal isolation
2. **Geographical isolation**
3. Ecological isolation
4. hybrid sterility

564-in the sequence of nucleotides on one strand of DNA is A-T-A-G-C, the sequence in the other strands is

1. T-T-C-G-G
2. C-A-T-A-T
3. D-T-A-C-C
4. **T-A-T-C-G**

565---------- is not the method of gene transformation from one generation to another one.

1. Ballistic gun transformation
2. **Log transformation**
3. Agrobacterium transformation
4. Co-cultivation

566-several single crosses can be evaluated at a time for combining ability variances and effects by,

1. Diallele cross
2. Partial diallele cross
3. Line x tester cross
4. **All of these**

567-combining ability analysis gives information about.

1. Gene action
2. Good general combiner

3. Specific combiner
4. **All of these**

568-additive gene action refers to..

1. Dominant variance
2. Additive variance
3. Additive X Additive epistasis
4. **B and c.**

569-non additive gene action refers to.

1. Dominance variance
2. Additive x dominance variance
3. Dominance x dominance epistasis
4. **All of these.**

570-self incompatibility in NICOTIANA due to a series of multiple alleles at the S locus was determined by..

1. **East and Manglesprof**
2. F.D john
3. J.H Shull
4. S.Wright.

571-which of the following is not an amino acid,

1. Aspartic acid
2. Methionine
3. Arginine
4. **Tubulin**

572-in case of self-incompatibility, there will be no fertilization by the pollen grains produced by pollen mother cell carrying S1S2 alleles if the female parent has..

1. S2S3
2. S3S4
3. S1S3
4. **S1S2**

573-THE FAMOUS BOOK ‘’biometrical methods in quantitative genetic analysis’” was authored by.

1. c.r Rao
2. Negahwer Rao
3. **Singh and CHOUHDRY**
4. Mather and Jinks

574----------method of DNA finger printing involves the use of radioactive probes.

1. RAPD
2. **RFLP**
3. DAF
4. SSR

575-Which of the following properties of an individual is considered heritable

1. Morphological
2. Physiological
3. Biochemical
4. **All of these**

576- qualitative character is also called

1 Major gene character
2 Oligogenic trait
3 Monogentic trait
4 **All of these**

577- deoxyribose contains

1 **5 carbon sugar**
2 carbon sugar
3 No sugar
4 Carbon sugar

578- which mode of selection is important from plant breeding point of view.

1 Stabilizing selection
2 **Directional selection**
3 Disruption selection
4 None of these

579- the presence or absence of Rh antigen is found to be controlled by..

b) Three gene
2 gene
3 gene
c) **One gene**

580- in western countries the presence of people having Rh positive is,,..

d) 85%
e) 15%
f) 80%
g) 50% 😊

581. quantitative character is known as

1. Minor gene character
2. Polygenic characters
3. Variable character
4. **All of these**

582. polygenic trait is also termed as

1. Quantitative character
2. Multiple factor character
3. Minor gene character
4. **All of these**

583. the term diallel was coined by

1. Yates
2. Griffith
3. Hayman
4. Kempthorne

584.The transmission of genetic information from cell to plan and from generation to generation and orderly release of information to control cellular functions and development are the major activities of_____?

1. DNA
2. RNA
3. **Chromosomes**
4. Proteins

585. _____proposed that concentrations of purine will be equal to concentration of pyrimidine

1. Mendel
2. **Charghaff**
3. Morgan
4. Watson

586.Alternative strands of double stranded DNA are held together by_____bonds

1. Hydrogen
2. Covalent
3. Hydrophobic
4. **All of these**

587. the organic acid which is mostly confined to the nucleus of cell is
1. **DNA**
2. oxalic acid
3. acetic acid
4. RNA

588. a man and a woman both having blood Group A cannot expect baby with the Genotype
1. IA i
2. Ii
3. **IA IH**
4. IA IA

589. the term diallel was coined in
1. 1953
2. 1954
3. **1947**
4. 1956

590. in a half diallel Total number of crosses among parents would be
1. n(n-1)/2
2. n(n+1)/2
3. **n (n-1)**
4. n (n+1)

591. each chromosome contains _____ Large molecule of DNA
1. **One**
2. Two
3. Three
4. Four

592.On the basis of sizes, human chromosomes are classified into _____ groups
1. 4
2. 5
3. 6
4. **7**

593. genetic material must perform _____ Functions
1. Replication
2. Mutation
3. Gene expression
4. **All of these**

594._____ Were first of all reported by Friederick miesher
1. Proteins
2. Enzymes
3. Chromosome
4. **Nucleic acid**

595. how many components can be obtained by graphical approach of diallel
1. 2
2. 4
3. 5
4. **6**

596. traits like colour shape and height are controlled by genes located on
1. **Autosomes**
2. Satellite chromosomes
3. Plasmid
4. Sex chromosomes

597.a group of interbreeding natural selection that share some common morphological characters and are reproductively isolated from other such groups is called
1. Variety
2. **Species**
3. Genus
4. Family

598.What makes DNA capable of transferring genetic information
1. Nitrogen bases
2. **Self replication**
3. Hydrogen bonds
4. Proteins

599. DNA contains____ SUGARS
1. **2-deoxy**
2. 3-deoxy
3. 4-deoxy
4. 5-deoxy

600. _____ catalyses formation of supercoils in DNA during its replication
1. Ligase
2. **Gyrase**
3. Endonuclease
4. Proteinase

601.The DNA molecule present in chromosomes are _____ charged
1. **Negatively**
2. Positively
3. Neutrally
4. Non of these

602. Gene mutation is a change in the DNA in the formation of an abnormal
1. Carbohydrates
2. **Protein**
3. Lipid's
4. Sugars

603.for diallel 7 genetical assumptions were proposed by
1. Yates
2. Smith
3. Vvvvv
4. Bbbbb

604. In diallel cross the proportion of genes with positive and negative effects in the parents is estimated as
1. $h^2/H2$
2. H1/D
3. **H2/4H1**
4. D/H1

605.mutations are
1. Always usefyl
2. Always harmful
3. Mostly useful
4. **Rarely useful**

606.the parallel behaviour between genes and chromosomes was pointed out in 1902 by
1. Robert brown
2. Mandel
3. **W.S.Sutton**
4. T.H. Morgan

607.Mutations are inherited only if they occur in
1. Tissue cells
2. **Gametes**
3. Muscle cells
4. Somatic cells

608. Such a barrier that prevents the gene exchange is called
1. Genetic drift
2. Migration
3. **Isolating mechanism**
4. Founder effects

609. in diallel cross average degree of dominance is estimated as

1. $h^2/H3$
2. H1/D
3. H2/4H1
4. **None of these**

610.Kinetochore is a _____ stretch at centromere that functions in chromosomes movement.

1. DNA
2. RNA
3. **Protein**
4. Enzymezs

611.a deletion in long arm of chromosome 19 of human genome could be written as_____.

1. **19p**
2. 19P
3. 19q
4. 19Q

612.hemophilia is _____ linked disease

1. **X**
2. Y
3. Autosome
4. None of these

613.genes that are present on _____ chromosomes are called as pseudautosomal genes

1. X
2. Y
3. **Both x and y**
4. None of these

614. The concept of partial diallel was proposed in 1957 by

1. Yates
2. Hayman
3. Griffing
4. **Kempthorne**

615.Partial diallel is also known as

1. Fractional dial
2. Incomplete dialogue
3. **Both A and B**
4. None of these

616. The number of autosomes in drosophilla are

1. 4
2. 8
3. **6**
4. 12

617.one gene one enzyme theory was proposed by

1. Watson and crick
2. **Beadle and tautum**
3. Wilkin and chargaff
4. Muller and batson

618.of the human genome_____ chromosome is the shortest one

1. X
2. **Y**
3. 13
4. All of these

619. Down syndrome is due to_____

1. Monosomy
2. **Trisomy**
3. Nullisomy
4. None of these

620. Turners syndrome is the result of

1. **Deletion**

2. Addition
3. Transversion
4. Inversion

621.for DNA replication_____ primer is required
1. DNA
2. **RNA**
3. YAC
4. None of these

622. For a particular gene the strand of DNA which is not coded for a product and does not undergo transcription is called
1. **Antisense strand**
2. Missense strand
3. Complimentary strand
4. Nonsense strand

623.Partial diallel utilizes only a part from diallel crosses of
1. **Direct crosses**
2. Reciprocal crosses
3. Both a and b
4. None of these

624. In partial diallel each parent has a chance to mate with
1. All other parents
2. **Few other parents**
3. A common set of parents
4. None of these

625. Partial diallel provides information about.
1. Gca variance
2. **Sca variance**
3. Gca effects
4. All of these

626.The two strands of DNA are
1. Template
2. Non complimentary
3. Parallel
4. **Complimentary**

627.During protein synthesis transfer RNA carries
1. sucrose
2. **amino acids**
3. maltose
4. Sulhpur

628.On the basis of quantity RNA is least in total RNA
1. **Messenger**
2. Transfer
3. Ribosomal
4. Cytoplasmic

629.Environment comprising system of all factors!_____ am Organism
1. Inside
2. Outside
3. **Both A and be**
4. None of these

630.All the energy present in biological world an important fuel is energy?
1. Petroliam
2. Other chemicals
3. **Solar**
4. None of these

631.Most restriction enzymes purified from e.coli work better at
1. 10Degrees centigrade

2. **37 degrees centigrade**
3. 50 degrees centigrade
4. 100 degrees centigrade

632. transgenic sheep and goats are developedby
1. Fusion sheep embryo and goat embryo
2. Mixing eggs from sheep with sperm's from goat
3. Separating the embryo at the four cell stage To give four identical progeny
4. **Injecting new DNA directly into the nucleus of fertilised eggs**

633. E.coli is used for many genetic manipulations because
1. It has the simplest genome of living organisms
2. It has more bacterial plasmas than any other species
3. It can be grown at an extraordinary range of temperatures
4. **It is proved to be relatively simple to work with**

634. transfer of genes between populations by the movement of gametes individuals or groups of individuals from one population to another is known as
1. Genetic load
2. Genetic death
3. **gene flow**
4. Immigration

635.The property of genetic code where more than one codons designate the same amino acid is called as
1. Variation
2. duplication
3. **Degeneracy**
4. universal

636. nucleic acids are Poly nucleotide chains in which nucleotides are linked to each other by
1. Hydrogen bond
2. Peptide linkage
3. **Ester linkage**
4. Covalent bond

637. Partial diallel does not provides information about
1. Additive variance
2. Dominant variance
3. **SCA effect**
4. GCA effect

638. which of the following is not related to partial diallel
1. D and H component
2. Gca variance
3. Sca variance
4. **Vr_Wr graph**

639. the best plasmid contains
1. A selectable marker
2. Selectable marker and a Poly linker
3. A poly linker and an origin of replication
4. **A selectable marker a poly linker and an origin of replication**

640. Acrylamide gels are used to separate
1. **Small segments of DNA**
2. Medium segments of DNA
3. Large segments of DNA
4. All of the above

641. Ethidium bromide is a dye that binds to
1. DNA
2. RNA
3. **Both a and b**
4. None of these

642. In partial diallel additive genetic variance is equal to
1. Gca variance

2. **Twice gca variance**
3. Sca variance
4. None of these

643.the separation of chromosomes at anaphase of cell division is called as.

1. **Disjunction**
2. Dissociation
3. Partition
4. Division

644. The enzymes that can cut phosphodiester bond in a DNA chain is called as.

1. Protease
2. DNAase
3. Lipase
4.

646. Development of cord grass spartina townsendii is the result of

1. Mutation
2. **Polyploidy**
3. Biotechnology
4. Adaptive radiation

647.A deletion or addition of a base in DNA is called as

1. **Frame shift mutation**
2. Forward mutation
3. Nonsense mutation
4. Missense mutation

648. With n=20 and s=11 how many crosses have to be made in partial diallel

1. 220
2. **110**
3. 190
4. None of thses

649. Copy number of wheat genome could easily be calculated from

1. Western blotting
2. Southern blotting
3. **Northern blotting**
4. PCR

650. paternal and maternal disputes can often be settled by DNA

1. **Finger printing**
2. Foot printing
3. Blue printing
4. Imprinting

651-Phenotypic ratio 3:1 can be changed due to

A-Co-dominance b- Incomplete dominance c- Lethality **d- All of these 66**

652- A partial diallel how many method of combing ability analysis or available?

A-1 b-2 c-3 d-4

653- Which of following scientists is associated with partial diallel?

A-Hayman b-Griffing **c-Kempthorne** d-Anderson

654- Chemical composition of cell membrane is mostly

a-Lipids &Protein b- Cellulose c- Pectin d- Hemicellular

655- If a chromose contain all genes in dominant form, the genes arrangements will be called as

A-Cis arrangements b-Trans arrangements c- both of above d- none of these

656- In F2 of a trihybrid cross gametes are formed.

a-Four **b-Sixteen** c-Sixty four d- two hundred fifty six

657- The part that gives shape to chromosome is

A-Telomere **b-Centromere** c-Euchromatin d- Heterochromatin

658- The sum of mutant alleles in a population that have a determental effect & accumulate largely in a heterozygote is called

a-Genetic death b- Genetic drift **c- Genetic load** d- Genetic diversity

659- A gene whose presence is readily detected through phenotypic expression is called

a-Isozymc marker b- Physiological marker **c-Morphological marker** d- Cytogenetic marker

660- In line X testes analysis, additive genetic variance is equal to:

a-gca variance b- 2 gca variance c-(vgca)1/2 d- vgca/2

661- In line X tester analysisis, dominance variance is equal to:

a-(sca variance)1/2 b- ½ sca variance **c- sca variance** d- none of these

662- The concept of triallel analysis was developed in 1962 by:

A-Mather & Jinks b- Jinks & Hayman c**- Rawlings & Cokerham** d- none of these

663- Who for the first time found white eye mutant in Drosophila?

a-Morgan b-Correns c- Bridges d-Sutton

664- When the few races are combined together & have adaptability over longer area, it is knows as

a-ecotype b- variety c- species d- prototype

665- Which phenomena reduces the chances of genetic recombination & variation among offspring's

666- Triallel cross refers to:

A-Three way crosses b- Single crosses c- Double crosses d- Multiple crosses

667- In triallele cross, each parent appears

A-Once b- Twice c-Thrice d- Four time

668- Karyotype is the arrangements of

a-DNA b-Genes **c- Chromosome** d- Proteins

669-Visual selection is essentially based on of the plant

A-Phenotype b- Genotype c- Both a & b d- none of these

670- A pure line is a progeny of a single, self- pollinated plant

A-Heterozygous **b-Homozygous** c- Both a & b d- none of these

671-How many parents are involved in each triallel cross?

A-1 b-2 **c- 3** d-4

672- A genetic content of a single set of chromosome in each species is called as

A-Genetic composition b- Genotype c- Genetic load **d- Genome**

673- Most gametes have parental combination but some gametes are different from parents due to

a-Segregation b- Assortment c-Non disjunction **d-Crossing over**

674- Variation within pure lines is purely

A-Phonotypical b-Genotypical c**-Environmental** d- None of these

675-Generally mass selection is performed for traits

a-Qualitative b-Quantitive **c-Both a & b** d- none of these

676- The major objective of hybridization is to genetic variability

a-Reduce **b- Induce** c- Both of these d- none of a $ b

677- The increases in homozygosity via selfing is by % of that in previous generation

A-25 **b-50** c- 75 d- 100

678- Basic protein of low molecular weight that are complexed with the DNA of eukaryotes are called as

a-H.M.G.P **b- Histones** c- Glycogen d- Protease

679- What is the risk of a color blind daughter in a family when mother is color blind $ father has normal vision

a-0% b- 25% c- 50% d- 100%

680-Using 10 parents in which of the following designs maximum crosses have to be effected?

A-Diallel crosses b- Partial diallel c- Triallel cross **d- Quadriallel** cross

681- The concept of generation mean analysis was developed in 1958 by

A-Hayman b- Jinks & Jones **c-a &b** d- Griffing

682- Scaling test was proposed in 1949 by:

a-Smith b- Hayman **c- Mather** d- Griffing

683- Species exhibiting marked phenotypic variation within a population according to their degree of geographical isolation are known as

a-evolutionary species b- phylogenetic species **c- polytypic species** d- primary species

684- A chromosomal aberration involving two breaks in a chromosome followed by a reversal of the segment is

a-Inversion b- Translocation c- Duplication d-Deletion

685- If 50%of offspring of a cross show dominant $ 50% show the recessive trait, genotype of the parent must be

A-AA x Aa **b-Aa x aa** c-Aa x AA d- Aa x Aa

686- Six parameters model of generations mean analysis is based

A-Three population b-Four population c-Five population d- six population

687-Genetic variation with a pure line may arise by

a-Mechanical mixture b- Natural hybridization c- Mutation d**- All of these**

688-Transgressive segregation is the production of plants in the generation that are superior to both parents for one or more characters.

a-F1 **b-F2** c- F3 d-F4

689- If the frequency of " R" allele in a production under HW-equilibrium in 0.6,then frequency of "r" allele will be

A-1.4 b-2.4 c**-0.4** d- 3.4

690- Six parameters model of generation means analysis provides information about which of following parameters

a-m & d b- h & I c- j & 1 **d- all of these**

691- An individual with two identical members of a pair of genetic factor called

A-Heterozygous b-Hybrid **c-Homozygous** d- Hemizygous

692- A chromosome constitution of a cell or individual called

a-Genotype **b- Karyotype** c- Phenotype d- heredity

693- A haploid plant cell from meiotic division of microspore mother cell in anther is called as

a-Genotype b- Gamate c-megaspore **d- microspore**

694- A single species may give rise to new species and this process is due to

A-Interspecific Hybridization b-Intervarietal Hybridization **c-Intraspecific Hybridization**

d- Intergenric Hybridization

695- The gene that can cause an increase in the rate of mutation in an organism is called

a-Mutagen **b- Mutator gene** c-Lethal gene d-Muton

696- Instead of B1& B2, F3population is used for generation means analysis of

a-6 parameter model **b- 5 parameter model** c- 3 parameter model d-all of these

697-Which type of epitasis is not estimated in five parameter model og generation mean analysis

a**-Additive x additive** b- Additive & dominance C- Dominance x Dominance D-all of these

698- A gene that can initiate and maintain a tumerous state in an organism arise from a gene of normal cell called as

A-Mutant b-Lethal gene c-mutagen **d- Oncogene**

699-If 15 genotypes are evaluated using three replications in a randomized complete block design the error will have degree of freedom

a-20 **b-28** c- 18 d-45

700-Selection before pollination is effective than selection after pollination

A- twice b-three c- four times d-not

701. There will be..... Classes of phenotypes as well as genotypes in F2 for a character with co-dominance action.
Ans =3
702. In simple regression equation, y=.....
Ans = a+bx
703. The sex chromosome XY in the.....
Ans = Male human
704. Repeated nucleotide sequence that may occur in hundreds thousands or more copies in a chromosome complement of eukaryotes is called.
Ans= repetitive DNA
705. What type of epistatis is expected when signs of h and I are similar
Ans= complementary
706. Which of the following estimates is not possible through generation mean analysis
Ans= combining ability
707: if the ratio of dominance variance to additive variance Is zero, there Wil be
A**ns= No dominance.**
708: the protein products of a regulatory gene that can combine with a specific operator and block transcription of a gene is called
Ans = repressor
709: Different classification of different isolating mechanisms had been given by
A**ns= Dohzhansky**
710: the gametes of the parent having the genotype Wwpp
Ans = Wp, wp
711: the value of correlation coefficient r ranges from.....
Ans = - 1 to +1
712:..... Traits are generally affected by environment.

Ans= **Quantitative.**
713; the progeny obtained after first back cross will have..... % Genes from the donor.
Ans = 75
714..... Is highly degraded at room temperature.
Ans= RNA
715. 4×4 diallel mating will produce..... Direct crosses
Ans= 12
716. A change in mutant allele that restore it to the wild type.
Ans= reverse mutation
717. Environment of a single genotype is called
Ans = micro-environment.
718. Predictable factors include
Ans = planting date., fertilizer dose, spacing.
719. Unpredictable factors include.
Ans = rainfall. Temperature, humidity
720. A point mutations in which codon specific for a given amino acid is changed to a different pyrimidine is called.
Ans= silent mutation
721. A point mutation in which a purine is replaced by a different purine or pyrimidine by a different pyrimidin is called.
Ans= transition
722. A genetic unit capable of moving from one chromosome site to another or from one replicon to another is called.

Ans= transposones

723. What is the polyploidy level of triticum aestivum.

Ans= 6X

724. A point mutation in which a purine is replaced by a pyrimidin or vice versa is called

Ans= Trans version.

725. If standard deviation is 9, then variance will be.

Ans= 81.

726..... Is the study of hereditary and varaition

Ans = genetics

727. Germplasm theory was given by..

Ans = august weismann

728.a sudden heritable change is called as..

Ans = mutation.

731. Fitness of a genotype to a given environment is called..

Ans= adaptability.

732. An RNA virus that uses reverse transcriptase to assemble a DNA copy of its RNA genome is called.

Ans = retro virus

733. The DNA form of an RNA virus that can integrate in the chromosome of the cell is called

Ans= provirus

734. An assembly is ribosome active in translation and connected by the same m RNA strand is called.

Ans= polysome

735. The suitability of a genotype for general cultivation over a wide range of environments is known as.

Ans= stability

736. Combining ability analysis provides information about.

Ans= gene action, good general combiner, good specific combiner.

737. Additive gene action refers to.

Ans= additive variance, additive ×additive epistasis

738. That segment of DNA associated with the one or more structural gene which interact with the product of a regulatory gene inthe control of transcription is called. As

Ans= operator.

739..... Called the father of modern Genetics.

Ans= Gregor mendle

740. First segregation generation is.....

Ans= F2

741. Phenotypic ratio in F2 generation for mono hybrid crosses is.....

Ans = 3:1

742. Genotypic ratio in F2 generation for dihybrid crosses is.....

Ans= 1:2:1:2:4:2:1:2:1

743. A virus that cause lysis following its multiplication in the host cell is called.

Ans= lyric virus.

744. The Genes which code for essential functions basic to all cell types are known as.....

Ans= house keeping gene

745. The %age of the variation seen in the expression of a character that can be attributed to genetic factor is called....

Ans= heritability.

746.which of the following book was authorized by D. S. Falconer 1960.

Ans= introduction to Quantitative Genetics.

747.which of the following design is called nested design..
Ans= NCD 1
748. which of the following design is the most powerful one.
Ans= NCD 2
749. The total of all the Genes carried by a population at a given time is called as
Ans= gene pool.
750. Genes are present on...
Ans= chromosome.

751-An individual having single set of chromosomes is _____
(a)monoploid
(b)**haploid**
(c)diploid
(d)triploid
752- A gene can exist in several alternative forms and these alternative forms are called as_____
(a)pseudo alleles
(b)multiple genes
(c)**alleles**
(d)multiple alleles
753-A gene effects more than one character simultaneously is called as _____
(a)**pleiotropy**
(b)phenocopy
(c)multiple allelism
(d)epistasis
754-a collection of cloned DNA fragments that includes all or part of the genome of a specie is called as_____
(a)gene bank
(b)**gene library**
(c)gene pool
(d)karyotype
755-the chromosomes in the complement other than the sex chromosomes are termed as_____
(a)antisomes
(b)**autosomes**
(c)allosomes
(d)ansomes
756-the part of chromosome which is responsible for chromosome movement is called as _____
(a)**centromere**
(b)telomere
(c)centrosome

(d)centriole
757-biparentalcross does not provide information about_____
(a)additive variance
(b)dominance variance
(c)**epistatic variance**
(d)all of these
758-which of the following designs are like line x tester cross_____
(a)NCD1
(b)**NCD2**
(c)NCD3
(d)none of these
759-which of the following design is least powerful?
(a)**NCD1**
(b)NCD2
(c)NCD3
(d)none of these
760-A substance or agent capable of producing cancer is called as_____
(a)mutation agent
(b)antigen
(c)**carcinogen**
(d)mutant
761-When a particular locus of X chromosome is also present on Y chromosome the situation is called as_____
(a)sex-limited
(b)complete sex-linkage
(c)sex influenced
(d)**incomplete sex-linkage**
762-A population of genetically identical cells is called as_____
(a)**clone**
(b)callus
(c)colony
(d)culture
763-Lysinkoism was the resurgence of _____
(a)Neo-Darwinism
(b)Darwinism
(c)**Lamarckism**
(d)Anti Darwinism
764-Blood groups in the man is an example of_____
(a)epistasis
(b)**multiple allelism**
(c)isoallelism
(d)compound loci
765-the characters studied by Mendel all are _____ traits.
(a)dominant
(b)quantitative
(c)**qualitative**

(d)recessive

766-Quantitative genes are controlled by _____ genes more or less equal in effect.

(a)few

b) two

(c)**several**

(d)single

767-_____ is the tendency of genes to enter the gametes in combination other than the parental.

(a)linkage

(b)**crossing over**

(c)variation

(d)none of these

768-

769-which of the following designs is not influenced by maternal effects?

(a)NCD1

(b)NCD2

(c)**NCD3**

(d)all of these

770-Which of the following designs involves F2, P1 and P2 populations?

(a)NCD1 (b)NCD2 (c)**NCD3** (d)none of these

771. The NCD 3 involves

a) F_2

b) F_2,P_1 and P_2

c) Bc_1 and Bc_2

d) None of these

772. From the genotype “AaBBCcDD” how many types of gamete would be produced

a) 2

b) 4

c) 16

d) 8

773. If certain loci are present in a single dose such as X-linked gene, the condition is called

a) Homozygous

b) Momozygous

c) Hemizygous

d) heterozygous

774. Any gene whose locus is on Y chromosome is called

a) Y-linked

b) Holandric

c) Holocentric

d) Sex linked

775. A structural part of centromere into which spindle fibres insert is called

a) Centriole

b) Centrosome

c) Kinetochore

d) Telomeres

776.A cross which involves parents differing in single trait

a) Monohybrid

b) Dihybrid

c) Trihybrid
d) Cybrid
777. TTC provides information about
a) Additive variance
b) Dominance variance
c) Presence\absence of epistasis
d) All of these
778. Detection of linkage is possible when more than ----------genes are considered
a) Three
b) Two
c) One
d) Four
779. The most convenient and efficient method to determine the strength of linkage is to make a
a) back cross
b) test cross
c) hybrid
d) cybrid
780. In human out of 46 chromosomes--------- are autosomes
a) 46
b) 42
c) 44
d) 40
781. TTC is an extension of
a) NCD 1
b) NCD 2
c) NCD 3
d) None of these
782. How any populations are involved in TTC analysis
a) One
b) Two
c) Three
d) Four
783. A dense body in the nucleus associated with the processing of ribosomes is called
a) Neuleosome
b) Nucleoside
c) Nucleon
d) Nucleolus
784. A replicon that may exist in a cell independently of the chromosome is called
a) Cosmid
b) Plasmid
c) Cybrid
d) Palstome
785. A enzyme required for the assembly of an RNA primer in DNA replication is called
a) Primase
b) RNAse
c) DNAse
d) Polymerase
786. A short nucleotide segment that provides a free 3’ OH end end for inter nucleotide linkage is called
a) probe

b) oligonucleotide
c) taq polymerase
d) primer
787. A short nucleotide segment used to identify the segment of DNA is called
a) primer
b) probe
c) primase
d) plasmid
789. Measure of linear association between two independent variables is called
a) covariance
b) variance
c) Regression
d) correlation coefficient
790. Of the two sex chromosomes in Man ------- containing nenes.
a) Y
b) XY
c) X
d) none of these

791. In man genes responsible for color blindness are sex linked and

a) Dominant **b) recessive** C) co-dominant d) epistätic

792. Hardy-Weinberg rule formed the basis for a new branch or science known as

a) Genetics **b) population genetics**
c) evolutionary genetics d) modern genetics

793. According to Hardy-Weinberg formula, if the frequency of 'A? allelé in a population is equal to 0.60 then the expected frequency with 'AA' genotype is

a) 0.60 b) 1.20
c) 0.36 d) 3.00

794. The degree of freedom to test the significance Of simple linear correlation of n samples is
a). n-1 **b) n-2**
c) n-3 d) n-4

795. DNA molecule resulting from tm:on -of DNA derived from different sources is called

a. Hybrid **b) Recombinant DNA**
c) cDNA d Satellite DNA

796. A physical map of genome derived from the cleavage of DNA is called
a) **Restriction map** b) Genetic map
c) Chromosome map d. Molecular map

797. The DNA of relatively higher density in a eukaryotic cell is called
a. **Satellite DNA** b. Macro DNA

c. DNA d. Repetitive DNA

798. The fusion of different somatic cells is called
a. Somatoplast . b.Hybridizatinr

c**) Somatic hybridization** d. Plasmatic hybrid

799, Coefficient Of variation can be calculated as

a). Standard error/mean b). Variance/mean
C)) Standard deviation/mean d), Mean} Standard error

800. Broad sense heritability can be calculated as
a) v**. b) Vg/Vp** c). vp/Ve d). vg;ve

801. heritability can be defined as
a) **An index of transmissibility of genes from one generation to another generation**
). A index of transmissibility of a gene from generation to another
c). An Index of transmissibility or genes from progeny to parents
d). An index of transmissihillty of genes from one offspring to another

802. A cell carrying two different nuclei is called
a) Heterozygou* **b)Heterokaryon**
c. Heterogametic d. Hcteroplast

803, The form of a gene that is considered the standard or typically found in nature is called as

a. Mutant type **b). Wild type** c) Dominant type d) Original type

804. Inheritance of acquired characters is also as
a) darwinisrn b) Lamarckism
c) epigenesist d) none of these

805. According to hugo Devaries new species could be produced in generation.

a) Single b) two c) few d) large number of

806, is the _____ forces that determine gene frequencies in populations through unequal rates of reproduction in different genotypes.

a) Mutation **b) natural selection**
c) evolution d) variation

807. The chromosomes during cell division moves through
a) Spindle fibers b Centriole
c. Centrosome d. Kinetochore

808. The body cells are called
a. Plasma Cells b. Gametic Cells
c)Somatic Cells d, Stem cells

809. The genes which control the expression of other genes are called
a. Repressor genes b, Halzndric genes
c. Controller genes **d) Regulatory genes**

810. a tiny cell with little cytoplasm produced by division of
a: Nuclear body **Polar body**
c. Inert body d Bar body

811) Phenotypic correlation is the association of
a) Phenotypic progenies of one trait to phenotypic progenies of another
b) Phenotypic progenies Of one trait to genotypic progenies of another
c). Genotypic progenies of one trait to phenotypic progenies of another
d). None of these

812) Genetic variance is equal to
a). Phenotypic variance
b). Phenotypic variance+ environmental Variance
c)Phenotypic variance - environmental variance
d). Environmental variance — phenotypic variance

813. The division of single population (in Which matings between the male and female o! different populations take place) into two or more groups due to some barriers is Called ———————— as
a) reproductive isolation b) sexual and psychological isolation
c) mechanical isolation d) hybrid sterility

814. The acclimatization of an individual organism to a change in environment is called as
A) mutation **b) Adaptation** c) evolution d) isolation

815, Variance is equal to
a). Square root of standard error
b) Square of standard error
c)Square root of standard deviation
d)Square of standard deviation

816.simply Inherited trait is also called
a. Mendelian traits b. Quantitative traits
c.Complementary traits d. Sex linked trait

817. The exchange of genetic material between bacterial cells takes place by
a. Transduction b. transformation **c)Conjugation** d. Hybridization

818. The viruses which Infect bacteria are called
a. Bacteria virus b- Plasmid c. Pro Virus **d)Bacteriophage**

819. The code present On tRNA for an mRNA code. CCU, is
a. GGT **b)GGA** c. CCU d. GGU

820. vA/Vp is used to calculate
a)Heterosis
b) Heritability broad sense
c) Heritability narrow sense
d) Hybrid vigour

821. The error degree of freedom for randomized complete block design with 6 genotypes and 3 replications is

a). 18 b). 15 c). 12 **d)10**

822 Heterosis is also called

a). Hybridization **b) Hybrid vigor** c). Heritability d), None of these

-823. An individual exceeding to its parents in a segregating generation is called

a**)Transgressive segregant** b) Heterosis

c) hybrid d. Heterozygote

824.DNA sequence increasing the rate of transcription is called
a)Promoter b)Inducer c)Enhancer d. Regulator

825 A cell with2n+l+1 chromosomal complement is called
a. Trisomic b, Double monosomic
c.**Double trisomic** d. Aneuploid

826, The process of making multiple copies of a gene is called
a. Cloning b, Transformation c Replication d Multiplication

827. The exact genetic replica of an individual is called
a. Transformant b. Phenocopy **Clone** d. Duplicate

828.Survival of the fittest," theory was given by great biologists -----and ------
a)Darwin, Wallace b) Lamarck, Darwin
c)Lamarck, Spencer d) Lamarck, Wallace

829.occurs in life cycle of an individual (a plant or animal) when it has attained complete differentiation and development of its reproductive organs.
a. meiosis I b) meiosis II **c)meiosis** d) mitosis

830, human baldness trait is
A.Sex influenced b. Sex linked c. Sex determined d. Sex limited

831. Heritable variation is also Known as
a)Genetic variation b)phenotypic variation
c) Environmental variation d) none of these

832. Biometry can be defined as an
a) application of mathematics to biological problems
b)application of statistical mathematics to biological problems
c). application of graphics to biological problems
d). application to geomatics to biological problems

833. In poultry, male is
a. Homogametic b, Heterogametic c. Hemizygous d. Heterogenous

834.. The type of genotypes of a cross contrasting for two gene pairs
a.16 b.4 **C.9** d.6

835. The number of homozygous genotypes in F2 of a cross between AABB X aabb
A.**2** **B.4** C.6 D.9

836. Which clement is not found in a molecule of DNA•?
a. Carbon **b)Sulfur** c. Nitrogen d. Oxygen

837- Which is found in RNA, But not DNA
G. Phosphate b, Adenine **c. Ribose** d. Cytosine

838. The two polynucleotide Chains in a molecule Of DNA are held together by what type of bond?
a. Phosphodiester b. Phosphate c. Peptide **d. Hydrogen**

\ 839 In general, most bacterial cells ---------- contain chromosome(s).
c. 2
a.0 **b.1** c.2 d.3

840. Continuous variation is caused by

a). Heritable factors **(b) Heritable and non- heritable factors**
c) Non-heritable factors Some other unknown factors

841 Qualitative variation is caused by
a). Minor genes **b. Major genes** c)_ Minor and major genes d). Cytogenes

842 General combing ability is the average performance of a line in
A. Series of crosses b). Single c). Double cross d). Multiple crosses

843. Heritability in the narrow sense is designated by

a.H b) H2 C.h^2 ***d.h2(ns)***

844. Genes located in which region of a eukaryotic chromosome are most likely to be transcribed?
a. Centromere b. Telomere **c. Euchromatin** d. Heterochromatin

845. At the end Of meiosis_____type of cells are formed.
a) 8 **b)04** c) 1 d) 2

846, What determines gene frequencies in populations through unequal rates of reproduction in different genotypes?
a) mutation **b)natural selection** c) evolution d) variation

847. The theory Of the inheritance of the acquired characters was proposed by:
a) Darwin **b) Lamarck** c) De Vries d) Correns

848. Which crop is major edible oil producing after cotton in Pakistan:
a) linseed b) sesame c) sunflower **d)brassicas**

849. Which of following is a DNA base pair?

A-T *b) T-c c) A-U d)G-T*

850.Which of the following is not an RNA base?
a)T b)A c)U d)G

850. ich of the following is not an RNA basc?

851. The DNA and histune proteins in a eukaryotic chromosome are Compacted into structures called

a. Proteosomes **b) Nucleosomes**. C. Telomeres. Centromeres.

852. Eukaryotic chromosomes consist mostly Q f.

a. Unique sequence DNA only.
b, Repetitive sequence DNA only.
c. Either unique sequence Dr repetitive sequence DNA
d.) Both unique sequence and repetitive sequence DNA

853. Two means of sample size 31 are compared by a test of significance called

a). T-tesL **b) Z-test** c). IT-test d). None ofthcsc

854. The number of independent comparison is called

a). Anaysis of variance **b) Degree of freedom** c). Mulri61e comparisons

855. The least significance difference, greatcr than which all the differences are significant is called

a). Con-ection factor b). Expcrimentalerror
c) Critical differences d) None of these

856. Viral genomes may be composed of

a. RNA only. b. DNA only.
c) Either RNA or DNA W 3oth RNA and ONA

857. In the Hershey-Chase blender experiments, their major conclusion Was IhaL.

a. A single gene directed the synthesis of a single polypeptide
b) DNA was the genetic material-
c. DNA was a double helix.
d. genetic nlaterial was located in the nucleus of cells É58.

Prokaryotic chromosomes consist mcistly of

a) Unique DNA sequence only.
b.Repetitive DNA sequence only.
c. Either unique 0T repetitive DNA sequence
d_ Roth unique and repetitive DNA sequence.

859, To create a karyotype, chromosomes are spread on a Slide and stained. a Interphase
b. Telophase **c) Metaphase** d. Anaphase

860. Which of the followings is not a component of the endomernhrane system?

a, Endoplasmic reticulum b, Plasma membrane **c) Nucleus** d, Golgi apparatus

861. The polygenic variation present in the plant population is of

a) One typc **b) Two types** c). Three types d). Four types

$62. Analysis of covariance is designated as

a). ACOVA **b) ANCOVA** c). ANACOVA d). None Of these

863. Coefficient of determination is designated as

c). r^2 **d) None of these**

854. Average degree of dominance is estimated by using

(9i1(ffD) % d). (D/H) %

865. possible one way direct crosses among genotypes is called

a) Half diallel b). Parlial diallel c) Complete diallel d). None of these

866. Yell organelle which contains a photosynthctic s stem is

a) Mitochondriå b) Cetltrioles c) Ribosome **d) Plastid**

867, In eukayotic cells the gametic material is fund in the

a. Ribcsonnes **b) Nucleus** c. Endoplasmic reticulum. d. Cytoplasm,

868. The type of DNA uund most commonly in living cells is the [arm.

869 in the wider sense is designated as:
a) H^2 b) H_w c) $h_{2(NS)}$ **d) None of these**

870 when all N genotypes are Crossed in all possible pairwise combinations is called
a)Diallel set of crosses b) Half diallel set of crosses
c Partial dtallel set to - crosses d). None nf these

870. Estimation ofvariance and covariance is also known as

872 A nucleoside consists of a
a) Pentose sugar and a nitrogenous base.
b) Phosphate group änd nitrogenous base,
c)Pelitusc sugar and a phosphate group
d) Pentose sugar, a phosphate group, and a nitrogenous base

873.The amount of erucic acid in canola edible oil is
a) 40% b) 60% c) 20% **d) Nil**

874. The condition when an extra chromosome is present in addition to the normal chromosome complement in individual is known as:
a) Monosomy **b) Trisomy** c) Nullisorny d) Tetrasorny

875. In all types of cells, there is (are)---------type(s) of RNA molecules.
a) 1 b) 2 c) 3 **d) 4**

876, Molecular genetics is the study of the
a. Transmission of genes from generation to generation,
b. Structure and function of genes at the chemical level.
c. Heredity of single-gene traits in groups of individuals
d. heredity of multi-gene traits in populations

877. Quantitative genetics is the study of
a Transmission of genes from generation to generation,
b Structure and function ofgenes at the chemical level.
c Heredity of single-gene traits in groups of Individuals,
d) Heredity of multi-gene traits in populations

878 Sum of all observation in a sample divided by their number is called
a)Arithmatic mean b). Variance c). Range d). None of these

879. phenotypic coefficient or variation is calculated as
a) Genetic variance/mean **b) Square root of phenotypic variance/mean**
c Phenotypic variance/ mean c), None of these

880. Regression is the measurement of
. a)Functional relationship between two Variables
b) Functional relationship between three variables
c) Simple linear relationship between two variables d).
Unfunctional relationship between two variables

881. The genetic material of all prokaryotes and eukaryotes is made Of
a. DNA. b. RNA. **c. Nucleic acid.** d. Protein.

882. A DNA nucleotide may consist of

a. A ribose sugar, a phosphate group, and adenine
b. **A phosphate group, deoxyribose, and cytosine**
c. C. Uracil, deoxyribose, and a phosphate group.
d) Deoxyribosc, thymine, and a hydroxyl group.

883 Which is the most accurate representation of the organization levels Of the genetic information in cells?

a. Genes >nucleotide> chromosomes> genome
b. Genome >genes --> nucleotides >chromosomes
c. Chromosomes >genes > nucleotides --> genome
d. **Nucleotides >genes > chromosomes>genome**

884. eukaryotic gene consists of at least two

Nucleotides. b Nucleosides c. Alleles. d. Traits.

885 Which of the following represents a homozygous genotype for flower color, which is determined by the P gene.

a) pink b. Pp **c) pp** d) pP

883. For a heterozygous gene (Xx), the genotype of the gamete may be

a) X b. XX c. Xx d) xx

888. Portion of genetic variance which results due to average effects of genes on all segregating loci is called

a). Dominance variance b). Epistasis **c) Additive variance** d). None of these

889. Nitrogen fixation that takes place in nodules is characteristic in:

a. Cereals **b) Legumes** c) Oilpalm d) Maize

890_ Potato is a rich source of.

a) Starch b) Protein c) Minerals d) all three

891. point effects of dominance, additive x dominance and dominance x dominance is called

a). Additive gene action **b)Now additive gene action**
c). Additive and non-additive gene action d). None of these

892. The ratio Of genetic covariance 0 the phenotypic covariance is called

a). Narrow sense heritability **b) Coheritability**
c). Broad sense heritability d) Noneof these

893. Which of the following best represents the process of transcription?

a. DNA Protein b RNA - > protein

c)DNA >--RNA d. DNA DNA

894. The enzyme that catalysis DNA-dependent RNA synthesis is

a. DNA polymerase. **b) RNA polymerase**.

c Reverse transcriptase. d ATP synthetase.

895. A codon specifies a(n)

a)Amino acid. b. Nuclcotidc base pair. c. Protein. d. Enzyme.

896. Eukaryotic cells differ from prokaryotic cells in that only that former contain

a. Ribosomes. b. Cytoplasm. c, DNA **d) Nucleus.**

897. The prokaryotic organism that has been the subject of many genetic studies is

a. Saccharomyces cerevisiae. **b)Neurospora crassa.**

c. Escherichia coli. d Drosophila meilanogaster.

898. The proportion of plants selected to the study is called

Plant intensity b). Selection index c). Selection intensity d) _ none of these

899. The difference bczween the mean phenntypyc value or selected plants and mean phenotypic value ofparental population is called

a. Selection differential b) Genetic gain

c). Genetic advance d). None of these

900. Decreased in fitness and vigor of plants is due to

a). Outbreeding b). Inbreeding **c) Interbreeding** d). None of these

901- Most eukaryotes are

a). Haploid **b). Diploid** c). Polyploid d. Aneuploid

902 - Which Of the following characteristics promote self-pollination

a). Dioecious b). Monoecious c). **Cliestogamy** d). Protandry

903 - In humans, chromosome 6 and chromosome 13 are

a). Homologous **b). non-Homologous** c). Heterozygous. d). Non-heterogenous.

904 - G-breeding is achieved by treating chromosomes with which stain?

a. Acrolein orangeb. Gentian violet **c. Giemsa stain** d. Bosin

905 - The centromere is located in the center of which type of chromosome?

a. Metacentric b. Submetacentric c. Acrocentric d. Telocentric

906 - Progeny having one parent in common is called
a). full sib **b. Halfsib** c). Tester d). None of these

907 - Number of all possible three way crosses among parents is equal to
a), n(n-l) b) n(n-l)/2 c). n(n-l) (n-2)/2 **d. None of these**

908 - if four generations (PI, P2, Fl and F2) of single cross involved in an analysis is
called
a). North Carolina Design **b. Triple Test Cross**
c). Line x tester Cross d). None of these

909 - The frequency of polyploidy is
a. Higher in plants

910 - A young woman has blond hair, blue eyes, and is lactose intolerant. This describes the girl's
a. Genotype b**. Phenotype.** c. Karyotype d. Proteotype

911 - The first generation in a series of monohybrid crosses is referred to as the — generation.
a. A b. P c. **F1** d. F2

912 - The first person to understand and describe the basic principles of heredity was
a. Thomus Morgan b**. Gregor Mendel.** c. James Watson. d. Francis Crick.

913- which of the followings is not directly involved in cell movement.
a. Endoplasmic reticulum b. Microfilament
c. Microtubules d**. Nucleus**

914 - In a mono-hybrid cross between two true-breeding parents that both exhibit the dominant phenotype, — - percent of the offspring will exhibit the recessive phenotype
a. 0 b. 25 c. 50 d. 100

915 - the template for cDNA is
a. DNA **b. mRNA.** c. tRNA. d. protein.

916 - The population with broad genetic base is called
a). homogeneous **b. heterogeneous** c). pure d). None of these

917 - Developmental buffering capacity of a genotype to the environmental fluctuations is called
a). Morphological homeostasis b). Genetical homeostasis
c. **Physiological homeostasis** d). None of these
ss
918 - Restriction endonuclease
a. Makes a DNA copy of a molecule of RNA.
b. Cleaves DNA at specific nucleotide sequences.
c. Produces an mRNA transcript from the DNA of a gene
d. Joins DNA fragments during cloning.

919 – Bacteria that produce restriction enzymes protect their own DNA from attack by modifying it with
a**. Methylation** b, Carboxylation c. Phosphorylation d. Acylation.

920 - The solar power packs of chloroplast are called
a. Stroma b. Thylakoids c. Cristac d. **granum**

921 - The DNA interacts with protein to form

a. **Chromatin** b Chromonemula c. proteins d. Plasmid

922 - Manifestation of linkage between genes known to be present on separate chromosomes is called
a. Crossing over b. **Translocation** c. Duplication d. Transfusion

923 - DNA fragments physically separated according to their size through
a. Thin layer chromatography **b. Agarose gel electrophoresis**
c. southern blot d. Autoradiography

924 - The western blot technique is used in the analysis of
a. DNA b. rRNA c. mRNA **d. Proteins**

925 - Extra chromosome in secondary trisomics is termed as
a. Isochromosome b. Ring chromosome
c. Supernumerary chromosome d. All Of the above

926 - Capacity of heterogeneous populations to adapt to variety of environments is called
a), General genotypic adaptation b). Specific genotypic adaptation
C) General population adaptation d). Specific population adaptation

927 - The regular occurrence of several phenotypes in a genetic population is known as
a). Phenotypic polymorphism b**. Genetic polymorphism**
c). Environmental polymorphism d). None of these

928 - The interval between the lowest and the highest values is called
a. **Range** b) Mean c). Average d). None of these

929 - The template for PCR is

a. Single stranded DNA **b. double stranded DNA**

930 -

a.**Transcriptional** b. Post-transcriptional

c. Translational d. Post-translational

931 - The most successfully used method of breeding in vegetables is:

a. polyploidy b) mutation breeding **c hybridization** d) biotechnology

932 - The potential of the cells to develop a multicellular organism is called as

a. cloning b**. totipotency** c. regeneration d. growth

933 - Which type of epistasis is indicated when A and B scales significant.

a) Additive x additive b). Additive x dominance

c) Dominance x dominance d. **all of these**

934 - What type of epistasis is expected when C scale is significant

a) Additive x additive b). additive x dominance

c**. Dominance x dominance** d). All of these

935 - In eukaryotes, the regulation of gene transcription requires the presence of

a. A promoter b. An enhancer.

c. transcription factors d. **All of the above**

936 - Transcriptionally active genes have_____level(s) of DNA methylation

a. Higher b. Lower c. The same **d. no**

937 - Gene expression in eukaryotes can be regulated at the level of
a. Transcription. b. Processing
c. Translation d. **All of the above**

938 - The square root of variance is called
a). Standard error b**. Standard deviation**
c). Coefficient of variation d). None of these

939 - The geometric mean between two regression coefficients is equal to
a). Coefficient of determination b. **Coefficient of correlation**
c). Coefficient of variation d). None of these

940 - The new values associated with genes as distinct from genotypes is Called
a. **Average effect** b). Genetic effect
c). Breeding effectd). None Of these

941 - The values or an individual, judged by the mean values of its progeny is called
a). Average value b). Breeding value c. Genetic value d. **None of these**

942 - In an inducible operon, the genes are
a. Always expressed
b. Usually not expressed unless a signal turns them "on".
c. Usually expressed unless a signal turns them "off".
d. Never expressed

943 - The regulatory substance that brings about gene expression in an inducible operon is called the
a. Repressor. b. Co-repressor **c. Inducer** d. Co-inducer

944 - In the Lac operon, the gene that encodes the ß-galactosidase enzyme is a,
a. lacA. **b. Lac Z** c. Lac Y d. Lac O

945 - A chromosome with a single arm is called
a. Homocentric b. Holocentric c. **Telocentric** d. Metacentric

946 - The catabolite activator protein (CAP) binds to the_____to regulate expression of the Lac operon.
a. Promoter b Repressor c. **Cyclic AMP** d. Inducer

947 - When a single locus only is under consideration, the difference between the genotypic value and breeding value of particular genotype is known
a. Recessive deviation b. **Dominance deviation**
c). Epistatic deviation d). Standard deviation

948 - Discontinuous variation in crop plants is controlled by
a). Minor genes b). Major genes c. **Single gene** d). Many genes

949 - As proved through various experiments, DNA replication is
a. Conservative. b. **semi-conservative** c. Duplicative. d. Dispersive

950 – each of the two DNA double helicase resulting from DNA….
a.
b. two parental or two progeny strands
c. Stretches of progeny DNA interspersed with parental DNA along both strands
d. Two newly synthesized strands

951- DNA polymerase are enzymes that copy
a. DNA

952- During synthesis, all DNA polymerases add nucleotides in which direction

a. From 5’ to 3’

953- To begin DNA replication a short ------- primer must first be produced

a. RNA

954- In eukaryotes DNA replication occurs during which phase of cell cycle

a. S

955- In an r x r latin square design the error degree of freedom is

a. (r-1)(r-2)

956- if the environmental conditions are homogeneous in an experimental area than most suitable experimental design is

a. CRDL

957- which of the following is not required for DNA synthesis reaction

a. RNA polymerase

958- The centromere is diffused in ---------- chromosome

a. Holocentric

959- The sequence of nucleotides in one strand of DNA is 5’-CCACTGG-3’. What is sequence of the complementary strand of DNA

a. 3’-GGTGACC-5’

960- Which E.coli DNA polymerase has ability to proofread newly syntbesized DNA and remove erroneous bases

a. All tbree DNA bases

961- The resolving power of a microscope can never be greater than

a. Wavelength of the light

962- The most suitable experimental design to compare two or more treatments is

a. Factorial design

963- if there is two way source of variation, parallel to and right angle of the plowed rows in an experimental area than most appropriate design is

a. Factorial design

b. RCBD
c. CRD
d. NONE

964-The DNA polymerase removes errant nucleotides from the ---------- of a DNA strand

a. 3’ end

965- The enzyme that unwinds the double helix to facilitate replication is

a. DNA helicase

966- When the DNA double helix is replicated the newly synthesized 5’---->3’ strand is considered the ---------- strand

a. Leading

967- synthesis of the lagging strand occurs

a. Discontinuously

968- Any phenotypic change due relocation of genes on the chromosome would be. The

a. Position effect

969- if in an experiment t treatments are arranged in a Randomized complete block design of r blocks than the error degree of freedom is

a. (t-1)(r-1)

970-

971- the major product of transcription is a molecule of

a. RNA

972-In translation

a. RNA is converted to protein

973- Transcription and translation occur during which phase of the cell cycle

a. Throughout the entire cell cycle

974- which is the best representation of the central dogma of molecular biology

a. DNA------->RNA-------->Protien

975- Another name for transcription is

a. GENE EXPRESSION

976) During transcription,RNA polymerase joins nucleotides:

a) From 5' to 3'
b) From left to right
c) From 3' to 5'
d) From right to left

977) The most suitable experimental design for an experimental area with fertility patches is:

a) Spliy Block Design n
b) Randomized Complete Block design
c) Completely Randomized Design
d) None of these

978) The most suitable experimental design for an experimental area:

a) Split Block Design
b) Latin Square Design
c) Completely Randomized Design
d) None of these

979) Which one of the following is not an RNA nucleotide?

a) ATP
b) GTP
c) CTP
d) TTP

980) Which of the following is not required for initiation of transcription?

a) NTPs
b) Primer RNA sequence
c) RNA polymerase
d) Template DNA strand

981) RNA molecules are:

a) Circular
b) Double stranded
c) Single stranded
d) Double helical

982) The DNA sequence where polymerase binds at the beginning of transcription is called the:

a) Promoter
b) Operator
c) Initiator
d) Terminator

983) The DNA sequence of a gene is 3'-CCATGCTA-5'.The corresponding sequence of the mRNA produced from this gene:

a) 5'-CCATGCTA-3'
b) 3'-GGTACGAT-5'

c) 3'-ATCGTACC-5'
d) 5'-GGUACGAU-3'

984) If there is two way source of variation, parallel to and right angle of the plowed rows an an experimental area that most appropriate design:
a) Factoral design
b) Latin Square Design
c) Completely Randomized Design
d) None of these

985) Which subunit of the RNA polymerase holoenzyme is essential for the recognition of two consensus sequences in an *E.Coli* promoter?
a) Alpha subunit
b) Beta subunit
c) rho factor
d) Sigma factor

986) Which type of RNA polymerase sigma factor predominates during normal conditions?
a) Sigma 70
b) Sigma 54
c) Sigma 23
d) Sigma 32

987) The rho protein involved in which aspect of transcription?
a) Initiation
b) Chain elongation
c) Termination
d) Transcription bubble formation

988) Which is the characteristic of rho-independent terminator?
a) rho protein
b) Hairpin loop followed by a string of U's
c) Hairpin loop without a string of U's
d) A string of U's with out a hairpin loop

989) Missing

990) Transcription and Translation are coupled in:
a) Yeast
b) Human
c) Bacteria
d) Protozoa

991) Which type of RNA is involved in the splicing of pre-mRNA molecules in eukaryotic cells?
a) rRNA
b) hnRNA
c) snRNA
d) gRNA

992)In prokaryotes, transposable elements may move from__to__
a) Chromosomes;plasmid
b) Plasmid;chromosome

c) Chromosome ;bacteriophage
d) **All of these are correct**.

993) Which of the following is a characteristics of bacterial insertion elements?
a) There is a sequence homology between the ends of insertion sequence and a region of prokaryotic chromosome
b) Insertion sequences are complex and carry large number of genes
c) The ends of the insertion sequence are inverted repeats
d) All of the characteristics of bacterial IS/'s.

994)Studies performed on corn led__to propose that there were mobile "controlling elements" in the corn genome that modified or suppressed gene activity.
a) Francis Crick
b) Thomas Morgan
c) **Barbara McClintock**.
d) Fredrick Griffith

995)A cross in which one common species is crossed with two incompatible species to combine the genes from the incompatible species is termed as __
a) Polycross
b) Multiple cross
c) Bridge cross.
d) Top cross

996)What type of epistasis is expected when D scale is significant
a) Dominance x additive
b) Additive x dominance
c) Dominance x dominance
d) None of these.

997) What type of epistasis is expected when both C and D scales are significant?
a) Dominance x dominance
b) Additive x additive
c) a and b.
d) Additive x dominance

998) Joint scaling test was proposed in 1952 by
a) Mather
b) Jinks
c) Cavalli
d) Hayman

999) The concept of biparental mating was developed in 1948 by
a) Mather and Jinks
b) Comstock and Robinson
c) Jinks and Jones
d) Jinks and Hayman

1000) Variance due to males is=½ VA in:
a) NCD1
b) NCD2

c) **NCD3**
d) All of these

Mcqs which are missing in 1000 mcqs

20. conveys the message Of DNA to the cytoplasm for protein Synthesis?
a.mRNA b. tRNA c. rRNA d. Tdna

41. Red rot of sugar cane usually attacks on
a.thick cane b.thin cane c.medium cane d.long cane

87. The coefficient of determination is represented as:
a.R123 **b.R2** c.r123 d.r12

129 . Gcnetic cecombination particularly in bacteria whereby a raked DNA from one individual becomes incorporated into that of anathcr.
a. Conjugation b. Transcription c. Transformation d. Transduction

157. pakistan obtain edible oil for edible purpose from cotton from local resources .
a.70% b.80% c.65% d.60%

176. How many methods of diallel analysis have been given by Griffing (1956):
a) One b Two
c) Three **d.Four**

201. In line x tester cross mating is done between
a. Males & females b) Among males
c.Among females d) All ofthesc

226. The plant Oemhera lamarchiana was studied extensively by
a) Gartner b) Andrew Knight c) Rhoad **d.deVrics.**

249. Fixable gene action includes:
a) Additive variance b) Additive× additive epistasis **c.a and b** d) Additive x dominance epislusis

273. Corn ear has grain rows
a.Even , b. Odd, c, Mixed , d. nonc

297. Heritable and non-heritable variation was distinguished by
a) Mendei b) Wiesmann **c.Johannsen** d) Biffen.

320. An abnormal type of fertilization in which male gamete fertilizes an egg
a. Apogamy **b. Semigamy** c. Diplospory, d. None of these . Tilgca

366.The gca variance has positive association with:
a. Narrow sense heritability b) Adaptability
c) Hybrid vigcur d) All of these

387. First evidence that DNA is genetic material was reported by Avery, Macleod and McCarty In
a. 1900 **b.1944** c. 1880 d. 1952

410, The information on A molecule is coded in the form of a set of
a.Three nucleotide b. Two nucleotide c. Four nucleotide d. Five nucleotidc

433 Linolenic acid contains carbon chain

a.18:3 b.18:2 c.18:4

471. Polygenic traits are measured in terms of
a) Height and weight b) Length and width
c) Duration **d.All or these**

544. The mutant gene causing sickle cell dlseage is also responsible for resistance

Flue b Small pox c. Typhoid **d.malaria**

581. Quantitative character is also known as
a) Minor gene character b. Polygenic character
c) Variable character **d.All of these**

603. For diallel seven genetical assumptions were proposed by
a)Yates b)Smith
c. Hayman d)Griffing

625. Partial diaL1el provides information about
a)gcå variance **b.sca variance**
c) gca effects d)A11 of these

641. The er:zymes that Cail Cut phosphodiester bond in a DNA chain is called
a. Proteases b. DNAse c. Liguse **d. Nucleases**

665. Which phenomenon reduces the chances of gcnetic rccornbination and variation among offsprings
a. Crossing Over b. Dominance c. Independent assortrnent
d.linkage

685. If 50% of the offspring Of a cross show dominant and 50% show the recessive trait, genotype Of the parent must be
a. AA×Aa **b.Aa×aa** c.AA×aa d.none of these

726. ,is the study of heredity and variation which deals with resemblances and differences among individuals related by descent.
a.genetics b) evolution c) inheritance d) biogenesis

746. Which of the following books was authorized by D.S Falconer in 1960:
a.Introduction to Quantitative Genetics h)Designs and analysis of Experinients
C) An introduction to Genetic Statistics d) Biometrical genetics

768. A cross in which two pairs of genes are Contrastlng is called as

a. Digenic hybrid b. cybrfd c, Hybrid **d.Dihybrid**

790. Of the two sex chromosome in man containing genes.
a.Y b.XY **c. X** d. none of these

d.

850.Which of the following is not an RNA base?

a.T b. A c. U d. G

871. Estimation of variance end ccovariance is also known as **b**

887. When a gene is expressed, a - will be produced.
a. Lipid b. Protein c. DNA molecule **d.Polypeptide chain**

909. The frequency of polyploidy is
a.Higher in plant b. Higher in animals
c. Equal in animals & plants -d. None

929. The template for PCR is
a. Single-stranded DNA **b. Double starded DNA** c. mRNA, d. Protein.

930. In prokaryotes, gene regulation occurs primarily at the -— level

950. Each of the two DNA double helices resulting from DNA replication contains.
a.one parental and one progeny strand

969. Jf in an expcrimcnt, t treatments are arrange in a randomized Comp!ete Block Design of r blocks than the error degree of freedom is
a). t(r-l) **b.(t-1)(r-1)** c). r(t-1)

970. The experiment with major and minor treatment is known as **d**

989. In bacteria, RNA polymerase transcribes

a. tRNA genes only b. Protein-coding genes only C. rRNA genes and Trna **d.all of these**

Sample paper 1

Q.1. Oligo-genic characters are governed by:
a. One gene
b. Few genes
c. Several genes
d. Two genes

Q.2. The reproductive branches of cotton plant are called:
a. Monopodial
b. Sympodial
c. Primary
d. Secondary

Q.3. Schleiden and Schwann (1838) recognized the cell as a unit of structure and function of all living organisms and named the theory as:
a. Epigenesis
b. Box theory

c. Homunculus

d. Cell theory

Q.4. Simultaneous fusion of the generative nuclei one with the egg and other with the endospermic nuclei is termed as:

a. Sterility

b. Single fertilization

C. Double fertilization

d. Cloning

Q.5. Hidden variability from homozygotes is released by:

a. Selfing

b. Inbreeding

c. Outcrossing

d. All of these

Q.6. The term "evolution" as "descent with modifications" was defined by:

a. Darwin

b. Lamarck

c.Zimmerman

d. Hugo de Vries

Q.7.The highest percentage of oilseeds cultivated area in Pakistan is shared by:

a. Sunflower

b. Brassicas

c. Groundnut

d. Sesame

Q.8. DNA and RNA are very much similar in their composition except:

a. Adenine

b. Cytosine

c. Uracil

d. Guanine

Q.9. Population genetics is based on:

a. Hardy- Weinberg law

b. Principles of population control

c. Polygenic Inheritance

d. Analysis of variance

Q.10.The best stage of mitosis when one can observe and count the number of chromosomes during cell division is:

a. Telophase

b. Prophase.

c. Metaphase

d. Anaphase

Q.11. The outermost covering of a true seed is called:

a. Radicle

b. Scutellum

c. Testa

d. Raphe
Q.12. The total number of amino acids in a cell are:
a. 35
b. 30
c. 25
d. 20
Q.13. The book "On the Origin of Species" was written by:
a. Wallace
b. Mendel
c. Wiesmann
d. Darwin
Q.14. The phenomenon by which two sex chromosomes go together in the same gamete is termed as:
a. Duplication
b. Non disjunction
c. Interference
d. Multiplication
Q.15. If a chromosome with genes in the order ABCDEFG is changed to ABFG, the change is called:
a. Tanslocation
b. Inversion
c. Deficiency
d. Addition
Q.16. Error variance measures the type of variation:
a. Genotypic
b. Phenotypic
C. Environmental
d. All of these
Q.17. Which one stands for International Maize and Wheat Improvement Centre:
a. IRRI
b. ICRISAT
C. CIMMYTV
d. AVRDC
Q.18. Chloroplasts are present in the cells of:
a. Animal
b. Plant
C. Both
d. None
Q.19. Which one is concerned with agricultural research in barani areas:
a. AARI
b. NIAB
C. BARI
d. NIBGE

Q.20. Which one is serious viral disease in mungbean:
a. Lcu
b. UG99
c. LR
d. YM
Q.21. Metroglyph analysis is based on:
a. Mean values
b. Variance
c. Co-variances
d. Mode values
Q.22. A gene influencing more than one character simultaneously is called:
a. Phenocopy
b. Phenotype
c. Modifier
d. Pleiotropic
Q.23. The concept of "inheritance of acquired characters" was put forward by:
a. Fairchild
b. Bateson
C. Schwann
d. Lamarck
Q.24. A person with blood group AB can receive blood from person with:
a. A-group only
b. AB-group only
C. O-group only
d. All three
Q.25. Eurcic acid is found in:
a. Safflower
b. Til
c. Soybean
d. Mustard
Q.26. Prussic acid is found in:
a. Sorghum
b. Sudangrass
c. Burograss
d. All three
Q.27. If changed chromosome number is exact multiple of basic set of chromosomes the polyploid will be called as:
a. Aneuploidy
b. Tetrasomic
C. Euploidy
d. Monosomic
Q.28. The sex constitution of female birds is:
a. XY

b. XX
C. ZW
d. WW
Q.29. Colour blindness is sex linked character in man and is recessive in nature, female can only be colour blind if she has genetic constitution:
a. χY
b. xbxb
C. XX
d. Xby
Q.30. ELISA Technique is mostly used for the detection of diseases due to:
a. Fungi
b. Nematode
c. Virus
d. Bacteria
Q.31. Colchicine is an important chemical mutagen it prevents the formation of:
a. Gamete
b. Crossing over
c. Spindle fibre
d. Nucleolus
Q.32. How many types of heterozygotes will be produced when Aalb seifed?
a. 12
b. 8
c. 16
d. 14
Q.33. Bread wheat has the genetic.constitution as:
a. AAAAAA 1
b. AAABBB
C. AABBDD
d. AABBDDCC
Q.34. The term ideotype for crop plants was coined by:
a. Jennings
b. Finlay
c. Rasmussion
d. Donlad
Q.35. Norin 10 is the source of dwarfing gene in:
a. Wheat
b. Rice
c. Barley
d. Oat
Q.36. The value of simple correlation lies between:
a. O and 1
b. 1 and 2
c. -1 and 1

d. land infinity
Q.37. When two factors affect the same character and the dominant allele of each acts as epistatic, the phenomenon of epistasis is called as:
a. Dominant
b. Duplicate dominant
c. Recessive
d. Dominant recessive
Q.38. In BT-cotton, the words BT stand for:
a. Bacillus thuringiensis
b. Bemisia tabaci
c. Bemisia trachpterus
d. All three
Q.39. Genotypic correlation results due to:
a. Pleiotropy
b. Linkage
c. Interaction
d. All three
Q.40. Transfer of DNA from agarose gel to a nitrocellulose paper is called:
a. S- blotting
b. N- blotting
c. W- blotting
d. None of these
Q.41. GMO means
a. Genetically Mutant Organism
b. Genetically Modifying Organism
c. Genetically Modified Organism
d. All three
Q.42. Regeneration of plant from a single cell in culture medium is referred as:
a. Cell culture
b. Meristem culture
c. Organ culture
d. Protoplast culture
Q.43. Karyokinesis Means:
a. Cell division
b. Nuclear division
c. Nuclear fusion
d. Cytoplasm division
Q.44. That type of chromosome in which centromere is near the one end such that two unequal arms of chromosome are formed is termed as:
a. Telocentric
b. Metacentric
c. Acrocentric
d.Submetacentric

Q.45. When a codon specifying an amino acid mutates into a chain terminating codon that terminates the protein chain synthesis then mutation is called:
a. Frame shift
b. Missense
c. Silent
d. Nonsense
Q.46. Melting pot technique is the most efficient of breeding methods used for improvement in:
a. Jute
b. Sesame
c. Soybean
d. Sugarcane
Q.47. Most efficient chemical used for extraction of oil from oilseeds is:
a. Hexane
b. Benzene
c. Chlorine
d. Mustard gas
Q.48. The vast majority of DNA molecules present in the protoplasm of cells is of:
a. Z-form
b. B-form
c. C-form
d. G-form
Q.49. In Vr-Wr graph when regression line passes through the origin, it indicates:
a. Complete dominance
b. Partial dominance
c. Lack of dominance
d.Overdominance
Q.50. 5-Bromouracil is an analogue of:
a. Adenine
b. Guanine
c. Thymine
d. Cytosine
Q.51. Who developed the concept of line x tester cross analysis?
a. Kempthorne
b. Jinks
C. Jinks & Jones
d. Mather
Q.52. In saturated fatty acids carbon atom are present with:
a. Single bonds
b. Double bonds
c. Triple bonds
d. All three

Q.53. Drying capacity of an oil depends upon its value of:
a. Iodine
b. Sapanification
c. Carbon chain
d. erusic acid
Q.54. Maximum number of parents can be evaluated for combining ability at a time by:
a. Diallel
b. Line x tester U
c. Polycross
d. NCMS
Q.55. Jute fibre is obtained from:
a. Leaves
b. Stem
C. Root
d. Seeds
Q.56. In normal plants type of infertility due to some physiological hindrance that prevents fertilization is called:
a. Pseudogamy
b. Sterility
c. In compatibility
d. Parthenogenisis
Q.57. A good tester should posses:
a. Broad genetic base
b. Wider adaptability
c. Low yield potential
d. All of these
Q.58. A progeny descendent solely by self-pollination from a single homozygous plant is know as:
a. Hybrid
b. Multiline
c. Pure line
d. Non of these
Q.59. Imperfect flower are always:
a. Complete
b. Incomplete
c. Bisexual
d. Unisexual
Q.60. Recessive mutation are uncovered by:
a. Cross fertilization
b. Self pollination
c. Self fertilization
d. Cross pollination
Q.61. Most appropriate centre of crigin of maize is:

a. C-America
b. S- America
c. Paraguay
d. Mexico
62.nulisomic has genetic formula as:
a. 2n-1
b. 2n-2 V
c. **2n +1**
d. 2n + 2
63.The type of seed produced from foundation seed is called;
a. Breeder
b. Foundation c. Registered d. **Certified**
64.If there is pre-ponderous of non-additive gene action which of the following breeding methods will be preferred:
a. Mutation
b. **Heterosis** c. Backcross d. Pedigree
65.Selection is practiced in F^5 or F^6 segregating germination in:
a. Single seed decent method
b. Pedigree method
c. Bulk population method
d. **Double haploid**
66.The ratio of additive variance to phenotypic variance refers to:
a. h? (BS) b. ha (NS) c. Repeatability d. Coheritability
67.High value of genetic advance indicates that the character is governed by genes of type:
a. Additive
b. Dominant c. Epistatic d. All three
68.High estimates of narrow sense heritability indicate type of gene action:
a. Additive
b. Dominance
c. Overdominance
d. Non-additive
69.Dried fodder used as livestock feed is called:
a. Hay
b. Sillage
c. Pasture
d. All three
70.Mating between a single crass and an open pollinated variety is called:
b. Composite
a. Polycross
c. Double top cross
d. Top cross
71.If a species is divided into two or more races is called:

a. Evolutionary b. **Polytypic** ✓ C. Allopatric d. Morphological
72.Which of the following species would have the highest rate of mutation:
a. Human
b. Bacteria
C. Mai ze
d. Wheat
73.Domestication of O. sativa was made in South and South East Asia and is well distributed through out the world.
a. Asia
b. Europe
C. America
d. Africa
74.0. sativa, cultivated rice has origin considered as:
a. Poly-phyletic b. Mono-phyletic c. not clear d. both
75.Which of the followings is considered as crop of dry areas:
a. Maize
b. Cotton
C. Sorghum
d. Jute
76.The origin of sorghum is generally believed to be:
a. Ethiopia
b. Mexico
c. Himala
d. Malta
77.Sugarcane, S. barber, is believed to be originated in:
a. North India b. China
c. New Guinea d. America
78.Purseglove (1988) described different groups of sorghum as:
a.5
b. 7
c. 9
d. 12
78.Commercial species of cotton plant which comprise about 90% of world production is:
a. G. barbadense b. G. arboreum C. G. herbaceum **d. G. hirsutume**
79.Specially cultured, the plants can be used as a selenium, chromium, iron and zinc food supplement:
a. B. juncea 1 b. G. arboreum c. Zea mays
d. S. bicolor
80.Dicots are greater in number than monocots in the world's flora by.
a. 6 times
b. 10 times c. 2 times
d. 3 times

Q.81.Dicots are greater than monocots in number in world's flora by

a. 6 times b. I0 times c. 2 times d. 3 times

82…Colchicine (C_{22} $H_{25}O_6N$) is extract from meadow Saffron

. ***a. C. autumnale*** b. A. thaliana

c. D.strarnonium d. D.melanogester

83……The evolution of multi cellular plants is estimated about

a. 200 MYA b. 800MYA c. 300 MYA **d. 540 MYA**

Q.84.formaticn of earth is estimated MYA about

a. 2000 MYA b.8000 MYA **C.4600 MYA** d. 6000 MYA

Q.85.Evolution of Eukaryotes from prokaryotes took about;

a. 300 MYA **b. 800 MYA** c. 600 MYA d. 400 MYA

Q.86 Evolution of Prokaryotes is estimated about

.

a. 3500 MYA b. 4500 MYA c. 5500 MYA d. 6500 MYA

Q.87.When FL hybrid is crossed particularly With the recessive parent, the cross is called as:

a.Single cross. b. Di hybrid c. Mono-hybrid **d. Test cross**

Q.88 The transmission of genetic information from cell to cell and from generation to generation to control cellular functions and developments is

a. Cytoplasm b. RNA **c. Chromosome** d. Proteins

Q.90.A branch of science that deals with the study of heredity and variation is called as:

a. Genetics b. Breeding c. Biology d. Biogenesis

Q.91 Germplasm theory was given by a biologist :

. a. Charles Darwin **b.. A. Weismann** c. Lamarck d. Galton

Q.92.Blood grouping in man is an example Of:

Q.91. a. Epistasis **b. Multiple Allelism** c. Iso allelism d. Compound Loci

Q.92 Who from the following is regarded as the father of modern genetics?

a. Gregor Mendel b. Charles Darwin c. Crick Watson d. Lamarck

Q.93 Which one of the followings is first segregation generation?

A.F1 **B.F2** C.F3 D.BC_2

Q.94 Genotypic ratio in F2 generation for dihybrid Cross is:

A.1;2;2;4;1;2;1;2;1 B.9;3;4 C.9;6;1 D.9;7

Q.95 .Genes in linear order are present on:

a. DNA b. Spindles **c. Chromosomes** d. RNA

Q.96 .What determines gene frequencies in populations through unequal rates of reproduction in different genotypes?

a. Natural Selection b. Mutation c. Evolution d. Variation

Q.97 The DNA and histone proteins in a eukaryotic chromosome are compacted. into structures called:

a. Proteosomes **b. Nucleosome**c. Telomeres d. Centromeres

Q.98. Two means of sample size 31 are compared by a test of significance called:

a. T-test **b. Z-test** c. F-test d. None of these

Q.99 Estimation of variance and covariance is also known as:

a. First degree

b. Second degree statistics

d. Third degree

c. None of these

Q.100 The template for PCR is:

Single-stranded DNA **Double-stranded DNA** mRNA Protein

Sample paper 2

1. Which of the following is concerned with agricultural research in barani areas of Pakistan:

i NIAB

ii MMRI iii**. BARI** iv. CDRI

2. Which of the following international organizations works on maize crop

i. CIMMYT ij. ICRISAT iii. ICARDA iv. IRRI

3. Which of the following seeds have the highest protein content?

i. chickpea ii. lentil

iii. soybean iv. mungbean

4. Which one is the viral disease of mungbean?

i. leaf curl virus **ii. yellow mosaic virus**

iii. leaf rust iv. blight

5. A good source of vegetable protein is:

i. wheat

ii, maize

üü pulses

iv. all three

6. The immediate effect of pollen on the endosperm is called **xenia**

7. The corn ear has number of grain rows
i even
ii. odd
iii. mixed
iv. notic
8. Which of the following hybrids of maize is the highest in production:
i single cross ii. double cross iii. three way cross iv. top cross
9. Which one of the followings is considered most appropriate centre of origin of maize:
i Cenral America ii. Mexico iii. Paraguay iv. South America
10.is close relative of maize. **Teosinte maxicana**
11. Which crop is major vegetable oil producer after cotton in Pakistan:
i linseed
ii, sesame iii. sunflower **iv. brassicas**
12. Sunflower belongs to family
Compositeae
13. The amount of erucic acid in canola edible oil is.
i. 40%
ii. 60%
iii. 20%
iy, nil
14. ICRISAT stands for
International Crop Research Institute in Semi arid tropics
15. Genome of Brassica napus
i. AABB **ii. AACC**
iii. BBCC
iv. BBDD
16. Pakistan earns foreign exchange through the export of
i. linseed ii. olive oil
mi sesame
iv. safflower
17. Pollination in cotton is accomplished by:
i. wind/air **ii. insects**
ii. both
iv. none
18. Castor plant regarding inflorescence is normally:
i**. monoecious** ii. dicecious iii. perfect
iv. complete
19. Glycine mar (soybean) has 2n chromosome number:
i. 20
. 40
iii. 60
iv. 80
20. The elongated stalk of the ovary in ground nut is called

Peg
Suebon graus
21. Sadabahar is a hybrid between sorghum and **sundas grass**
22. Mazenta is a hybrid between maize and
Maize and Teosinte
23. Majority of the fodders belongs to either family poaceae **or Fabaceae/liguminoseae**
24. Pollination generally in clovers is accomplished through special mechanism called as
Tripping
25. During---------months green fodder is scare in Punjab. **May-June/December-January**
26. Genomic formula of bread wheat is:
i AABB ii. AABBCC
ii. AABBDD
iv. BBCCDD
27. Normally wheat flower is
i. cross pollinated
ii. self pollinated
iü. often cross pollinated
28. Inflorescence of wheat is called:
i panicle **ii spike** üi spadix
iv. tassel
29. Dwarfing genes of semi-dwarf wheat were obtained from Japanese variety
Norin-10
iv. Nore
30. Food in wheat seed is stored in:
i. cotyledon ii. scutellum **iii. endosperm**
31. Pollen grain of bread wheat has chromosome number:
ii. 14
ili. 21
iv. 28
32. Triticale was obtained by combining the genomes of wheat and
Rye
33. Botanically wheat seed is called as
caryopsis
34. Bread wheat belongs to family
Poaceae/gramineae
35. The DD genome in wheat belongs to:
i. monococcum ii. aestivum
iii. tauschii
iv. turgidum
36. The most popular species of cotton grown in this arca is **G. hirsutum**

37. Spinnable seed fibre is called
Lint

38. In cotton extra floral nectars are present on:
i. leaves ii. stem
iii. bracts
iv. none
39. Pima cotton was evolved in
i. Inco-Pak subcontinent ii. Egypt
ji. USA
iv. China
40. CIM 496 variety of cotton was developed at:
i. Multan ii. Rahim Yar Khan ii. Faisalabad
iv. Vehari
iv. mass selection
41. BT cotton has been evolved through:
i genetic engineering ii, pedigree method iii. bulk method
42. Most important viral disease of cotton is
CLCu
43. Non-spinnable fibre in cotton is called
Fuz
insut haric
44 Rosett flonia in cotton appear as a result of **insect attack**
45. Which of the followings are main fruiting branches in cotton
i. monopodial ii. **sympodial** iii. both
iv. none
46. PCCC stands for
Pakistan Central Cotton Committee
47. Which of the following cotton lints with the given micronaire values is finer:
i. lint with 5.0 mic **ii. lint with 4.5 mic.** iii. Both
48. Jute fibre is obtained from:
i. flowers
i. sccds
1.
leaves
iv. stem
49. NCVT stands for:
National Coordinated Varietal Trial
50. Cotton plant is a member of family
Malvaceae
51. Pakistan from sucrose recovery point of view ranks in the world:
i. 5th
ii. 10th
iii. 14th
iv. 84
52. Give the name of sugarcane inflorescence

Arrow

53. In Punjab the most successful flowering in sugarcane occurs at **Murree**

54. **S. barberi** is among the wild relatives of Saccharum officinarum

55. In Pakistan sugar beet cultivation is restricted to
valley in NWFP only.**Peshawar**

56.----------is major byproduct obtained from filter mud of cane industry. **bagos**

57. Botanically the seed of sugarcane is called
Fuz

58. Chromosome number in cultivated noble sugarcane ranges between
80-112

59 Potato is a rich source of
i. starch ii. protein
iii. minerals
iv. all three

60. Tomato plant in nature is highly:
i. self pollinated ii. cross pollinated
iii. often cross pollinated iv. apomictic

61. Vegetables are perishable due to high
% moisture

62. The most successfully used method of breeding in vegetables is:
i. bulk method **ii. mutation breeding** iii. hybridization iv. biotechnology

63. A simple procedure designed to achieve diploidization involves immersion of very young
haploids in solution of **Colchicine**

64. pH of growth medium for tissue culture should range between
6.5-7

65. What would be the complementary sequence of the following segment of DNA strand?
ATCCT **TAGGA**

56. Organic agriculture stands for
inputs.
Agriculture without inorganic

67.----------refers to the induction of well defined plant arnan for all..organogenesis.
4

68. Initiation of shoots and roots requires:
i auxins ii. cytokinens **iii. both**
iv. none

69. The potential of the cells to develop a multicellular organism is called as
i. cloning **ii. totipotency** iii. regeneration iv. growth

70. Variation occurred in plants regenerated from cultured cells or tissues is termed as
Somaclonal Variation
Somaclonal Variation

71. The mass of undifferentiated cells produced as a result of in vitro culturing of a cell is termed

Callus
as
72. Commonly used gelling agent in tissue culture medium is
Agar agar
73. A gene which exerts a drastically abnormal effect on life of an organism is called as:
i. Pleiotropic gene **ii. Lethel gene** ini. Inhibiting gene iv. Jumping gene
74. The progeny of the cross is space-planted through---------
generations in bulk population selection method**. sccessive /F5-F6**
75. Heterozygosity is reduced by % with each succeeding selfed generation. **50%**
76. The plants superior to the parents in segregating populations of a cross are called
Transgressants
77. In mass selection the harvested seed is bulked without
evaluation
78, GIS stands for
Geographical Information System
79. The mechanism of synthesis of protein molecule from the information coded in the mRNA is called:
i. Transcription ii. Cloning **iii. Translation** iv. Transversion
80. DNA synthesis on a template is catalyzed by the enzymc,
i. Polymerase ii Gyrase iii. Endonuclease iv. Topoisomerase.
81. The type of infertility due to the failure of plants with normal pollen and ovules to set seed due to some physiological hindrance that prevents fertilization is termed as:
i. Parthenogenesis **ii. Incompatibility** iii.Sterility iv. Pseudogamy,
82. The process of crossing two different species of the same genus to combine different traits in one individual is known as:
i. Inter-specific ii. Intra-specific iii. Inter-generic iv. None
83. Eight centers for origin of different crop plants were proposed by:
i. Harlan
ü. Vavilov iii. Shull
iv. Vilmorin
84. The process of adaptation of a plant from a different ecological zone in a new climate is called as:
i. Introduction **ii. Acclimatization** iii. Competition iv. Diversification
85. A progeny descendent solely by self-pollination from a single homozygous plant is known as:
i Multiline **ii. Pure line** iii. Hybrid iv. none of these
86. In the pedigree selection after hybridizing two varieties of a self-pollinated crop, the selection for the superior plants is started in F2

87. The number of pollen grains produced by 20 pollen mother cells will be
i 20
ii. 40
iii. 60

iv. 80

88. How many sperm nuclei will be produced from four tube nuclei:

i. Four

iii. Twenty **iv. None**

ii. Eight

89. The theory of the inheritance of the acquired characters was proposed by:

i. Darwin

ii. Lamark

ii. De Vries iv. Correns

90. The condition when an extra chromosome is present in addition to the normal chromosome compliment in an individual is known as. **Trisomy**

91.nitroen fixation takes place in nodles is character of **legmmes**

92.major source of sugar in Pakistan? **sgarcane**

93.a cross between two single crosses leads to **doble cross.**

94.chromosome is made up of **ncleic acid and protein.both**

95. varieties produced by open pollination among the number of outstanding strains usually not tested for combining ability with each other are called as.

Composite variety.

96. recurrent selection leads to **accumulation of favourable genes**

97. a typical mendelian dihybrid test cross ratio is **1 : 1 :1: 1**

98. marker assisted selection refers to the use of **molecular markers** to assist phenotypic selection.

99. which one is the most important method to induce variation in crop plants. **mutation**

100. rflp markers based on polymorphism **by restriction enzyme**