

National Testing Agency

Question Paper Name :	Fish Genetics and Breeding 23rd Sep 2020 Shift 2
Subject Name :	Fish Genetics and Breeding
Creation Date :	2020-09-23 19:33:45
Duration :	120
Total Marks :	480
Display Marks:	Yes
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes

Fish Genetics and Breeding

Group Number :	1
Group Id :	71087059
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	480
Is this Group for Examiner? :	No

Part A General Knowledge

Section Id :	710870175
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20

Number of Questions to be attempted :	20
Section Marks :	80
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	710870175
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 7108707021 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which one of the following crops is a commercial crop in Punjab and Haryana but is a subsistence crop in Orissa?

1. Tea
2. Cotton
3. Rubber
4. Rice

Options :

- 71087028081. 1
- 71087028082. 2
- 71087028083. 3
- 71087028084. 4

Question Number : 2 Question Id : 7108707022 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which of the following are the two most important wheat-growing zones of the country?

- A. Ganga-Satluj plains in the north-west
- B. Deltaic regions
- C. Black soil region of the Deccan
- D. Plains of north-east

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

- 1. Only A and B
- 2. Only B and C
- 3. Only C and D
- 4. Only A and C

Options :

- 71087028085. 1
- 71087028086. 2
- 71087028087. 3
- 71087028088. 4

Question Number : 3 Question Id : 7108707023 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Indian agriculture is typically characterized as

- 1. Land surplus, labour scarce economy
- 2. Land surplus, labour surplus economy
- 3. Land scarce, labour surplus economy
- 4. Land scarce, labour scarce economy

Options :

- 71087028089. 1

71087028090. 2

71087028091. 3

71087028092. 4

Question Number : 4 Question Id : 7108707024 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which one of the following countries is the main rival of India in tea export?

1. China
2. Japan
3. Germany
4. Sri Lanka

Options :

71087028093. 1

71087028094. 2

71087028095. 3

71087028096. 4

Question Number : 5 Question Id : 7108707025 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement A: MSP is declared by the government every year to provide incentives to the farmers for raising the production of crops.

Statement B: Buffer stock is created to distribute food grains in the deficit areas and among the poorer strata of the society at the lower price than the market price.

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

1. Both Statement A and Statement B are correct
2. Both Statement A and Statement B are incorrect
3. Statement A is correct but Statement B is incorrect
4. Statement A is incorrect but Statement B is correct

Options :

- 71087028097. 1
- 71087028098. 2
- 71087028099. 3
- 71087028100. 4

Question Number : 6 Question Id : 7108707026 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which one of the following is a global association of nations of the world to help cooperation in international law, security, economic development and social equity?

1. United Nations Organization
2. International Monetary Fund
3. World Bank
4. World Health Organization

Options :

- 71087028101. 1
- 71087028102. 2
- 71087028103. 3
- 71087028104. 4

Question Number : 7 Question Id : 7108707027 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Under the Ganga Action Plan Phase II, pollution abatement works are being taken up in how many towns?

- 1. 57
- 2. 65
- 3. 52
- 4. 69

Options :

- 71087028105. 1
- 71087028106. 2
- 71087028107. 3
- 71087028108. 4

Question Number : 8 Question Id : 7108707028 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which one of the following statements is **incorrect**?

- 1. The highest number of pigs in the world are found in India
- 2. Utter Pradesh provides largest amount of pork
- 3. Assam has the largest number of pork producing pigs
- 4. Pork constitutes about 7.6% of the total meat produced in India

Options :

71087028109. 1

71087028110. 2

71087028111. 3

71087028112. 4

Question Number : 9 Question Id : 7108707029 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which type of N-fertilizer is suitable for water-logged soils?

1. Zinc Phosphate
2. Ammonium Sulphate
3. Calcium
4. Potassium Nitrate

Options :

71087028113. 1

71087028114. 2

71087028115. 3

71087028116. 4

Question Number : 10 Question Id : 7108707030 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The famous Bailadila range of hills in the Bastar district of Chhattisgarh is famous for its

1. Bauxite deposits
2. Manganese deposits
3. Copper deposits
4. High-grade haematite deposits

Options :

71087028117. 1

71087028118. 2

71087028119. 3

71087028120. 4

Question Number : 11 Question Id : 7108707031 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

A farmer wishes to start a 100 sq. m rectangular vegetable garden. Since he has only 30m barbed wire, he fences three sides of the garden letting his house compound wall act as the fourth side fencing. What is the dimension of the garden?

1. 15 m x 6.67m
2. 20 m x 5 m
3. 30 m x 3.33 m
4. 40 m x 2.5 m

Options :

71087028121. 1

71087028122. 2

71087028123. 3

71087028124. 4

Question Number : 12 Question Id : 7108707032 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In which one of the following industries, the consumption of natural rubber is the largest?

1. Auto tyres and tubes
2. Footwear
3. Dipped goods
4. Latex foam

Options :

71087028125. 1
71087028126. 2
71087028127. 3
71087028128. 4

Question Number : 13 Question Id : 7108707033 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which one of the following countries was the partner country of 34th Surajkund International Crafts Fair held in Haryana?

1. China
2. Nepal
3. Bhutan
4. Uzbekistan

Options :

71087028129. 1
71087028130. 2
71087028131. 3
71087028132. 4

Question Number : 14 Question Id : 7108707034 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Nobel laureate Abhijit Vinayak Banerjee was conferred the honorary Doctor of Letters (D. Litt.) by which University?

1. University of Delhi
2. University of Kolkata
3. University of Mumbai
4. University of Hyderabad

Options :

- 71087028133. 1
- 71087028134. 2
- 71087028135. 3
- 71087028136. 4

Question Number : 15 Question Id : 7108707035 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Where is the headquarters of European Union?

- 1. Geneva, Switzerland
- 2. Washington D.C., USA
- 3. New York, US
- 4. Brussels, Belgium

Options :

- 71087028137. 1
- 71087028138. 2
- 71087028139. 3
- 71087028140. 4

Question Number : 16 Question Id : 7108707036 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which of the following would be deficient if one finds high somatic cell count in the cow's milk?

- 1. Butterfat
- 2. Whey protein
- 3. Casein
- 4. Trace minerals

Options :

- 71087028141. 1
- 71087028142. 2
- 71087028143. 3
- 71087028144. 4

Question Number : 17 Question Id : 7108707037 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Who was the first administrator-statesman to attempt planning as a means for economic development?

- 1. C. Rajagopalachari
- 2. V. T. Krishnamachari
- 3. M. Viswesvarayya
- 4. Sir C. P. Ramaswami Aiyar

Options :

- 71087028145. 1
- 71087028146. 2
- 71087028147. 3
- 71087028148. 4

Question Number : 18 Question Id : 7108707038 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Amazon rainforest span over nine countries. In August 2019, in which country did a deadly fire broke out in the Amazon forest?

- 1. Brazil
- 2. Venezuela
- 3. Colombia
- 4. Argentina

Options :

- 71087028149. 1
- 71087028150. 2
- 71087028151. 3
- 71087028152. 4

Question Number : 19 Question Id : 7108707039 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Economic liberalization in India started with

- 1. Sustainable changes in industrial licensing policy
- 2. The convertibility of the Indian Rupee
- 3. Significant reduction of tax rates
- 4. Changes in procedural formalities for FDI

Options :

- 71087028153. 1
- 71087028154. 2
- 71087028155. 3
- 71087028156. 4

Question Number : 20 Question Id : 7108707040 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The term 'Delimitation' which was in news recently is associated with which process?

- 1. Fixing the limit of Income tax
- 2. Fixing limits of Affordable housing
- 3. Fixing limits of Territorial constituencies
- 4. Fixing limits of Chairpersons salary

Options :

- 71087028157. 1

71087028158. 2
71087028159. 3
71087028160. 4

Part B Core Fishery Science III

Section Id :	710870176
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	200
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	710870176
Question Shuffling Allowed :	Yes

**Question Number : 21 Question Id : 7108707041 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is
Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 4 Wrong Marks : 1**

Arrange the following phases as per the eukaryotic cell cycle

- A. Gap-1(G 1) phase
- B. Gap-2 (G 2) phase
- C. S Phase
- D. M Phase
- E. Gap-0 (G 0) phase

Select the correct answer from the options given below:

- 1. B, C, D, E, A
- 2. A, B, D, E, C
- 3. D, E, A, B, C
- 4. E, A, C, B, D

Options :

- 71087028161. 1
- 71087028162. 2
- 71087028163. 3
- 71087028164. 4

Question Number : 22 Question Id : 7108707042 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A fish has 15% thymine in its DNA. How much guanine does it have?

- 1. 15%
- 2. 85%
- 3. 35%
- 4. 70%

Options :

- 71087028165. 1

71087028166. 2

71087028167. 3

71087028168. 4

Question Number : 23 Question Id : 7108707043 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Okazaki fragments are observed on

1. Leading strand
2. Lagging strand
3. RNA strand
4. None of the above

Options :

71087028169. 1

71087028170. 2

71087028171. 3

71087028172. 4

Question Number : 24 Question Id : 7108707044 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I: Gene expression is regulated by DNA Methylation

Statement II: DNA methylation represses the gene expression

Select the correct answer from the following options

1. Statement I is wrong and Statement II is correct
2. Both Statement I and Statement II are wrong
3. Both the statement are correct
4. Statement I is correct but Statement II is wrong

Options :

71087028173. 1

71087028174. 2

71087028175. 3

71087028176. 4

Question Number : 25 Question Id : 7108707045 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The most commonly used restriction enzymes are

1. Type I restriction enzymes
2. Type II restriction enzymes
3. Type III restriction enzymes
4. Both Type I and Type III

Options :

71087028177. 1

71087028178. 2

71087028179. 3

71087028180. 4

Question Number : 26 Question Id : 7108707046 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Match the Enzymes with their property / use

List I	List II
Enzyme	Uses/Property
A. <i>E. coli</i> Ligase	I. Template independent polymerase
B. Reverse transcriptase	II. 5'-phosphorylation of oligonucleotides
C. T4 polynucleotide kinase	III. ATP-dependent ligase
D. T4 Ligase	IV. RNA-dependent DNA polymerase
E. Terminal transferase	V. NAD ⁺ -dependent ligase

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

1. A - I, B - III, C - II, D - V, E - IV
2. A - IV, B - V, C - I, D - III, E - II
3. A - IV, B - III, C - V, D - II, E - 1
4. A - V, B - IV, C - II, D - III, E - I

Options :

71087028181. 1
71087028182. 2
71087028183. 3
71087028184. 4

Question Number : 27 Question Id : 7108707047 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The value of an A 260 /A 280 for pure ds DNA is

1. ~1.8
2. >1.8
3. <1.8
4. 0

Options :

- 71087028185. 1
- 71087028186. 2
- 71087028187. 3
- 71087028188. 4

Question Number : 28 Question Id : 7108707048 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Read the following statements

Statement I: In SDS- PAGE, proteins are separated based on their mass/charge ratio

Statement II: In Native-PAGE, proteins are separated based on their mass

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

1. Statement I is wrong and Statement II is correct
2. Statement I is correct and Statement II is wrong
3. Both the statements are wrong
4. Both the statements are correct

Options :

- 71087028189. 1
- 71087028190. 2
- 71087028191. 3

71087028192. 4

Question Number : 29 Question Id : 7108707049 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which of the following marker has low mutation rate?

1. Microsatellites
2. SNPs
3. RAPD
4. RFLP

Options :

- 71087028193. 1
- 71087028194. 2
- 71087028195. 3
- 71087028196. 4

Question Number : 30 Question Id : 7108707050 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In a population of 100 individuals, DNA marker 'A' showed three alleles A₁, A₂, and A₃ in 30, 40, and 30 individuals, respectively. What is the PIC value of marker A?

1. 0.66
2. 0.34
3. 0.56
4. 0.18

Options :

- 71087028197. 1
- 71087028198. 2

71087028199. 3

71087028200. 4

Question Number : 31 Question Id : 7108707051 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

DNA polymorphism is

1. Any change in the DNA sequence
2. DNA sequence variation present in more than 1% of the population
3. DNA sequences with modified nucleotides
4. A-, B- and Z forms of DNA

Options :

71087028201. 1

71087028202. 2

71087028203. 3

71087028204. 4

Question Number : 32 Question Id : 7108707052 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following is single locus marker?

1. RAPD
2. AFLP
3. AP-PCR
4. Microsatellites

Options :

71087028205. 1

71087028206. 2

71087028207. 3

71087028208. 4

Question Number : 33 Question Id : 7108707053 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A fragment of DNA can be used as marker, if it has

1. Variable region only
2. Conserved region only
3. Both variable and conserved regions
4. Protein binding regions

Options :

71087028209. 1

71087028210. 2

71087028211. 3

71087028212. 4

Question Number : 34 Question Id : 7108707054 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following ICAR institute is designated for fish cell line repository?

1. CIFA
2. CIBA
3. CMFRI
4. NBFGR

Options :

71087028213. 1

71087028214. 2

71087028215. 3

71087028216. 4

Question Number : 35 Question Id : 7108707055 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The components of Ovaprim® are

1. sGnRHa+Dopamine antagonist
2. GtH+ Dopamine antagonist
3. HCG+ Dopamine antagonist
4. PCG

Options :

- 71087028217. 1
- 71087028218. 2
- 71087028219. 3
- 71087028220. 4

Question Number : 36 Question Id : 7108707056 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following nucleic acid amplification techniques does not need thermal cycler?

1. RT-PCR
2. AP-PCR
3. LAMP
4. RAPD

Options :

- 71087028221. 1
- 71087028222. 2
- 71087028223. 3
- 71087028224. 4

Question Number : 37 Question Id : 7108707057 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following neuro-peptide directly activates hypothalamic GnRH neurons?

1. Kisspeptin
2. Rhodopsin
3. Gonoleptin
4. Hypoleptin

Options :

- 71087028225. 1
- 71087028226. 2
- 71087028227. 3
- 71087028228. 4

Question Number : 38 Question Id : 7108707058 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Gut microbiota is responsible for

1. Suppressing immune response
2. Stimulating pathogenic bacteria in gut
3. Production of beneficial bioactive substances
4. Suppressing gut enzymes

Options :

- 71087028229. 1
- 71087028230. 2
- 71087028231. 3
- 71087028232. 4

Question Number : 39 Question Id : 7108707059 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In majority of fish species the hemoglobin is

1. Monomeric
2. Dimeric
3. Tetrameric
4. Pentameric

Options :

- 71087028233. 1
- 71087028234. 2
- 71087028235. 3
- 71087028236. 4

Question Number : 40 Question Id : 7108707060 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following statements is correct in relation to haemoglobin oxygen affinity?

1. ATP increases O₂ affinity
2. Decreasing pH decreases Hb affinity for O₂
3. Urea suppresses O₂ affinity
4. Decrease in temperature depresses oxygen affinity

Options :

- 71087028237. 1
- 71087028238. 2
- 71087028239. 3
- 71087028240. 4

Question Number : 41 Question Id : 7108707061 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following fish species maintains the body temperature several degrees above the surrounding water

1. Hag fishes
2. Cods
3. Bill fishes
4. Herrings

Options :

- 71087028241. 1
- 71087028242. 2
- 71087028243. 3
- 71087028244. 4

Question Number : 42 Question Id : 7108707062 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following fish have sac like ventricle chamber?

1. Cod
2. Hake
3. Mackerel
4. Herring

Options :

- 71087028245. 1
- 71087028246. 2
- 71087028247. 3
- 71087028248. 4

Question Number : 43 Question Id : 7108707063 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following hormone does not take part in oogonial proliferation?

1. Estradiol-17 β
2. 17 α 20 β dihydroxyprogesterone
3. 20- β - trihydroxyprogesterone
4. 11-keto testosterone

Options :

71087028249. 1
71087028250. 2
71087028251. 3
71087028252. 4

Question Number : 44 Question Id : 7108707064 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which of the following gene is not involved in the process of puberty?

1. Estrogen receptor 1
2. Androgen receptor
3. Kisspeptin
4. Insulin growth factor 3

Options :

71087028253. 1
71087028254. 2
71087028255. 3
71087028256. 4

Question Number : 45 Question Id : 7108707065 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which of the following species naturally spawn in Spring and Autumn?

1. *Anabas testudineus*
2. *Cirrhinus mrigala*
3. *Tenualosa ilisha*
4. *Ompok pabda*

Options :

- 71087028257. 1
- 71087028258. 2
- 71087028259. 3
- 71087028260. 4

Question Number : 46 Question Id : 7108707066 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The main site of gluconeogenesis is

1. Brain
2. Muscle
3. Liver
4. Kidney

Options :

- 71087028261. 1
- 71087028262. 2
- 71087028263. 3
- 71087028264. 4

Question Number : 47 Question Id : 7108707067 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following structure of protein refers to the term 'fold' ?

1. Primary
2. Secondary
3. Tertiary
4. Quaternary

Options :

- 71087028265. 1
- 71087028266. 2
- 71087028267. 3
- 71087028268. 4

Question Number : 48 Question Id : 7108707068 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The alkaline phosphatase and horse radish peroxidase are two common enzymes used in ELISA, because these enzymes

1. Are coloured proteins
2. Bind to ELISA plate
3. Are very small
4. Have high turnover number

Options :

- 71087028269. 1
- 71087028270. 2
- 71087028271. 3
- 71087028272. 4

Question Number : 49 Question Id : 7108707069 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

As a feed additive, which of the following amino acids is used as flavour enhancer?

1. Valine
2. Tyrosine
3. Leucine
4. Glycine

Options :

- 71087028273. 1
- 71087028274. 2
- 71087028275. 3
- 71087028276. 4

Question Number : 50 Question Id : 7108707070 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The main amino acid residues involved in protein-DNA interactions are

1. Prolines
2. Positively charged
3. Valines
4. Negatively charged

Options :

- 71087028277. 1
- 71087028278. 2
- 71087028279. 3
- 71087028280. 4

Question Number : 51 Question Id : 7108707071 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following techniques is not used for protein quantification in proteomics?

1. Metabolic labeling
2. Chemical peptide labeling
3. Enzyme peptide labeling
4. Active site labelling

Options :

- 71087028281. 1
- 71087028282. 2
- 71087028283. 3
- 71087028284. 4

Question Number : 52 Question Id : 7108707072 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Phenol: Chlorophorm: Isoamyl alcohol used for DNA extraction will have the following pH

1. Less than 7.0
2. Greater than 7.0
3. Neutral
4. Highly alkaline

Options :

- 71087028285. 1
- 71087028286. 2
- 71087028287. 3
- 71087028288. 4

Question Number : 53 Question Id : 7108707073 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The aerobic glycolysis generates substantially _____per mole of glucose oxidized compared to anaerobic glycolysis

1. Less ATP
2. Less ADP
3. More ADP
4. More ATP

Options :

- 71087028289. 1
- 71087028290. 2
- 71087028291. 3
- 71087028292. 4

Question Number : 54 Question Id : 7108707074 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

As per the latest FAO fish production data, what is the contribution from Asian continent in the total Aquaculture production of the world ?

1. 69%
2. 89%
3. 59%
4. 49%

Options :

- 71087028293. 1
- 71087028294. 2
- 71087028295. 3
- 71087028296. 4

Question Number : 55 Question Id : 7108707075 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The gene responsible for the trait is situated on the autosomes but the trait is expressed in only one sex, this trait is known as

1. Sex influenced trait
2. Sex linked trait
3. Sex limited trait
4. Sex monitored trait

Options :

71087028297. 1
71087028298. 2
71087028299. 3
71087028300. 4

Question Number : 56 Question Id : 7108707076 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Highly inbred lines of fish can be produced by

1. Gynogenesis
2. Full-sib mating
3. Half-sib mating
4. Both 1 and 2

Options :

71087028301. 1
71087028302. 2
71087028303. 3
71087028304. 4

Question Number : 57 Question Id : 7108707077 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

A fish with unknown genotype was crossed with double recessive homozygous fish. If the observed phenotypic ratio was 1:1: 1:1 then the genotype of the fish is

1. It is a heterozygote at one of the locus
2. It is a double heterozygote
3. It is double recessive homozygous
4. Insufficient information

Options :

- 71087028305. 1
- 71087028306. 2
- 71087028307. 3
- 71087028308. 4

Question Number : 58 Question Id : 7108707078 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Two highly inbred, unrelated fish were mated to produce the full-sibs, what is the per-cent of inbreeding in the offspring?

1. 0.00
2. 12.50
3. 25.00
4. 50.00

Options :

- 71087028309. 1
- 71087028310. 2
- 71087028311. 3
- 71087028312. 4

Question Number : 59 Question Id : 7108707079 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A population is found to be in Hardy-Weinberg equilibrium for a locus with two alleles.

Identify whether the following statement hold True or False

- i. The maximum per cent of heterozygote individuals can be 50%
- ii. Rare alleles are found more in homozygous condition
- iii. Maximum per cent of heterozygotes are found when allele frequencies are equal
- iv. The sum of gene frequency will be equal to sum of genotype frequency

- 1. i=True, ii=True, iii=True and iv=True
- 2. i=True, ii=False, iii=False and iv=True
- 3. i=True, ii=False, iii=True and iv=True
- 4. i=False, ii=False, iii=True and iv=True

Options :

- 71087028313. 1
- 71087028314. 2
- 71087028315. 3
- 71087028316. 4

Question Number : 60 Question Id : 7108707080 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The property/properties of Breeding Value is/are

- 1. It is a property of an individual
- 2. It is a property of the population in which the individual is reared
- 3. It is a biological constant
- 4. Both 1 and 2

Options :

- 71087028317. 1
- 71087028318. 2
- 71087028319. 3
- 71087028320. 4

Question Number : 61 Question Id : 7108707081 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Genetic death leads to

1. Death of population
2. Loss of some genes from a population
3. Death of selected stock
4. All of the above

Options :

- 71087028321. 1
- 71087028322. 2
- 71087028323. 3
- 71087028324. 4

Question Number : 62 Question Id : 7108707082 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Sire variance component is _____ of the additive genetic variance

1. Full
2. Half
3. One Third
4. Quarter

Options :

- 71087028325. 1
- 71087028326. 2
- 71087028327. 3
- 71087028328. 4

Question Number : 63 Question Id : 7108707083 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Among the following selection methods, which one is the the least accurate method of selection for aquatic species?

1. Individual selection
2. Progeny testing
3. Pedigree selection
4. Family selection

Options :

- 71087028329. 1
- 71087028330. 2
- 71087028331. 3
- 71087028332. 4

Question Number : 64 Question Id : 7108707084 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In case of full sibs the dominance deviation is

1. $\frac{1}{2} V_d$
2. $\frac{1}{4} V_d$
3. $1 V_d$
4. $\frac{3}{4} V_d$

Options :

- 71087028333. 1
- 71087028334. 2
- 71087028335. 3
- 71087028336. 4

Question Number : 65 Question Id : 7108707085 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

GCA refers to

1. General Combining Ability
2. Genomic Combining Ability
3. Genetic Combining Ability
4. All

Options :

- 71087028337. 1
- 71087028338. 2
- 71087028339. 3
- 71087028340. 4

Question Number : 66 Question Id : 7108707086 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following is a permeating cryoprotectant?

1. Glycerol
2. Dimethyl sulphoxide (DMSO)
3. Methanol & ethylene glycol
4. All of the above

Options :

- 71087028341. 1
- 71087028342. 2
- 71087028343. 3
- 71087028344. 4

Question Number : 67 Question Id : 7108707087 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

With respect to the mRNA – ribosome complex for translation mechanism which of the following pair is wrong?

1. Small subunit – decoding center
2. A site – aminoacylated tRNA binding site
3. P site – peptidyl tRNA binding site
4. E site – polypeptide exit site

Options :

- 71087028345. 1
- 71087028346. 2
- 71087028347. 3
- 71087028348. 4

Question Number : 68 Question Id : 7108707088 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The molecular scissors used to cut DNA into specific genes of interest are called

1. Exonucleases
2. Restriction endonucleases
3. Ligases
4. Polymearses

Options :

- 71087028349. 1
- 71087028350. 2
- 71087028351. 3
- 71087028352. 4

Question Number : 69 Question Id : 7108707089 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

BIT score measures-

1. Expectation value
2. Sequence similarity
3. Randomness
4. Homology

Options :

- 71087028353. 1
- 71087028354. 2
- 71087028355. 3
- 71087028356. 4

Question Number : 70 Question Id : 7108707090 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

How is Z-value related to the score-

1. Lower the value more significant the score
2. Lower the value less significant the score
3. Z-value does not relate to significance of the score
4. Higher the value more significant the score

Options :

- 71087028357. 1
- 71087028358. 2
- 71087028359. 3
- 71087028360. 4

Part C Fish Genetics and Breeding

Section Id :

710870177

Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	200
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	710870177
Question Shuffling Allowed :	Yes

Question Number : 71 Question Id : 7108707091 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In animals, during the cell division, the two opposite poles are established at the opposite ends in the direction of migration of

1. Spindle fibres
2. Centrioles
3. Microtubules
4. Astral Bodies

Options :

- 71087028361. 1
- 71087028362. 2
- 71087028363. 3
- 71087028364. 4

Question Number : 72 Question Id : 7108707092 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In a fish species with $n=25$ number of chromosomes, the total number of chromosomes seen in a cell at the end mitotic anaphase is

1. 100
2. 50
3. 25
4. 200

Options :

71087028365. 1
71087028366. 2
71087028367. 3
71087028368. 4

Question Number : 73 Question Id : 7108707093 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Following four statements are related to meiosis, state which are True and which are False.

- I) Homologous chromosomes pair up and they consists of two chromosomes called bivalent
- II) In meiosis-I tetrads splits to form monads
- III) Dyads are formed in equational division
- IV) Meiosis-II is known as equational division

1. I = True, II = True, III = False, and IV = True
2. I = True, II = False, III = False, and IV = False
3. I = True, II = False, III = False, and IV = True
4. I = True, II = True, III = True, and IV = True

Options :

71087028369. 1
71087028370. 2
71087028371. 3
71087028372. 4

Question Number : 74 Question Id : 7108707094 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Two fish with four heterozygous gene pairs were crossed; identify the number of different types of gametes formed, number of different phenotypes and genotypes produced.

1. 16, 16 and 81
2. 81, 81 and 16
3. 16, 81 and 16
4. 81, 16 and 16

Options :

71087028373. 1
71087028374. 2
71087028375. 3
71087028376. 4

Question Number : 75 Question Id : 7108707095 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Albinism in goldfish is inherited as a simple recessive trait. Two normal goldfish were crossed and they had one normal colour offspring, the probable genotype of the parents is

1. Both parents are homozygous for dominant gene
2. Sire is homozygous for dominant gene and Dam heterozygous
3. Both parents are heterozygous
4. Insufficient information

Options :

- 71087028377. 1
- 71087028378. 2
- 71087028379. 3
- 71087028380. 4

Question Number : 76 Question Id : 7108707096 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A couple is having four kids all female; what is the probability that the fifth child is female

1. 0.0625
2. 0.125
3. 0.25
4. 0.50

Options :

- 71087028381. 1
- 71087028382. 2
- 71087028383. 3
- 71087028384. 4

Question Number : 77 Question Id : 7108707097 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In common carp scale pattern is derived by two pairs of autosomal genes not linked with one another. SSnn, Ssnn produces scaled fish; SSNn and SsNn produces 'linear mirror' fish; ssNn produces leather fish; ssnn produces 'scattered mirror' fish, and S-NN and ssNN are lethal. A linear mirror fish (SsNn) is crossed with leather fish (ssNn), what per cent of fish are non-viable?

1. 12.5%
2. 25%
3. 37.50%
4. 50.0%

Options :

- 71087028385. 1
- 71087028386. 2
- 71087028387. 3
- 71087028388. 4

Question Number : 78 Question Id : 7108707098 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Colour blindness in humans is governed by a sex-linked recessive gene. It was observed that in a population gene-pool 1% of the gametes were carrying this gene. What is the expected frequency of haemophilia among the males of this particular population?

1. 1/10
2. 1/100
3. 1/1000
4. 1/10000

Options :

71087028389. 1
71087028390. 2
71087028391. 3
71087028392. 4

Question Number : 79 Question Id : 7108707099 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Sl.NO	Male	Female	Column A	Column B
1	BB	BB	=Genotypic ratio?	a. 1bb:BB
2	Bb	bb	=Phenotypic ratio?	b. All BB
3	Bb	Bb	=Genotypic ratio?	c. 1 Red: 1Normal
4	bb	Bb	=Genotypic ratio?	d. 2Bb:1bb:1BB
				e. 1BB:1Bb:1bb

1. 1=b, 2=c, 3=d, 4=a
2. 1=c, 2=d, 3=a, 4=b
3. 1=b, 2=d, 3=a, 4=c
4. 1=d, 2=c, 3=a, 4=b

Options :

71087028393. 1
71087028394. 2
71087028395. 3
71087028396. 4

Question Number : 80 Question Id : 7108707100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

The first fisheries research institute of Indian Council of Agricultural Research is

1. Central Institute of Freshwater Aquaculture
2. Central Marine Fisheries Research Institute
3. Central Inland Fisheries Research Institute
4. Central Institute of Brackishwater Aquaculture

Options :

71087028397. 1
71087028398. 2
71087028399. 3
71087028400. 4

Question Number : 81 Question Id : 7108707101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Match the expected phenotypic ratio (in column B) in the progeny from dihybrid parents with the condition mentioned(in column A).

Column A	Column B
1. Dominant Epistasis	a. 15:1
2. Duplicate Dominant Epistasis	b. 9:3:3:1
3. Dominant and recessive Epistasis	c. 12:3:1
4. No Interaction	d. 13:3

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

- 1=c, 2=a, 3=d, 4=b
- 1=d, 2=a, 3=a, 4=b
- 1=c, 2=d, 3=a, 4=b
- 1=b, 2=a, 3=d, 4=c

Options :

71087028401. 1
71087028402. 2
71087028403. 3
71087028404. 4

Question Number : 82 Question Id : 7108707102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In population with Hardy-Weinberg Equilibrium, at what allelic frequency of the recessive allele the heterozygous genotype (Aa) frequency will be double the frequency of homozygous (aa)?

1. 0.75
2. 0.25
3. 0.50
4. All

Options :

- 71087028405. 1
- 71087028406. 2
- 71087028407. 3
- 71087028408. 4

Question Number : 83 Question Id : 7108707103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

When both the alleles on a locus are same due to a mutation, they may be termed as alleles

1. Identity by State (IBS)
2. Allozygosity
3. Identity by descent (IBD)
4. All

1. 1
2. 1 and 3
3. 4
4. 1 and 2

Options :

- 71087028409. 1
- 71087028410. 2

71087028411. 3

71087028412. 4

Question Number : 84 Question Id : 7108707104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Mean deficiency of observed heterozygotes among individuals with respect to that expected for the _____ population, which is equivalent to _____ Effect, when allele frequencies differ across sub-populations.

1. Sub:Wahlund
2. Total:Inbreeding
3. Total:Wahlund
4. Sub:Inbreeding

Options :

71087028413. 1

71087028414. 2

71087028415. 3

71087028416. 4

Question Number : 85 Question Id : 7108707105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

In a population the following genotype frequencies were observed $AA=0.09$, $Aa=0.10$ and $aa=0.81$.

All genotypes are viable. State whether the following statements are true or false using above information

- i) The population is in Hardy-Weinberg Equilibrium
- ii) One generation of random mating will lead the population to Hardy-Weinberg Equilibrium
- iii) Rare alleles are found more in heterozygous condition
- iv) The gene frequency in progeny population will remain same as parent population

- 1. i=True, ii= True, iii= True, iv=False
- 2. i=False, ii= True, iii= True, iv=False
- 3. i=False, ii= True, iii= True, iv=True
- 4. i=False, ii= True, iii= False, iv=True

Options :

- 71087028417. 1
- 71087028418. 2
- 71087028419. 3
- 71087028420. 4

Question Number : 86 Question Id : 7108707106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Which one of the following is an event that creates a change in the DNA sequence on a chromosome of an individual?

- 1. Migration
- 2. Mutation
- 3. Selection
- 4. All

Options :

71087028421. 1
71087028422. 2
71087028423. 3
71087028424. 4

Question Number : 87 Question Id : 7108707107 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

To estimate the breeding value we require

1. Phenotype of the animal, genotype of the animal, and population mean
2. Phenotype of the animal, population mean, and genetic correlation between traits
3. Phenotype of the animal, genotype of the animal, and regression coefficient
4. Phenotype of the animal, population mean, and regression coefficient

Options :

71087028425. 1
71087028426. 2
71087028427. 3
71087028428. 4

Question Number : 88 Question Id : 7108707108 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A null allele is a non-functional allele (a variant of a gene) caused by

1. Genetic mutation
2. B Genotyping error
3. Non- random mating
4. All

Options :

- 71087028429. 1
- 71087028430. 2
- 71087028431. 3
- 71087028432. 4

Question Number : 89 Question Id : 7108707109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Reduced genetic diversity in population leads to

1. Less number of homozygotes
2. Increased disease resistance
3. Decreased ability to adapt to environmental conditions
4. Decreases the effective population size

Options :

- 71087028433. 1
- 71087028434. 2
- 71087028435. 3
- 71087028436. 4

Question Number : 90 Question Id : 7108707110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Alleles that are found only in a single population among the collection of a number of populations are known as

1. Outlier alleles
2. Rare Alleles
3. Mutant alleles
4. Private alleles

Options :

- 71087028437. 1
- 71087028438. 2
- 71087028439. 3
- 71087028440. 4

Question Number : 91 Question Id : 7108707111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Asymmetry of response results due to

1. Random drift
2. Realized heritability
3. Repeatability
4. Genome selection

Options :

- 71087028441. 1
- 71087028442. 2
- 71087028443. 3
- 71087028444. 4

Question Number : 92 Question Id : 7108707112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Asymmetry of response results due to

1. Random drift
2. Realized heritability
3. Repeatability
4. Genomic selection

Options :

- 71087028445. 1
- 71087028446. 2
- 71087028447. 3
- 71087028448. 4

Question Number : 93 Question Id : 7108707113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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

Assertion A : Domesticated fish are less fit to survive in wild

Reason R : Domesticated fish have low genetic diversity

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

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true and **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

- 71087028449. 1
- 71087028450. 2

71087028451. 3

71087028452. 4

Question Number : 94 Question Id : 7108707114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Genomic selection is beneficial for

1. Sex-limited traits
2. Traits expressed late in life
3. Threshold traits
4. All

Options :

71087028453. 1

71087028454. 2

71087028455. 3

71087028456. 4

Question Number : 95 Question Id : 7108707115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The accuracy of genomic selection depends upon

1. Heritability of the phenotype
2. Size of validation population
3. Trait mean of validation population
4. Repeatability of the marker

Options :

71087028457. 1

71087028458. 2

71087028459. 3

71087028460. 4

Question Number : 96 Question Id : 7108707116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

GBLUP stands for

1. Genetic Best Linear Unbiased Prediction
2. Genomic Best Linear Unbiased Prediction
3. Genotypic Best Linear Unbiased Prediction
4. Genic Best Linear Unbiased Prediction

Options :

71087028461. 1

71087028462. 2

71087028463. 3

71087028464. 4

Question Number : 97 Question Id : 7108707117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

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

Assertion A :In animal breeding the infinitesimal model is commonly used

Reason R : In animal breeding a general assumption is that traits are determined by infinite number of genes, each with a very small effect and it is also assumed that these infinite number of gene effects is all additive

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

1. Both **A** and **R** are true and **R** is NOT the correct explanation of **A**
2. Both **A** and **R** are true and **R** is the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

71087028465. 1

71087028466. 2

71087028467. 3

71087028468. 4

Question Number : 98 Question Id : 7108707118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

State true or false

- i) The maternal effect has an environmental component
- ii) The maternal component has a genetic component

- 1. i=False, ii= True
- 2. i=True, ii=False
- 3. i=False, ii=False
- 4. i=True, B=True

Options :

- 71087028469. 1
- 71087028470. 2
- 71087028471. 3
- 71087028472. 4

Question Number : 99 Question Id : 7108707119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The measure/s of proportion of phenotypic variance attributable to certain causes is/are

- 1. Repeatability
- 2. Broad sense heritability
- 3. Narrow sense heritability
- 4. All

Options :

- 71087028473. 1
- 71087028474. 2
- 71087028475. 3
- 71087028476. 4

Question Number : 100 Question Id : 7108707120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Given the following information what is the realized heritability for the selected trait?

Selection differential=150.00 g; $V_A = 5000$

$V_P = 10000$, and realized genetic gain was 25 g less than predicted gain.

1. 1/2
2. 1/4
3. 1/3
4. 2/3

Options :

71087028477. 1

71087028478. 2

71087028479. 3

71087028480. 4

Question Number : 101 Question Id : 7108707121 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The choice of tag for individual identification of *Penaeus monodon* is

1. Elastomer tags
2. PIT tags
3. Eye tags
4. Plastic tags

Options :

71087028481. 1

71087028482. 2

71087028483. 3

71087028484. 4

Question Number : 102 Question Id : 7108707122 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Selection method better suited and used for threshold character is

1. Individual selection
2. Family selection
3. Progeny testing
4. Pedigree selection

Options :

71087028485. 1

71087028486. 2

71087028487. 3

71087028488. 4

Question Number : 103 Question Id : 7108707123 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In single pair mating design the offspring produced are all

1. Half-sibs
2. Full-sibs
3. Paternal half sibs
4. Maternal half sibs

Options :

71087028489. 1

71087028490. 2

71087028491. 3

71087028492. 4

Question Number : 104 Question Id : 7108707124 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Cryopreservation of fish eggs is difficult than sperm because

1. Large size of egg
2. Thick chorion
3. Large quantity of yolk
4. All of the above

Options :

- 71087028493. 1
- 71087028494. 2
- 71087028495. 3
- 71087028496. 4

Question Number : 105 Question Id : 7108707125 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The larva of crab is called

1. Phyllosoma
2. Pedveliger
3. Megalopa
4. Mysis

Options :

- 71087028497. 1
- 71087028498. 2
- 71087028499. 3
- 71087028500. 4

Question Number : 106 Question Id : 7108707126 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I: In Cryopreservation, Vitrification method reduces cryoinjuries to cell

Statement II: Vitrification requires high concentrations of cryoprotectant and could harm the cell

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

1. Both Statement I and Statement II are incorrect
2. Statement I is incorrect and Statement II is correct
3. Statement II is incorrect and Statement I is correct
4. Both Statement I and Statement II are correct

Options :

- 71087028501. 1
- 71087028502. 2
- 71087028503. 3
- 71087028504. 4

Question Number : 107 Question Id : 7108707127 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Match the statements in section I with Terminologies in section II

Section I	Section II
i. Transfer of DNA into cells by exposing to high voltage electric pulse is	a. Transduction
ii. The virus mediated gene transfer using genetically modified bacteriophages is	b. Macroinjection
iii. Injection of DNA into developing inflorescence using hypodermic syringe is	c. Transformation
iv. Injecting DNA solution directly into the cell using micromanipulator is	d. Electroporation
	e. Microinjection

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

1. i=d, ii=a, iii=b, iv= e
2. i=d, ii=c, iii=b, iv=e
3. i=c, ii=a, iii=b, iv=e
4. i=d, ii=a, iii=b, iv=c

Options :

- 71087028505. 1
- 71087028506. 2
- 71087028507. 3
- 71087028508. 4

Question Number : 108 Question Id : 7108707128 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

Secondary sexual characters in catfishes is

1. Gonopodium
2. Genital papilla
3. Ovipositing tube
4. Fins

Options :

- 71087028509. 1
- 71087028510. 2
- 71087028511. 3
- 71087028512. 4

Question Number : 109 Question Id : 7108707129 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In which one of the following, spontaneous mutation usually originates as an error

1. DNA replication
2. DNA transcription
3. Translation
4. Reverse Transcription

Options :

- 71087028513. 1
- 71087028514. 2
- 71087028515. 3
- 71087028516. 4

Question Number : 110 Question Id : 7108707130 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 4 Wrong Marks : 1

In both eukaryotes and prokaryotes, a promoter region that is rich in AT bases is called as

1. TATA box
2. GC deficient box
3. Initiation codon box
4. Termination codon box

Options :

- 71087028517. 1
- 71087028518. 2
- 71087028519. 3
- 71087028520. 4

Question Number : 111 Question Id : 7108707131 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which one of the following is the name given for recently approved genetically engineered Salmon?

1. High gain salmon
2. Aqua engineered salmon
3. Aquadvantage salmon
4. Joy salmon

Options :

- 71087028521. 1
- 71087028522. 2
- 71087028523. 3
- 71087028524. 4

Question Number : 112 Question Id : 7108707132 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which one is not an essential technique in transcriptome analysis?

1. Microarrays
2. Real time PCR
3. Hybridisation
4. Next generation sequencing

Options :

- 71087028525. 1
- 71087028526. 2
- 71087028527. 3
- 71087028528. 4

Question Number : 113 Question Id : 7108707133 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

BLAST and FASTA are used for-

1. End free space alignment
2. Local alignment
3. Gap penalty
4. Global similarity

Options :

- 71087028529. 1
- 71087028530. 2
- 71087028531. 3
- 71087028532. 4

Question Number : 114 Question Id : 7108707134 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The computational methodology to find the best matching between two molecules, a receptor and ligand is called-

1. Molecular matching
2. Molecular docking
3. Molecular fitting
4. Molecular affinity checking

Options :

- 71087028533. 1
- 71087028534. 2
- 71087028535. 3
- 71087028536. 4

Question Number : 115 Question Id : 7108707135 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Match Section I with Section II

Section I	Section II
i. SNP database	a. HUNT
ii. EST Resources	b. GOLD
iii. Protein database	c.dbSNP
iv. Genome database	d. SwissProt

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

1. i=c, ii=d, iii=b and iv=a
2. i=b ii=c, iii=d and iv=a
3. i=d, ii=a, iii=a and iv=b
4. i=c, ii=a, iii=d and iv=b

Options :

71087028537. 1
71087028538. 2
71087028539. 3
71087028540. 4

Question Number : 116 Question Id : 7108707136 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Limitations of microsatellites

1. Null alleles
2. Stutter bands
3. Variation in repeat numbers
4. Both 1 and 2

Options :

71087028541. 1
71087028542. 2
71087028543. 3
71087028544. 4

Question Number : 117 Question Id : 7108707137 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which is the correct order, from smallest to largest number of base pairs

1. Plasmid, transposon, chromosomal DNA
2. Chromosomal DNA, transposon, plasmid
3. Transposon, plasmid, chromosomal DNA
4. Plasmid, chromosomal DNA, transposon

Options :

71087028545. 1

71087028546. 2

71087028547. 3

71087028548. 4

Question Number : 118 Question Id : 7108707138 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The enzyme required for most transposition events is

1. Transposase
2. RNA Polymerase
3. DNA Polymerase
4. Telomerase

Options :

71087028549. 1

71087028550. 2

71087028551. 3

71087028552. 4

Question Number : 119 Question Id : 7108707139 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

What kind of Agarose is used in Agarose gel Electrophoresis

1. High EEO
2. Low EEO
3. Moderate EEO
4. All of the above

Options :

71087028553. 1

71087028554. 2

71087028555. 3

71087028556. 4

Question Number : 120 Question Id : 7108707140 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

State which statements are True or False with regard to the SNPs and Short Tandem Repeat (STR)

- i. There are more numbers of SNPs in the fish genome than STR
- ii. Generally STR loci will have more number of alleles than SNP loci
- iii. SNP loci are more useful for genome wide association studies than STR loci
- iv. STR and SNP are used for identification of QTLs

- 1. i=True, ii=True, iii=False and iv=False
- 2. i=True, ii=True, iii=True and iv=False
- 3. i=True, ii=True, iii=False and iv=True
- 4. i=True, ii=True, iii=True and iv=True

Options :

71087028557. 1

71087028558. 2

71087028559. 3

71087028560. 4