

National Testing Agency

Question Paper Name :	Agricultural Biotech or Biotech or Molecular Biology and Biotech 23rd Sep 2020 Shift 2 Set 2
Subject Name :	Agricultural Biotechnology or Biotechnology or Molecular Biology and Biotechnology
Creation Date :	2020-09-23 19:33:34
Duration :	120
Total Marks :	480
Display Marks:	Yes
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes

Agricultural Biotechnology or Biotechnology or Molecular Biology and Biotechnology

Group Number :	1
Group Id :	71087012
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 :	71087034
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 :	71087034
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 7108701381 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 :

- 7108705521. 1
- 7108705522. 2
- 7108705523. 3
- 7108705524. 4

Question Number : 2 Question Id : 7108701382 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 :

- 7108705525. 1
- 7108705526. 2
- 7108705527. 3
- 7108705528. 4

Question Number : 3 Question Id : 7108701383 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 :

- 7108705529. 1

7108705530. 2

7108705531. 3

7108705532. 4

Question Number : 4 Question Id : 7108701384 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 :

7108705533. 1

7108705534. 2

7108705535. 3

7108705536. 4

Question Number : 5 Question Id : 7108701385 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 :

7108705537. 1

7108705538. 2

7108705539. 3

7108705540. 4

Question Number : 6 Question Id : 7108701386 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 :

- 7108705541. 1
- 7108705542. 2
- 7108705543. 3
- 7108705544. 4

Question Number : 7 Question Id : 7108701387 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 :

- 7108705545. 1
- 7108705546. 2
- 7108705547. 3
- 7108705548. 4

Question Number : 8 Question Id : 7108701388 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 :

7108705549. 1
7108705550. 2
7108705551. 3
7108705552. 4

Question Number : 9 Question Id : 7108701389 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 :

7108705553. 1
7108705554. 2
7108705555. 3
7108705556. 4

Question Number : 10 Question Id : 7108701390 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 :

7108705557. 1

7108705558. 2

7108705559. 3

7108705560. 4

Question Number : 11 Question Id : 7108701391 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 :

7108705561. 1

7108705562. 2

7108705563. 3

7108705564. 4

Question Number : 12 Question Id : 7108701392 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 :

7108705565. 1
7108705566. 2
7108705567. 3
7108705568. 4

Question Number : 13 Question Id : 7108701393 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 :

7108705569. 1
7108705570. 2
7108705571. 3
7108705572. 4

Question Number : 14 Question Id : 7108701394 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 :

- 7108705573. 1
- 7108705574. 2
- 7108705575. 3
- 7108705576. 4

Question Number : 15 Question Id : 7108701395 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 :

- 7108705577. 1
- 7108705578. 2
- 7108705579. 3
- 7108705580. 4

Question Number : 16 Question Id : 7108701396 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 :

- 7108705581. 1
- 7108705582. 2
- 7108705583. 3
- 7108705584. 4

Question Number : 17 Question Id : 7108701397 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 :

- 7108705585. 1
- 7108705586. 2
- 7108705587. 3
- 7108705588. 4

Question Number : 18 Question Id : 7108701398 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 :

- 7108705589. 1
- 7108705590. 2
- 7108705591. 3
- 7108705592. 4

Question Number : 19 Question Id : 7108701399 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 :

- 7108705593. 1
- 7108705594. 2
- 7108705595. 3
- 7108705596. 4

Question Number : 20 Question Id : 7108701400 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 :

- 7108705597. 1

7108705598.2
7108705599.3
7108705600.4

Part B Core : Crop Sciences-III

Section Id :	71087035
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 :	71087035
Question Shuffling Allowed :	Yes

Question Number : 21 Question Id : 7108701401 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 translation process occurs in association with which one of the following?

1. Plastids
2. ER
3. Mitochondria
4. Ribosome and RNA

Options :

7108705601.1
7108705602.2

7108705603. 3

7108705604. 4

Question Number : 22 Question Id : 7108701402 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

E. R. Sears produced 21 monosomics in which one of the following wheat varieties?

1. Einkorn
2. Chinese spring
3. Khorasan
4. Red spring

Options :

7108705605. 1

7108705606. 2

7108705607. 3

7108705608. 4

Question Number : 23 Question Id : 7108701403 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

Name the small cDNA sequence that represents a unique segment of an active gene

1. SNPs
2. snRNAs
3. ESTs
4. Contigs

Options :

7108705609. 1

7108705610. 2

7108705611. 3

7108705612. 4

Question Number : 24 Question Id : 7108701404 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 species of *Cajanus* is used to introgress salt tolerance in the cultivated species of *Cajanus*?

1. *Cajanus scaraboides*
2. *Cajanus lanceolatus*
3. *Cajanus platicarpus*
4. *Cajanus albicans*

Options :

- 7108705613. 1
- 7108705614. 2
- 7108705615. 3
- 7108705616. 4

Question Number : 25 Question Id : 7108701405 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 IPR, what protects the intellectual property created by inventors ?

1. Copy right
2. Patents
3. Trade marks
4. Registered design

Options :

- 7108705617. 1
- 7108705618. 2
- 7108705619. 3
- 7108705620. 4

Question Number : 26 Question Id : 7108701406 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 world's most inventory of the global conservation status of biological species is being maintained by

1. WWF
2. IUCN
3. MAB
4. IBWL

Options :

7108705621. 1
7108705622. 2
7108705623. 3
7108705624. 4

Question Number : 27 Question Id : 7108701407 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 **List I** with **List II**

List I	List II
A: Pod corn	I: <i>Zea mays</i> var. <i>everta</i>
B: Pop corn	II: <i>Zea mays</i> var. <i>ceratina</i>
C: Wax corn	III: <i>Zea mays</i> var. <i>tunicata</i>
D: Flint corn	IV: <i>Zea mays</i> var. <i>indurata</i>

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

1. A : IV, B : III, C : II, D : I
2. A : III, B : II, C : I, D : IV
3. A : III, B : I, C : II, D : IV
4. A : I, B : II, C : III, D : IV

Options :

7108705625. 1
7108705626. 2
7108705627. 3
7108705628. 4

Question Number : 28 Question Id : 7108701408 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 **List I** with **List II**

List I	List II
(Species)	(Chromosome number)
A: <i>Linum usitatissimum</i>	I: n = 18
B: <i>Cicer arietinum</i>	II: n = 7
C: <i>Brassica nigra</i>	III: n = 8
D: <i>Lens esculenta</i>	IV: n = 15

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

1. A : I, B : II, C : III, D : IV
2. A : II, B : III, C : I, D : IV
3. A : IV, B : III, C : I, D : II
4. A : III, B : I, C : IV, D : II

Options :

7108705629. 1
7108705630. 2
7108705631. 3
7108705632. 4

Question Number : 29 Question Id : 7108701409 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 **List I** with **List II**

List I	List II
(Crop)	(Isolation distance for certified seed production)
A: Hybrid rice	I: 400 m
B: Johnson Grass	II: 800 m
C: Sesame	III: 100 m
D: Carrot	IV: 50 m

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

1. A : III, B : I, C : IV, D : II
2. A : III, B : I, C : II, D : IV
3. A : IV, B : II, C : III, D : I
4. A : I, B : II, C : III, D : IV

Options :

7108705633. 1
7108705634. 2
7108705635. 3
7108705636. 4

Question Number : 30 Question Id : 7108701410 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

Adventive embryony is an example of

1. Vegetative propagation
2. Amphimixis
3. Agamospermy
4. Parthinogamy

Options :

7108705637. 1
7108705638. 2
7108705639. 3
7108705640. 4

Question Number : 31 Question Id : 7108701411 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

Loss in vigour due to inbreeding is more visible in

1. Self-pollinated species
2. Cross-pollinated species
3. Apomictic species
4. Monoecious species.

Options :

7108705641. 1
7108705642. 2
7108705643. 3
7108705644. 4

Question Number : 32 Question Id : 7108701412 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

If two individuals with a genotype AaBb are crossed, what proportion of the offsprings will be of genotype aabb?

1. $\frac{1}{2}$
2. $\frac{1}{4}$
3. $\frac{1}{8}$
4. $\frac{1}{16}$

Options :

- 7108705645. 1
- 7108705646. 2
- 7108705647. 3
- 7108705648. 4

Question Number : 33 Question Id : 7108701413 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

Requirements for Marker Assisted Backcross Breeding are

- A. High heritability
- B. Tightly linked marker with target gene
- C. Flanking markers
- D. Multi-location trial

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

1. A, D and E only
2. B, C and D only
3. B, D and E only
4. A, B and C only

Options :

7108705649. 1

7108705650. 2

7108705651. 3

7108705652. 4

Question Number : 34 Question Id : 7108701414 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

Chi-square test has the following applications

- A. Test of segregation
- B. Selection of genotype
- C. Detection of genotype
- D. Developing ANOVA table

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

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

Options :

7108705653. 1

7108705654. 2

7108705655. 3

7108705656. 4

Question Number : 35 Question Id : 7108701415 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

Requirements for AFLP marker are

- A. Random primers
- B. Restriction enzymes
- C. Adaptors
- D. PCR
- E. Short sequence repeats

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

1. B, C and D only
2. A, B and E only
3. B, D and E only
4. A, B and C only

Options :

- 7108705657. 1
- 7108705658. 2
- 7108705659. 3
- 7108705660. 4

Question Number : 36 Question Id : 7108701416 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

For breeding high-quality chapati wheat in India we prefer

- A. Soft wheat
- B. Hard wheat
- C. *Triticum aestivum*
- D. *Triticum durum*
- E. *Triticum dicoccum*

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

- 1. A and C only
- 2. B and D only
- 3. B and C only
- 4. A and E only

Options :

- 7108705661. 1
- 7108705662. 2
- 7108705663. 3
- 7108705664. 4

Question Number : 37 Question Id : 7108701417 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

Evidence for DNA as genetic material was obtained in which of the following experiments?

- A. Avery, McLeod and McCarty experiment
- B. Griffith Experiment
- C. Conrat and Singer experiment
- D. Watson and Crick experiment
- E. Hershey and Chase experiment

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

- 1. A and B only
- 2. A and E only
- 3. B and D only
- 4. C and D only

Options :

- 7108705665. 1
- 7108705666. 2
- 7108705667. 3
- 7108705668. 4

Question Number : 38 Question Id : 7108701418 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 consisted of the following genotypes in the given numbers

160-Heterozygotes

20-Homozygous recessive

320-Homozygous dominants

What would be the frequency of dominant allele?

1. 10%
2. 40%
3. 32%
4. 80%

Options :

7108705669. 1

7108705670. 2

7108705671. 3

7108705672. 4

Question Number : 39 Question Id : 7108701419 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 non-random association of alleles at different loci in a given population is referred to as

1. Linkage disequilibrium
2. Linkage equilibrium
3. Mendelian population
4. QTL analysis

Options :

7108705673. 1

7108705674. 2

7108705675. 3

7108705676. 4

Question Number : 40 Question Id : 7108701420 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

Non-Mendelian inheritance includes

1. Maternal effect only
2. Maternal effect and epigenetic inheritance only
3. Epigenetic and extranuclear inheritance only
4. Maternal effect, Epigenetic and extranuclear inheritance only

Options :

7108705677. 1

7108705678. 2

7108705679. 3

7108705680. 4

Question Number : 41 Question Id : 7108701421 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

Morgan discovered linkage when studying two genes in which of the following in Drosophila?

1. X-chromosome
2. Y-chromosome
3. Autosomes
4. Cytoplasm

Options :

7108705681. 1

7108705682. 2

7108705683. 3

7108705684. 4

Question Number : 42 Question Id : 7108701422 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

Kary Banks Mullis invented PCR and received Nobel Prize in

1. Physics
2. Chemistry
3. Biology
4. Medicine

Options :

- 7108705685. 1
- 7108705686. 2
- 7108705687. 3
- 7108705688. 4

Question Number : 43 Question Id : 7108701423 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

Antibiotic resistance genes are mostly used as what kind of markers?

1. Selectable
2. Scorable
3. Countable
4. Molecular

Options :

- 7108705689. 1
- 7108705690. 2
- 7108705691. 3
- 7108705692. 4

Question Number : 44 Question Id : 7108701424 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

Expanded form of RAPD is

1. Randomly Amplified Polymorphic DNA
2. Random Amplification of Polymorphic DNA
3. Randomly Amplification of Polymorphic DNA
4. Random Amplified Polymorphic DNA

Options :

7108705693. 1

7108705694. 2

7108705695. 3

7108705696. 4

Question Number : 45 Question Id : 7108701425 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

Hybrid between plasmid and phage lambda chromosome are known as

1. Plasmid vector
2. Cosmid vector
3. Fosmid vector
4. Binary vector

Options :

7108705697. 1

7108705698. 2

7108705699. 3

7108705700. 4

Question Number : 46 Question Id : 7108701426 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

DUS testing is necessary for

- A. Certification of a variety
- B. Release and notification of a variety
- C. Protection of a variety

Select the **most appropriate** answer from the options given below:

- 1. A only
- 2. B only
- 3. C only
- 4. A, B and C

Options :

- 7108705701. 1
- 7108705702. 2
- 7108705703. 3
- 7108705704. 4

Question Number : 47 Question Id : 7108701427 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

CSTL is located at

- 1. New Delhi
- 2. Lucknow
- 3. Patna
- 4. Varanasi

Options :

- 7108705705. 1
- 7108705706. 2
- 7108705707. 3

7108705708. 4

Question Number : 48 Question Id : 7108701428 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 line system of hybrid seed production is possible in

1. CMS
2. GMS
3. TGMS
4. CGMS

Options :

7108705709. 1

7108705710. 2

7108705711. 3

7108705712. 4

Question Number : 49 Question Id : 7108701429 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

Seed multiplication ratio of paddy is

1. 1:60
2. 1:80
3. 1:40
4. 1:100

Options :

7108705713. 1

7108705714. 2

7108705715. 3

7108705716. 4

Question Number : 50 Question Id : 7108701430 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 certified classes of seeds under the Seeds Act?

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

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

1. A and D only
2. B and C only
3. D and E only
4. E and C only

Options :

- 7108705717. 1
- 7108705718. 2
- 7108705719. 3
- 7108705720. 4

Question Number : 51 Question Id : 7108701431 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

Cross pollinated crop

- A. Sunflower
- B. Cabbage
- C. Chow-Chow
- D. Groundnut
- E. Moth Bean

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

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

Options :

7108705721. 1

7108705722. 2

7108705723. 3

7108705724. 4

Question Number : 52 Question Id : 7108701432 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

Grow-out test for seed certification is compulsory in hybrids of

- A. Tomato
- B. Brinjal
- C. Castor
- D. Maize
- E. Pearl millet

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

1. A, B and C only
2. D, E and A only
3. D, A and C only
4. A, B, C, D and E only

Options :

- 7108705725. 1
- 7108705726. 2
- 7108705727. 3
- 7108705728. 4

Question Number : 53 Question Id : 7108701433 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

Provision of 'Seed Register' is provided in

1. Seed Bill
2. PPV & FR Act
3. Seed Control Order
4. Seeds Act

Options :

- 7108705729. 1
- 7108705730. 2
- 7108705731. 3

7108705732. 4

Question Number : 54 Question Id : 7108701434 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 rules are followed by ISTA for determining seed viability of a seed lot?

1. Four replications of 100 seeds each
2. Three replications of 50 seeds each
3. Four replications of 50 seeds each
4. Three replications of 100 seeds each

Options :

7108705733. 1

7108705734. 2

7108705735. 3

7108705736. 4

Question Number : 55 Question Id : 7108701435 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 break the dormancy and to enhance germination in orthodox seeds, the chemical stimuli used is

1. Sulphuric acid
2. Potasium nitrate
3. TTC
4. Formazane

Options :

7108705737. 1

7108705738. 2

7108705739. 3

7108705740. 4

Question Number : 56 Question Id : 7108701436 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 Germination Value (GV) of tree seeds is calculated using the formula

1. $GV = PV \times MDG$
2. $GV = T \times PV$
3. $GV = PV \times B$
4. $GV = MDG \times T$

Options :

- 7108705741. 1
- 7108705742. 2
- 7108705743. 3
- 7108705744. 4

Question Number : 57 Question Id : 7108701437 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

Loose smut is the seed borne disease in

1. Paddy
2. Wheat
3. Maize
4. Sorghum

Options :

- 7108705745. 1
- 7108705746. 2
- 7108705747. 3
- 7108705748. 4

Question Number : 58 Question Id : 7108701438 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

Leaf spot is the seed borne disease in

1. Sesame
2. Groundnut
3. Castor
4. Linseed

Options :

7108705749. 1
7108705750. 2
7108705751. 3
7108705752. 4

Question Number : 59 Question Id : 7108701439 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: Under the PPV&FR Act, a variety with Bt-gene can be registered

Statement II: Under the PPV&FR Act, a variety with RIP-gene (Ribosomal Inhibitory Protein) can be registered

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

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

Options :

7108705753. 1

7108705754. 2

7108705755. 3

7108705756. 4

Question Number : 60 Question Id : 7108701440 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

According to India's Patent Law, a patent has a time limit of

1. 15 years
2. 20 years
3. 7 years
4. 9 years

Options :

7108705757. 1

7108705758. 2

7108705759. 3

7108705760. 4

Question Number : 61 Question Id : 7108701441 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

Name the global initiative which is aimed at to establish a multilateral system of access and benefit sharing of Plant Genetic Resources through SMTA

1. Bioversity International
2. Commission on Genetic Resources for Food and Agriculture
3. Global Plan of Action
4. International Treaty for PGRFA

Options :

7108705761. 1

7108705762. 2

7108705763. 3

7108705764. 4

Question Number : 62 Question Id : 7108701442 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 successful technique to conserve pollen grains of plant species is

1. Organic solvent method
2. Desiccation freeze drying
3. Cryopreservation
4. Low temperature storage (-20⁰ C)

Options :

7108705765. 1

7108705766. 2

7108705767. 3

7108705768. 4

Question Number : 63 Question Id : 7108701443 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

While breeding for abiotic resistance in legumes, drought tolerance and heat tolerance traits can be obtained from which one of the following *Vigna species*?

1. *Vigna radiate*
2. *Vigna aconitifolia*
3. *Vigna riukiensis*
4. *Vigna tenucauli*

Options :

7108705769. 1

7108705770. 2

7108705771. 3

7108705772. 4

Question Number : 64 Question Id : 7108701444 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 rich source of calcium, iron and niacin?

1. Finger millet
2. Chickpea
3. Lima bean
4. Redgram

Options :

7108705773. 1

7108705774. 2

7108705775. 3

7108705776. 4

Question Number : 65 Question Id : 7108701445 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 edible legume plants, which one of the following legumes possesses glandular hairs and secretes oxalic and malic acids?

1. *Vicia faba*
2. *Cajanus cajan*
3. *Vigna mungo*
4. *Cicer arietinum*

Options :

7108705777. 1

7108705778. 2

7108705779. 3

7108705780. 4

Question Number : 66 Question Id : 7108701446 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 part of *Elaeis guineensis* fruit contains the maximum amount of oil?

1. Mesocarp
2. Endocarp
3. Endosperm
4. Exocarp

Options :

7108705781. 1
7108705782. 2
7108705783. 3
7108705784. 4

Question Number : 67 Question Id : 7108701447 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 **ITPGRFA**, the specified number of food and fodder crops which can be exchanged when executing **SMTA** is

1. 95 food crops and 35 fodder crops
2. 24 food crops and 15 fodder crops
3. 132 food crops and 29 fodder crops
4. 35 food crops and 29 fodder crops

Options :

7108705785. 1
7108705786. 2
7108705787. 3
7108705788. 4

Question Number : 68 Question Id : 7108701448 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 types of rice, which form of rice possesses more of dextrin in its endosperm?

1. Wild rice
2. Glutinous rice
3. Parboiled rice
4. Hand pound rice

Options :

7108705789. 1
7108705790. 2
7108705791. 3
7108705792. 4

Question Number : 69 Question Id : 7108701449 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

Name the tool which is used to assess the plant genetic diversity which reduces the large set of variables into a smaller set of 'artificial / uncorrelated' variables.

1. Cluster analysis
2. PCA
3. Mahalanobis D^2 analysis
4. Cladogram

Options :

7108705793. 1
7108705794. 2
7108705795. 3
7108705796. 4

Question Number : 70 Question Id : 7108701450 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 of the following crops species, allogamy is effected by the process called 'tripping'?

1. *Medicago sativa*
2. *Clitoria ternatea*
3. *Desmanthus tortuosum*
4. *Macroptelium atropurpureum*

Options :

7108705797. 1
7108705798. 2
7108705799. 3
7108705800. 4

Part C : Agricultural Biotechnology or Biotechnology or Molecular Biology and Biotechnology

Section Id :	71087036
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 :	71087036
Question Shuffling Allowed :	Yes

Question Number : 71 Question Id : 7108701451 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 organelle membranes is called tonoplast?

1. Mitochondria
2. Vacuole
3. Nucleus
4. Endoplasmic reticulum

Options :

7108705801. 1

7108705802. 2

7108705803. 3

7108705804. 4

Question Number : 72 Question Id : 7108701452 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 membrane transport proteins has a maximum turnover rate?

1. Pump
2. Carrier
3. Channel
4. Symporter

Options :

7108705805. 1

7108705806. 2

7108705807. 3

7108705808. 4

Question Number : 73 Question Id : 7108701453 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 coenzymes is derived from pantothenic acid?

1. Thiamine pyrophosphate
2. Coenzyme A
3. Pyridoxal phosphate
4. Biocytin

Options :

7108705809. 1

7108705810. 2

7108705811. 3

7108705812. 4

Question Number : 74 Question Id : 7108701454 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 proteins can have a quaternary level of structural architecture?

1. Myoglobin
2. All proteins
3. Haemoglobin
4. Nascent polypeptide

Options :

7108705813. 1

7108705814. 2

7108705815. 3

7108705816. 4

Question Number : 75 Question Id : 7108701455 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 many substrate-level phosphorylations of ATP take place in the glycolysis pathway?

1. Two
2. Four
3. Six
4. Eight

Options :

7108705817. 1
7108705818. 2
7108705819. 3
7108705820. 4

Question Number : 76 Question Id : 7108701456 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 matrices CANNOT be used for immobilization of an enzyme?

1. Sepharose
2. Acrylamide
3. Cellulose acetate
4. Any permeable membrane

Options :

7108705821. 1
7108705822. 2
7108705823. 3
7108705824. 4

Question Number : 77 Question Id : 7108701457 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 sigmoidal saturation curve between substrate concentration and rate of reaction can be shown by

1. Single subunit enzyme
2. Allosteric enzyme
3. Membrane transport protein during substrate transport
4. None of these

Options :

- 7108705825. 1
- 7108705826. 2
- 7108705827. 3
- 7108705828. 4

Question Number : 78 Question Id : 7108701458 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 prokaryotes has a linear genome?

1. *E. coli*
2. *Borrelia burgdorferi*
3. *Vibrio cholerae*
4. *Deinococcus radiodurans* R1

Options :

- 7108705829. 1
- 7108705830. 2
- 7108705831. 3
- 7108705832. 4

Question Number : 79 Question Id : 7108701459 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 pseudogene that does NOT contain intron and that was present in its parent gene, is known as

1. Conventional pseudogene
2. Processed pseudogene
3. Truncated genes
4. Gene fragment

Options :

7108705833. 1
7108705834. 2
7108705835. 3
7108705836. 4

Question Number : 80 Question Id : 7108701460 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 correct statement about the term "Alphoid DNA"?

1. It is a 171bp repeat sequence found in human centromere
2. It is a 180bp repeat sequence found in Arabidopsis centromere
3. It is a stretch of DNA sequence that interacts with specific transcription factor during cell division
4. It is a 171bp repeat sequence that usually form hair-pin structure in Arabidopsis chromosome

Options :

7108705837. 1
7108705838. 2
7108705839. 3
7108705840. 4

Question Number : 81 Question Id : 7108701461 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

It is generally said that Phage ϕ X174 manages to pack "extra" biological information into its genome. Which one of the following features can justify the above statement?

1. Split gene
2. Overlapping gene
3. Single-stranded circular DNA genome
4. Smaller genome size

Options :

- 7108705841. 1
- 7108705842. 2
- 7108705843. 3
- 7108705844. 4

Question Number : 82 Question Id : 7108701462 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 RNA transposons that lack long terminal repeat (LTRs) and are unable to synthesize their own reverse transcriptase?

1. Retroelements
2. Endogenous retroviruses (ERVs)
3. Long interspersed nuclear elements (LINES)
4. Short interspersed nuclear elements (SINES)

Options :

- 7108705845. 1
- 7108705846. 2
- 7108705847. 3
- 7108705848. 4

Question Number : 83 Question Id : 7108701463 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 multi-subunit protein complexes bind at poly (A) signal sequence?

1. Cleavage and polyadenylation specific factor
2. Cleavage stimulation factor
3. Polyadenylate binding protein
4. Poly A polymerase

Options :

7108705849. 1

7108705850. 2

7108705851. 3

7108705852. 4

Question Number : 84 Question Id : 7108701464 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 protein stimulates transcription initiation by specifically binding with DNA?

1. Activator
2. Co-activator
3. Silencer
4. Alternative promoter

Options :

7108705853. 1

7108705854. 2

7108705855. 3

7108705856. 4

Question Number : 85 Question Id : 7108701465 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 may not be the ideal tool to control the expression of a homeologous gene?

1. CRISPR-Cas
2. RNA interference
3. T-DNA tagging
4. TALEN

Options :

- 7108705857. 1
- 7108705858. 2
- 7108705859. 3
- 7108705860. 4

Question Number : 86 Question Id : 7108701466 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

De novo methylation of DNA is defined as the addition of methyl groups to

1. insulator region to repress gene expression
2. gene promoter to activate gene expression
3. DNA at a new position to change the methylation pattern of the genome
4. newly synthesized strands of DNA to ensure that the daughter strands possess the same methylation pattern as the parent strands

Options :

- 7108705861. 1
- 7108705862. 2
- 7108705863. 3
- 7108705864. 4

Question Number : 87 Question Id : 7108701467 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 true about insulator sequences?

- A. It helps in overcoming positional effect
- B. It is the boundary of functional domains
- C. scs and scs' are examples of insulator sequences
- D. It maintains the independence of functional domain, preventing "cross-talk" between the adjacent domains
- E. Its influence on the gene is not location-specific

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

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

Options :

- 7108705865. 1
- 7108705866. 2
- 7108705867. 3
- 7108705868. 4

Question Number : 88 Question Id : 7108701468 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 DNA sequencing does NOT require electrophoresis?

- 1. Chemical degradation sequencing
- 2. Pyrosequencing
- 3. Chain termination sequencing
- 4. Sanger sequencing

Options :

- 7108705869. 1

7108705870. 2

7108705871. 3

7108705872. 4

Question Number : 89 Question Id : 7108701469 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

Identify the correct order of techniques involved in 2-dimensional polyacrylamide gel electrophoresis

1. Protein isolation – IEF – SDS-PAGE
2. Protein isolation – SDS-PAGE- IEF
3. DNA isolation – SDS-PAGE – IEF
4. DNA isolation – IEF – SDS-PAGE

Options :

7108705873. 1

7108705874. 2

7108705875. 3

7108705876. 4

Question Number : 90 Question Id : 7108701470 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

Proteomic studies are required even if the transcriptome of the particular sample is known.

Which of the following is/are correct regarding the above statement?

- A. Statement is wrong
- B. Proteomics can give an idea about post-translational modification of protein
- C. All transcripts may not result in proteins
- D. Protein is the final functional product of central-dogma
- E. Proteomics may be avoided if transcriptome is known

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

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

Options :

- 7108705877. 1
- 7108705878. 2
- 7108705879. 3
- 7108705880. 4

Question Number : 91 Question Id : 7108701471 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 isolate the gene for a functionally characterized protein, which of the following approaches should be followed?

- 1. Screening of the genomic library
- 2. Screening of cDNA library
- 3. Bio-informatic
- 4. Proteomic

Options :

7108705881. 1
7108705882. 2
7108705883. 3
7108705884. 4

Question Number : 92 Question Id : 7108701472 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 chromatography techniques may be used for direct purification of a known protein?

1. High-pressure liquid chromatography
2. Affinity chromatography
3. Size-exclusion gel chromatography
4. Gas-liquid chromatography

Options :

7108705885. 1
7108705886. 2
7108705887. 3
7108705888. 4

Question Number : 93 Question Id : 7108701473 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

Yeast Artificial Chromosome (YAC) vector should have the following functional elements

- A. ARS sequence
- B. CEN Sequence
- C. Ori sequence of *E. coli*
- D. Telomeric sequence
- E. TRP1 or URA 3

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

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

Options :

- 7108705889. 1
- 7108705890. 2
- 7108705891. 3
- 7108705892. 4

Question Number : 94 Question Id : 7108701474 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 committees is responsible for approval of large scale field trials of GMO?

- 1. Institutional Biosafety Committee
- 2. Review Committee for Genetic Manipulation
- 3. Genetic Engineering Approval Committee
- 4. State Biotechnology Coordination Committee

Options :

- 7108705893. 1

7108705894. 2

7108705895. 3

7108705896. 4

Question Number : 95 Question Id : 7108701475 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 polymerase is an example of template-independent DNA polymerase?

1. Klenow polymerase I
2. Terminal deoxynucleotidyl transferase
3. T4 polynucleotide kinase
4. Reverse transcriptase

Options :

7108705897. 1

7108705898. 2

7108705899. 3

7108705900. 4

Question Number : 96 Question Id : 7108701476 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 enzymes can be used for transcript mapping?

1. Deoxyribonuclease I
2. Klenow polymerase
3. Nuclease S1
4. Sequenase

Options :

7108705901. 1

7108705902. 2

7108705903. 3

7108705904. 4

Question Number : 97 Question Id : 7108701477 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

Ylp5, a typical yeast integrative plasmid consists of the yeast gene URA3, *E. coli* origin of replication (ori) along with selection marker gene for both *E. coli* and yeast

- A. Ylp5 can replicate in *E. coli*
- B. Ylp5 can replicate in yeast
- C. Ylp5 can survive in yeast cell subject to its integration in the yeast chromosomal DNA
- D. Ylp5 is an example of a shuttle vector
- E. Ylp5 can be used for cloning of 500kb DNA fragment

Choose the correct answer from the options given below:

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

Options :

- 7108705905. 1
- 7108705906. 2
- 7108705907. 3
- 7108705908. 4

Question Number : 98 Question Id : 7108701478 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 post-translational modification also includes the removal of an internal segment of protein. Which of the following statements is correct?

- A. The removed segment is called as inteins
- B. The process can be considered as protein version of intron splicing
- C. It is an incorrect statement
- D. The external segment that becomes linked together after modification is called as exteins
- E. Inteins are widespread only in prokaryotes

Choose the correct answer from the options given below:

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

Options :

- 7108705909. 1
- 7108705910. 2
- 7108705911. 3
- 7108705912. 4

Question Number : 99 Question Id : 7108701479 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

Majority of rRNA genes in eukaryotes are transcribed by

- 1. RNA polymerase I
- 2. RNA polymerase
- 3. RNA polymerase II
- 4. RNA polymerase III

Options :

- 7108705913. 1

7108705914. 2

7108705915. 3

7108705916. 4

Question Number : 100 Question Id : 7108701480 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 lack of precise correlation between the complexity of an organism and the size of its genome is popularly called as

1. Sub-genome dominance
2. C-value paradox
3. Genome complexity
4. Selfish genome

Options :

7108705917. 1

7108705918. 2

7108705919. 3

7108705920. 4

Question Number : 101 Question Id : 7108701481 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 sequences may be located hundreds of base pairs upstream or downstream from the gene and can increase the rate of transcription?

1. Activators
2. Silencers
3. Enhancers
4. Insulators

Options :

7108705921. 1

7108705922. 2

7108705923. 3

7108705924. 4

Question Number : 102 Question Id : 7108701482 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

Shine-Dalgarno sequence has a close association with which of the following initiation factors?

1. IF-1
2. eIF-3
3. IF-3
4. IF-2

Options :

7108705925. 1

7108705926. 2

7108705927. 3

7108705928. 4

Question Number : 103 Question Id : 7108701483 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 plant pathogen which penetrates the host cell to acquire food substrate through haustorium is categorized under which of the following strategies?

1. Necrotrophic
2. Biotrophic
3. Hemibiotrophic
4. Autotrophic

Options :

7108705929. 1

7108705930. 2

7108705931. 3

7108705932. 4

Question Number : 104 Question Id : 7108701484 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

Compatible solutes are biomolecules that share the following biochemical features

- A. Highly soluble
- B. Do not interfere with cellular metabolism
- C. Help cytosol in achieving osmotic balance with the vacuole
- D. Pinitol is an example of osmolyte
- E. The hydration shell of macromolecules can be disrupted by osmolyte

Choose the correct answer from the options given below:

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

Options :

7108705933. 1

7108705934. 2

7108705935. 3

7108705936. 4

Question Number : 105 Question Id : 7108701485 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

Evolution of C_4 plants led to the following mechanistic improvement over CO_2 fixation in C_3

- A. Enhanced photosynthetic efficiency
- B. Decreased water loss
- C. Less energy cost for CO_2 fixation
- D. Reduced stomatal conductance
- E. Improved CO_2 entrapment

Choose the correct answer from the options given below:

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

Options :

7108705937. 1

7108705938. 2

7108705939. 3

7108705940. 4

Question Number : 106 Question Id : 7108701486 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

Nitrogenase complex consists of different enzymes. viz.

- A. Dinitrogenase
- B. Nitrate reductase
- C. Dinitrogenase reductase
- D. Dinitrate reductase
- E. Nitrite reductase

Choose the correct answer from the options given below:

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

Options :

- 7108705941. 1
- 7108705942. 2
- 7108705943. 3
- 7108705944. 4

Question Number : 107 Question Id : 7108701487 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 plant hormones can be generated by base modification of tRNA?

- 1. IAA
- 2. Cytokinin
- 3. GA
- 4. ABA

Options :

- 7108705945. 1
- 7108705946. 2

7108705947. 3

7108705948. 4

Question Number : 108 Question Id : 7108701488 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 major cause of browning of the medium in tissue culture?

1. Phenolic compounds leached from explants
2. Environmental conditions of the culture room
3. pH of the medium
4. Sub-optimal concentration of hormone in the medium

Options :

7108705949. 1

7108705950. 2

7108705951. 3

7108705952. 4

Question Number : 109 Question Id : 7108701489 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 somatic hybridization experiments, which type of protoplast are favoured during the selection?

1. Homokaryons
2. Hetrokaryons
3. The unfused protoplast of the two species
4. Proroplasts produced with lost cost

Options :

7108705953. 1

7108705954. 2

7108705955. 3

7108705956. 4

Question Number : 110 Question Id : 7108701490 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 embryo derived from a somatic cell, other than a zygote, is known as

1. Androgenetic embryo
2. Somatic embryo
3. Embryo
4. Pollen embryo

Options :

7108705957. 1

7108705958. 2

7108705959. 3

7108705960. 4

Question Number : 111 Question Id : 7108701491 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

Cells or plants containing the nucleus of one species but cytoplasm from two species are known as

1. Hybrid cells
2. Cytoplasmic hybrid
3. Vitrified plant/cell
4. Somatic embryo

Options :

7108705961. 1

7108705962. 2

7108705963. 3

7108705964. 4

Question Number : 112 Question Id : 7108701492 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

Rainbow is a popular name given for which of the following transgenic crops?

1. Soybean
2. Canola
3. Corn
4. Papaya

Options :

7108705965. 1
7108705966. 2
7108705967. 3
7108705968. 4

Question Number : 113 Question Id : 7108701493 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 promoters can be used for constitutive gene expression in plants?

1. Ubi1 + Ubi1-I 1
2. Vicilin
3. Adh1
4. TA29

Options :

7108705969. 1
7108705970. 2
7108705971. 3
7108705972. 4

Question Number : 114 Question Id : 7108701494 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

Integration of a foreign gene in the host plant genome through T-DNA is popularly known as

1. Homologous recombination
2. Non-homologous recombination
3. Illegitimate recombination
4. RNA mediated DNA integration

Options :

7108705973. 1

7108705974. 2

7108705975. 3

7108705976. 4

Question Number : 115 Question Id : 7108701495 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 is the biochemical nature of Barnase in Barnase-Barstar system developed for hybrid development?

1. Protease inhibitor
2. Ribonuclease
3. Protease
4. DNase

Options :

7108705977. 1

7108705978. 2

7108705979. 3

7108705980. 4

Question Number : 116 Question Id : 7108701496 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 NOT involved in genome editing technique?

1. ZFN
2. TALEN
3. CRISPR-Cas
4. RNA interference

Options :

7108705981. 1
7108705982. 2
7108705983. 3
7108705984. 4

Question Number : 117 Question Id : 7108701497 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 approaches does NOT require any mutagen for the mutagenesis of the parent?

1. SHORE MAP
2. MutMap
3. QTL-Seq
4. NGM

Options :

7108705985. 1
7108705986. 2
7108705987. 3
7108705988. 4

Question Number : 118 Question Id : 7108701498 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 NOT an application of Next Generation Sequencing?

1. *De novo* genome sequencing
2. SNP discovery
3. Global transcript expression
4. Global protein quantification

Options :

7108705989. 1

7108705990. 2

7108705991. 3

7108705992. 4

Question Number : 119 Question Id : 7108701499 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 **List I** with **List II**

List I	List II
A. Global genome expression	I. Mapping population
B. RNA guided engineered nuclease	II. <i>In-vivo</i> protein-protein Interaction
C. MAGIC	III. CRISPR-Cas
D. Bimolecular Fluorescence Complementation	IV. RNA sequencing

Choose the correct answer from the options given below

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

Options :

7108705993. 1

7108705994. 2

7108705995. 3

7108705996. 4

Question Number : 120 Question Id : 7108701500 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 NOT a characteristic feature of the eukaryotic genome?

1. Exon-Intron boundaries
2. CpG Island
3. Intron-Exon boundaries
4. Relatively little intergenic DNA

Options :

7108705997. 1

7108705998. 2

7108705999. 3

7108706000. 4