

NTA UGC NET JUN 2026_22nd to to 30th June 2026

Application No	260510251003
Candidate Name	MOHAMED FASIL KALADI
Roll No.	KL040306122
Test Date	30/06/2026
Test Time	3:00 PM - 6:00 PM
Subject	107ST Statistics

Section : General Paper

Comprehension:

The following table shows the cumulative percentage (%) of the total number of Pen Drives (16 GB and 32 GB) sold and the cumulative number of 16 GB Pen Drives sold by a shopkeeper on four different days from Monday through Thursday. Based on the data in the table, answer the questions that follow.

Day-wise Distribution of Sale of Pen Drives

Day	Cumulative Percentage of Sale of Pen Drives	Cumulative number of Sale of 16 GB Pen Drives
Monday	20%	160
Till Tuesday	60%	400
Till Wednesday	75%	530
Till Thursday	100%	680

Note: Total number of Pen Drives sold in all four days is 1400.

SubQuestion No : 1

Q.1 The average number of 32 GB Pen Drives sold on Tuesday, Wednesday and Thursday is _____ % more than the number of 16 GB Pen Drives sold on Monday.

1. 15
2. 35
3. 25
4. 20

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114457**

Option 1 ID : **55125156309**

Option 2 ID : **55125156310**

Option 3 ID : **55125156311**

Option 4 ID : **55125156312**

Status : **Answered**

Chosen Option : **2**

Comprehension:

The following table shows the cumulative percentage (%) of the total number of Pen Drives (16 GB and 32 GB) sold and the cumulative number of 16 GB Pen Drives sold by a shopkeeper on four different days from Monday through Thursday. Based on the data in the table, answer the questions that follow.

Day-wise Distribution of Sale of Pen Drives

Day	Cumulative Percentage of Sale of Pen Drives	Cumulative number of Sale of 16 GB Pen Drives
Monday	20%	160
Till Tuesday	60%	400
Till Wednesday	75%	530
Till Thursday	100%	680

Note: Total number of Pen Drives sold in all four days is 1400.

SubQuestion No : 2

Q.2 What is the ratio between the number of 16 GB Pen Drives sold on Wednesday and Thursday together and the number of 32 GB Pen Drives sold on Thursday?

1. 4 : 3
2. 7 : 5
3. 5 : 3
4. 3 : 2

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114455**

Option 1 ID : **55125156301**

Option 2 ID : **55125156302**

Option 3 ID : **55125156303**

Option 4 ID : **55125156304**

Status : **Answered**

Chosen Option : **2**

Comprehension:

The following table shows the cumulative percentage (%) of the total number of Pen Drives (16 GB and 32 GB) sold and the cumulative number of 16 GB Pen Drives sold by a shopkeeper on four different days from Monday through Thursday. Based on the data in the table, answer the questions that follow.

Day-wise Distribution of Sale of Pen Drives

Day	Cumulative Percentage of Sale of Pen Drives	Cumulative number of Sale of 16 GB Pen Drives
Monday	20%	160
Till Tuesday	60%	400
Till Wednesday	75%	530
Till Thursday	100%	680

Note: Total number of Pen Drives sold in all four days is 1400.

SubQuestion No : 3

- Q.3** If the number of Pen Drives sold on Friday is 20% more than the number of Pen Drives sold on Thursday and the ratio of 16 GB Pen Drives sold on Friday and 32 GB Pen Drives sold on Friday is 7:3, then what is the number of 16 GB Pen Drives sold on Friday?

1. 374
2. 334
3. 260
4. 294

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114459

Option 1 ID : 55125156317

Option 2 ID : 55125156318

Option 3 ID : 55125156319

Option 4 ID : 55125156320

Status : Answered

Chosen Option : 4

Comprehension:

The following table shows the cumulative percentage (%) of the total number of Pen Drives (16 GB and 32 GB) sold and the cumulative number of 16 GB Pen Drives sold by a shopkeeper on four different days from Monday through Thursday. Based on the data in the table, answer the questions that follow.

Day-wise Distribution of Sale of Pen Drives

Day	Cumulative Percentage of Sale of Pen Drives	Cumulative number of Sale of 16 GB Pen Drives
Monday	20%	160
Till Tuesday	60%	400
Till Wednesday	75%	530
Till Thursday	100%	680

Note: Total number of Pen Drives sold in all four days is 1400.

SubQuestion No : 4

Q.4 The number of 32 GB Pen Drives sold on Monday is _____ % of the number of 16 GB Pen Drives sold on Thursday.

1. 80
2. 75
3. 50
4. 45

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114458**

Option 1 ID : **55125156313**

Option 2 ID : **55125156314**

Option 3 ID : **55125156315**

Option 4 ID : **55125156316**

Status : **Answered**

Chosen Option : **2**

Comprehension:

The following table shows the cumulative percentage (%) of the total number of Pen Drives (16 GB and 32 GB) sold and the cumulative number of 16 GB Pen Drives sold by a shopkeeper on four different days from Monday through Thursday. Based on the data in the table, answer the questions that follow.

Day-wise Distribution of Sale of Pen Drives

Day	Cumulative Percentage of Sale of Pen Drives	Cumulative number of Sale of 16 GB Pen Drives
Monday	20%	160
Till Tuesday	60%	400
Till Wednesday	75%	530
Till Thursday	100%	680

Note: Total number of Pen Drives sold in all four days is 1400.

SubQuestion No : 5

Q.5 The number of 32 GB Pen Drives sold on Tuesday and Wednesday together is _____ more than the number of 16 GB Pen Drives sold on Tuesday?

1. 160
2. 250
3. 140
4. 210

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114456**

Option 1 ID : **55125156305**

Option 2 ID : **55125156306**

Option 3 ID : **55125156307**

Option 4 ID : **55125156308**

Status : **Answered**

Chosen Option : **1**

Q.6 Alternate name of Ethernet card is _____.

1. Network connector
2. Modem
3. Network Interface Card
4. Internet Card

Options

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

Question Type : MCQ

Question ID : 55125114486

Option 1 ID : 55125156425

Option 2 ID : 55125156426

Option 3 ID : 55125156427

Option 4 ID : 55125156428

Status : Answered

Chosen Option : 2

Q.7 Characteristics of Scientific Research are

- A. Accuracy
- B. Precision
- C. Systematization
- D. Objectivity
- E. Uncontrolled condition

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114468

Option 1 ID : 55125156353

Option 2 ID : 55125156354

Option 3 ID : 55125156355

Option 4 ID : 55125156356

Status : Answered

Chosen Option : 3

Q.8 According to the Classical Indian School of Logic, which of the following instruments is based on the relation of invariable concomitance between two events or objects?

- 1. Pratyakṣa (Perception)
- 2. Anumāna (Inference)
- 3. Upmāna (Analogy)
- 4. Śabda (Verbal testimony)

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114484

Option 1 ID : 55125156417

Option 2 ID : 55125156418

Option 3 ID : 55125156419

Option 4 ID : 55125156420

Status : Answered

Chosen Option : 3

Q.9 The curriculum and pedagogy in school learning should be

- A. Holistic
- B. Integrated
- C. Enjoyable
- D. Flexible
- E. Engaging

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114463

Option 1 ID : 55125156333

Option 2 ID : 55125156334

Option 3 ID : 55125156335

Option 4 ID : 55125156336

Status : Answered

Chosen Option : 2

Q.10 Which of the following are true about Modified Mercalli Scale (MMS)?

- A. It measures the impact upon people.
- B. It is also known as hazard manager's scale.
- C. Scale size in MMS is much smaller than Richter Scale.
- D. Uses linear scale for the measurement.

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114494

Option 1 ID : 55125156457

Option 2 ID : 55125156458

Option 3 ID : 55125156459

Option 4 ID : 55125156460

Status : Answered

Chosen Option : 3

Q.11 If in a certain code language 'CHAIR' is coded as '64732' and 'EAT' is coded as '571', then how 'CHEATER' will be coded in that language?

- 1. 6457521
- 2. 6457215
- 3. 6457152
- 4. 6475152

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114476

Option 1 ID : 55125156385

Option 2 ID : 55125156386

Option 3 ID : 55125156387

Option 4 ID : 55125156388

Status : Answered

Chosen Option : 3

Q.12 In Ancient India, the head of the family was called _____.

1. Pitamah
2. Rishi
3. Guru
4. Diksha Guru

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114495

Option 1 ID : 55125156461

Option 2 ID : 55125156462

Option 3 ID : 55125156463

Option 4 ID : 55125156464

Status : Answered

Chosen Option : 1

Q.13 The difference between simple and compound interest compounded annually on a certain sum of money for 2 years at 4% per annum is ₹ 1. Find the sum:

1. ₹ 676
2. ₹ 850
3. ₹ 1250
4. ₹ 625

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114478

Option 1 ID : 55125156393

Option 2 ID : 55125156394

Option 3 ID : 55125156395

Option 4 ID : 55125156396

Status : Answered

Chosen Option : 4

Q.14 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	$\frac{3}{8}$ is what part of $\frac{1}{12}$?	I.	$6\frac{3}{4}$
B.	Which number gives the same result when added to $1\frac{1}{2}$ and when multiplied by $1\frac{1}{2}$?	II.	900
C.	$\frac{5}{12}$ of which number is equal to $3\frac{3}{4}$ of 100?	III.	$\frac{9}{2}$
D.	By how much does $\frac{6}{7/8}$ exceeds $\frac{6/7}{8}$?	IV.	3

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114477**

Option 1 ID : **55125156389**

Option 2 ID : **55125156390**

Option 3 ID : **55125156391**

Option 4 ID : **55125156392**

Status : **Answered**

Chosen Option : **4**

Q.15 Arrange the following stages of child development according to Jean Piaget in increasing order.

- A. Operational stage
- B. Pre operational stage
- C. Sensorimotor stage
- D. Concrete operational stage
- E. Preconceptual thought stage

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114462**

Option 1 ID : **55125156329**

Option 2 ID : **55125156330**

Option 3 ID : **55125156331**

Option 4 ID : **55125156332**

Status : **Answered**

Chosen Option : **2**

Q.16 Active learning can be promoted by _____

- 1. Maintaining attention
- 2. Prompting awareness
- 3. Helping in theoretical knowledge
- 4. Asking students to examine the material from alternative points of view

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114460**

Option 1 ID : **55125156321**

Option 2 ID : **55125156322**

Option 3 ID : **55125156323**

Option 4 ID : **55125156324**

Status : **Answered**

Chosen Option : **4**

Q.17 If the statement "some animals are birds" is given as true, which of the following statements can be inferred to be false?

- A. Some animals are not birds,
- B. No animals are birds.
- C. All animals are birds.
- D. No birds are animals.

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

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

- Options**
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : **MCQ**

Question ID : **55125114481**

Option 1 ID : **55125156405**

Option 2 ID : **55125156406**

Option 3 ID : **55125156407**

Option 4 ID : **55125156408**

Status : **Answered**

Chosen Option : **3**

Q.18 Arrange the following terms in order of decreasing denotation.

- A. Natural Science
- B. Chemistry
- C. Science
- D. Organic Chemistry

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114483

Option 1 ID : 55125156413

Option 2 ID : 55125156414

Option 3 ID : 55125156415

Option 4 ID : 55125156416

Status : Answered

Chosen Option : 1

Q.19 Arrange these Education Ministers in chronological order.

- A. Shrimati Smriti Irani
- B. Shri Prakash Javadekar
- C. Mr. Dharmendra Pradhan
- D. Shri Ramesh Pokhriyal
- E. Shri M.M. Pallam Raju

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114497

Option 1 ID : 55125156469

Option 2 ID : 55125156470

Option 3 ID : 55125156471

Option 4 ID : 55125156472

Status : Answered

Chosen Option : 2

Q.20 Arrange the following organizations in chronological order as per their year of establishment (from earliest to the latest)

- A. Directorate of Film Festivals
- B. National Film Development Corporation
- C. Film and TV Institute of India, Pune
- D. Films Division
- E. Central Board of Film Certification

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114472**

Option 1 ID : **55125156369**

Option 2 ID : **55125156370**

Option 3 ID : **55125156371**

Option 4 ID : **55125156372**

Status : **Answered**

Chosen Option : **3**

Q.21 Senior citizens who continue learning will _____.

- 1. Never suffer from Alzheimer and senile dementia.
- 2. Suffer from Alzheimer and senile dementia like all old persons.
- 3. Reduce chances of suffering from Alzheimer and senile dementia.
- 4. Suffer from disabilities other than Alzheimer's and senile dementia.

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114496**

Option 1 ID : **55125156465**

Option 2 ID : **55125156466**

Option 3 ID : **55125156467**

Option 4 ID : **55125156468**

Status : **Answered**

Chosen Option : **3**

Q.22 Which of the following is an ancient treatise on Mathematics?

1. Sāṃkhya Kaumudi
2. Sāṃkhya Karika
3. Arthasaṃgrah
4. Lilavati

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114498

Option 1 ID : 55125156473

Option 2 ID : 55125156474

Option 3 ID : 55125156475

Option 4 ID : 55125156476

Status : Answered

Chosen Option : 4

Q.23 Which among the following are different types of communication?

- A. Interpersonal
- B. Mass
- C. Intrapersonal
- D. Group
- E. Travelling

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114473

Option 1 ID : 55125156373

Option 2 ID : 55125156374

Option 3 ID : 55125156375

Option 4 ID : 55125156376

Status : Answered

Chosen Option : 3

Q.24 The percentage profit earned by selling an article for ₹1920 is equal to the percentage loss incurred by selling the same article for ₹ 1280. What should be the selling price of the article so as to make a profit of 25%?

1. ₹ 2100
2. ₹ 1950
3. ₹ 1900
4. ₹ 2000

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114479**

Option 1 ID : **55125156397**

Option 2 ID : **55125156398**

Option 3 ID : **55125156399**

Option 4 ID : **55125156400**

Status : **Answered**

Chosen Option : **4**

Q.25 Which of the following is a biochemical treatment process in the context of waste water?

1. Activated Sludge
2. Sedimentation
3. Filtration
4. Grit Chamber

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114493**

Option 1 ID : **55125156453**

Option 2 ID : **55125156454**

Option 3 ID : **55125156455**

Option 4 ID : **55125156456**

Status : **Answered**

Chosen Option : **1**

Q.26 Blue baby syndrome, a water borne disease in human infants, is known as

1. Oxyhemoglobinemia
2. Memoglobinemia
3. Metaglobinemia
4. Methemoglobinemia

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114491

Option 1 ID : 55125156445

Option 2 ID : 55125156446

Option 3 ID : 55125156447

Option 4 ID : 55125156448

Status : Answered

Chosen Option : 2

Q.27 What was the name of the first - film made in India?

1. Bhasmasur-Mohini
2. Satyavan-Savitri
3. Raja Harish Chandra
4. Alam Ara

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114470

Option 1 ID : 55125156361

Option 2 ID : 55125156362

Option 3 ID : 55125156363

Option 4 ID : 55125156364

Status : Answered

Chosen Option : 4

Q.28 What was name of the first ever talkie feature film made in India?

1. Lanka Dahan
2. Kichak Vadham
3. Alam Ara
4. Raja Harish Chandra

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114471

Option 1 ID : 55125156365

Option 2 ID : 55125156366

Option 3 ID : 55125156367

Option 4 ID : 55125156368

Status : Answered

Chosen Option : 2

Q.29 Firmware is a _____.

1. Software
2. Hardware
3. Combination of hardware and software
4. Compiler

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114485

Option 1 ID : 55125156421

Option 2 ID : 55125156422

Option 3 ID : 55125156423

Option 4 ID : 55125156424

Status : Answered

Chosen Option : 1

Q.30 What was the concentration (Atmospheric level) of carbon dioxide (CO_2) just before the industrial revolution?

1. 250 ppmv
2. 280 ppmv
3. 300 ppmv
4. 320 ppmv

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114492**

Option 1 ID : **55125156449**

Option 2 ID : **55125156450**

Option 3 ID : **55125156451**

Option 4 ID : **55125156452**

Status : **Answered**

Chosen Option : **1**

Q.31 Number of trials (n) and probability of success (p) for different binomial distributions are given in A-D below. Compute variance of each Binomial distribution and arrange in ascending order.

- A. $n = 5, p = 0.4$
- B. $n = 6, p = 0.6$
- C. $n = 8, p = 0.3$
- D. $n = 7, p = 0.7$

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114467**

Option 1 ID : **55125156349**

Option 2 ID : **55125156350**

Option 3 ID : **55125156351**

Option 4 ID : **55125156352**

Status : **Answered**

Chosen Option : **4**

Q.32 Which of the following are true about Thermal Pollution?

- A. It is a kind of water pollution.
- B. This can be caused form thermal power plants.
- C. It can severely effect the aquatic life.
- D. It increases the Dissolved Oxygen (DO) of water body.

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114490

Option 1 ID : 55125156441

Option 2 ID : 55125156442

Option 3 ID : 55125156443

Option 4 ID : 55125156444

Status : Answered

Chosen Option : 4

Q.33 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Information Communication Technology (ICT) based teaching	I.	Automated and instant evaluation
B.	CBCS (Choice Based Credit System)	II.	Online education initiative by MHRD
C.	CBT (Computer Based Test)	III.	Use of digital tools
D.	SWAYAM	IV.	Flexibility in course selection

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114464

Option 1 ID : 55125156337

Option 2 ID : 55125156338

Option 3 ID : 55125156339

Option 4 ID : 55125156340

Status : Answered

Chosen Option : 1

Q.34 What is the Descriptive Research?

1. It describes social situations, social events, social systems, social structures etc. The researcher observes/studies and then he describes what he has found.
2. It explains the causes of social phenomena.
3. It studies subject about which either no information or limited information is available.
4. It is based on common sense knowledge based on the accumulated experience and beliefs of people.

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114466

Option 1 ID : 55125156345

Option 2 ID : 55125156346

Option 3 ID : 55125156347

Option 4 ID : 55125156348

Status : Answered

Chosen Option : 1

Q.35 Match the **LIST-I** with **LIST-II**

LIST-I (Schemes)		LIST-II (Description)	
A.	Skill India Mission	I.	Nodal Skill Centres
B.	Pradhan Mantri Kaushal Vikas Yojana (PMKVY)	II.	Skill based Courses and Training Programme
C.	Skill Hub	III.	Skill Ecosystem
D.	Micro-Credentials	IV.	Skill Development and Vocational Training opportunities

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114499**

Option 1 ID : **55125156477**

Option 2 ID : **55125156478**

Option 3 ID : **55125156479**

Option 4 ID : **55125156480**

Status : **Answered**

Chosen Option : **4**

Q.36 Match the LIST-I with LIST-II

LIST-I (Population mean (μ) and $\frac{1}{N} \sum x_i^2$)		LIST-II (Population Standard Deviation (σ))	
A.	$\mu = 13, \frac{1}{N} \sum x_i^2 = 178$	I.	2
B.	$\mu = 14, \frac{1}{N} \sum x_i^2 = 212$	II.	3
C.	$\mu = 15, \frac{1}{N} \sum x_i^2 = 229$	III.	4
D.	$\mu = 16, \frac{1}{N} \sum x_i^2 = 281$	IV.	5

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114469**

Option 1 ID : **55125156357**

Option 2 ID : **55125156358**

Option 3 ID : **55125156359**

Option 4 ID : **55125156360**

Status : **Answered**

Chosen Option : **4**

Q.37 "Mister X rightly deserves to be called as a big poet because he comes from a big country." Which logical fallacy is committed in the above statement?

1. Slippery Slope
2. Hasty Generalization
3. Fallacy of Division
4. Begging the Question

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114482**

Option 1 ID : **55125156409**

Option 2 ID : **55125156410**

Option 3 ID : **55125156411**

Option 4 ID : **55125156412**

Status : **Answered**

Chosen Option : **2**

Q.38 Who developed social model of Role playing?

1. Donald Oliver
2. Fannie Shaftel
3. David Johnson
4. John Dewey

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114461

Option 1 ID : 55125156325

Option 2 ID : 55125156326

Option 3 ID : 55125156327

Option 4 ID : 55125156328

Status : Answered

Chosen Option : 1

Q.39 Match the LIST-I with LIST-II

LIST-I (Computer Generation)	LIST-II (Service)
A. 1 G	I. Interactive Multimedia
B. 2 G	II. Digital voice and data services
C. 3 G	III. Voice call transmitted in digital form
D. 4 G	IV. Voice call transmitted in analog form

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114489

Option 1 ID : 55125156437

Option 2 ID : 55125156438

Option 3 ID : 55125156439

Option 4 ID : 55125156440

Status : Answered

Chosen Option : 3

Q.40 Which of the following statements can not both be false, although they can both be true?

- A. All ducks are birds.
- B. Some ducks are birds.
- C. Some ducks are not birds.
- D. No ducks are birds.

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114480

Option 1 ID : 55125156401

Option 2 ID : 55125156402

Option 3 ID : 55125156403

Option 4 ID : 55125156404

Status : Answered

Chosen Option : 1

Q.41 Find the wrong term in the series given below:

8, 10, 24, 78, 320, 1512, 9672

- 1. 78
- 2. 1512
- 3. 24
- 4. 9672

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114475

Option 1 ID : 55125156381

Option 2 ID : 55125156382

Option 3 ID : 55125156383

Option 4 ID : 55125156384

Status : Answered

Chosen Option : 2

Q.42 Which of the following statements are correct?

- A. Snooping means secretly listening to a conversation
- B. Worm is a firewall
- C. Keylogger is a network security system
- D. HTTP is a type of cookies
- E. Cookies are used to store browsing information

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114488

Option 1 ID : 55125156433

Option 2 ID : 55125156434

Option 3 ID : 55125156435

Option 4 ID : 55125156436

Status : Answered

Chosen Option : 2

Q.43 Which of the following is correct sequence of evolution of technologies used in computer generations?

- A. Transistor
- B. Vacuum Tube
- C. Very large scale integrated circuit
- D. Ultra large scale integrated circuit
- E. Integrated circuit

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114487**

Option 1 ID : **55125156429**

Option 2 ID : **55125156430**

Option 3 ID : **55125156431**

Option 4 ID : **55125156432**

Status : **Answered**

Chosen Option : **3**

Q.44 Match the **LIST-I** with **LIST-II**

LIST-I (Communication Type)	LIST-II (Meaning / Examples)
A. Intrapersonal Communication	I. Direct face-to-face communication between two persons
B. Interpersonal Communication	II. Theatre, dance performances, and Rama Lila
C. Group Communication	III. Books, Press, Cinema, Radio and Television
D. Mass Communication	IV. Contemplation and talking with self

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114474**

Option 1 ID : **55125156377**

Option 2 ID : **55125156378**

Option 3 ID : **55125156379**

Option 4 ID : **55125156380**

Status : **Answered**

Chosen Option : **3**

Q.45 Which of the following is not a method of Scientific Research?

1. Tradition, personal experiences, intuition or authority and all subjective approaches or method
2. Field Study Method
3. Experimental Method
4. Historical Method

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114465**

Option 1 ID : **55125156341**

Option 2 ID : **55125156342**

Option 3 ID : **55125156343**

Option 4 ID : **55125156344**

Status : **Answered**

Chosen Option : 1

Comprehension:

Read following passage and answer question:

Linguistic diversity divides a nation in terms of regional languages. After independence, state organization was undertaken on the basis of languages. Hindi is not acceptable to southern states. English finds no mention in the VIII Schedule of our Constitution. Yet it is a pity that it has taken the role of our national language. For genuine national integration, the fruit of economic development should be shared by each and every section of the society. Otherwise, the have-nots never think in terms of national unity. Tension and sense of injustice among people is bound to hinder the progress of national integration. Economic development and removal of economic disparities play a vital role in the interest of national integration. Therefore, economic integration will certainly lead to national integration. There must be psychological, emotional, cultural and economic integration among the masses. This implies that people must change their loyalties from petty issues to the nation as a whole. Who lives if India dies?

SubQuestion No : 46

Q.46 Which of the following languages is not mentioned in the VIII Schedule of the constitution?

1. Tamil
2. English
3. Maithili
4. Malayalam

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114502**

Option 1 ID : **55125156485**

Option 2 ID : **55125156486**

Option 3 ID : **55125156487**

Option 4 ID : **55125156488**

Status : **Answered**

Chosen Option : 2

Comprehension:

Read following passage and answer question:

Linguistic diversity divides a nation in terms of regional languages. After independence, state organization was undertaken on the basis of languages. Hindi is not acceptable to southern states. English finds no mention in the VIII Schedule of our Constitution. Yet it is a pity that it has taken the role of our national language. For genuine national integration, the fruit of economic development should be shared by each and every section of the society. Otherwise, the have-nots never think in terms of national unity. Tension and sense of injustice among people is bound to hinder the progress of national integration. Economic development and removal of economic disparities play a vital role in the interest of national integration. Therefore, economic integration will certainly lead to national integration. There must be psychological, emotional, cultural and economic integration among the masses. This implies that people must change their loyalties from petty issues to the nation as a whole. Who lives if India dies?

SubQuestion No : 47

Q.47 _____ integration is required for promoting National Integration.

1. Spiritual
2. Sociological
3. Cultural
4. Political

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114504**

Option 1 ID : **55125156493**

Option 2 ID : **55125156494**

Option 3 ID : **55125156495**

Option 4 ID : **55125156496**

Status : **Answered**

Chosen Option : **2**

Comprehension:

Read following passage and answer question:

Linguistic diversity divides a nation in terms of regional languages. After independence, state organization was undertaken on the basis of languages. Hindi is not acceptable to southern states. English finds no mention in the VIII Schedule of our Constitution. Yet it is a pity that it has taken the role of our national language. For genuine national integration, the fruit of economic development should be shared by each and every section of the society. Otherwise, the have-nots never think in terms of national unity. Tension and sense of injustice among people is bound to hinder the progress of national integration. Economic development and removal of economic disparities play a vital role in the interest of national integration. Therefore, economic integration will certainly lead to national integration. There must be psychological, emotional, cultural and economic integration among the masses. This implies that people must change their loyalties from petty issues to the nation as a whole. Who lives if India dies?

SubQuestion No : 48

Q.48 On what basis does linguistic diversity divide a nation?

1. In terms of vernacular language
2. In terms of rural language
3. In terms of dialects spoken across the country
4. In terms of regional languages

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114501**

Option 1 ID : **55125156481**

Option 2 ID : **55125156482**

Option 3 ID : **55125156483**

Option 4 ID : **55125156484**

Status : **Answered**

Chosen Option : **4**

Comprehension:

Read following passage and answer question:

Linguistic diversity divides a nation in terms of regional languages. After independence, state organization was undertaken on the basis of languages. Hindi is not acceptable to southern states. English finds no mention in the VIII Schedule of our Constitution. Yet it is a pity that it has taken the role of our national language. For genuine national integration, the fruit of economic development should be shared by each and every section of the society. Otherwise, the have-nots never think in terms of national unity. Tension and sense of injustice among people is bound to hinder the progress of national integration. Economic development and removal of economic disparities play a vital role in the interest of national integration. Therefore, economic integration will certainly lead to national integration. There must be psychological, emotional, cultural and economic integration among the masses. This implies that people must change their loyalties from petty issues to the nation as a whole. Who lives if India dies?

SubQuestion No : 49

Q.49 What hinders for the progress of National Integration the most?

1. Misuse of regional resources
2. Economic disparities
3. Improvement in the GDP
4. Affirmative action

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114505**

Option 1 ID : **55125156497**

Option 2 ID : **55125156498**

Option 3 ID : **55125156499**

Option 4 ID : **55125156500**

Status : **Answered**

Chosen Option : **2**

Comprehension:

Read following passage and answer question:

Linguistic diversity divides a nation in terms of regional languages. After independence, state organization was undertaken on the basis of languages. Hindi is not acceptable to southern states. English finds no mention in the VIII Schedule of our Constitution. Yet it is a pity that it has taken the role of our national language. For genuine national integration, the fruit of economic development should be shared by each and every section of the society. Otherwise, the have-nots never think in terms of national unity. Tension and sense of injustice among people is bound to hinder the progress of national integration. Economic development and removal of economic disparities play a vital role in the interest of national integration. Therefore, economic integration will certainly lead to national integration. There must be psychological, emotional, cultural and economic integration among the masses. This implies that people must change their loyalties from petty issues to the nation as a whole. Who lives if India dies?

SubQuestion No : 50

Q.50 Which of the following is harmful for National Integration?

1. Regional diversity
2. Linguistic diversity
3. Lack of employment
4. Feeling of injustice

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114503**

Option 1 ID : **55125156489**

Option 2 ID : **55125156490**

Option 3 ID : **55125156491**

Option 4 ID : **55125156492**

Status : **Answered**

Chosen Option : **4**

Section : **Statistics**

Q.51 Match the LIST-I with LIST-II

LIST-I	LIST-II
A. P. C. Mahalanobis	I. Partially Balanced Incomplete Block Design (PBIBD)
B. P. V. Sukhatme	II. Multivariate hypothesis testing
C. R. C. Bose	III. Ordered estimates in sampling with varying probabilities and WOR
D. S. N. Roy	IV. Distance measure in multivariate analysis

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114593

Option 1 ID : 55125156849

Option 2 ID : 55125156850

Option 3 ID : 55125156851

Option 4 ID : 55125156852

Status : Answered

Chosen Option : 3

Q.52

The interval of convergence of the power series $\sum_{n=0}^{\infty} \frac{|x-5|^n}{(n+1)(n+2)}$ is

1. $(-5, 5)$
2. $(0, 1)$
3. $(4, 6)$
4. ∞

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114517

Option 1 ID : 55125156545

Option 2 ID : 55125156546

Option 3 ID : 55125156547

Option 4 ID : 55125156548

Status : Answered

Chosen Option : 1

Q.53 Given the function

$$f(x) = \begin{cases} x^2 + 1, & \text{when } 0 \leq x \leq 1 \\ 3 - x, & \text{when } 1 < x \leq 2 \end{cases}$$

Consider following statements about $f(x)$.

- A. $f(x)$ is continuous and differentiable at all points.
- B. $f(x)$ is not differentiable at $x = 1$
- C. Rolle's theorem is applicable on $[0, 2]$
- D. Rolle's theorem is not applicable on $[0, 2]$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114524

Option 1 ID : 55125156573

Option 2 ID : 55125156574

Option 3 ID : 55125156575

Option 4 ID : 55125156576

Status : Answered

Chosen Option : 3

Q.54 The maximum likelihood estimates of μ and Σ based on the following observations from $N_2(\mu, \Sigma)$:

$$X_1 = \begin{pmatrix} 1 \\ 2 \end{pmatrix} \quad X_2 = \begin{pmatrix} 4 \\ 4 \end{pmatrix} \quad X_3 = \begin{pmatrix} 4 \\ 3 \end{pmatrix}$$

are respectively

1. $\begin{pmatrix} 3 \\ 3 \end{pmatrix}$, $\begin{pmatrix} \frac{2}{3} & 1 \\ 1 & 2 \end{pmatrix}$
2. $\begin{pmatrix} 3 \\ 3 \end{pmatrix}$, $\begin{pmatrix} 2 & 3 \\ 3 & 6 \end{pmatrix}$
3. $\begin{pmatrix} 3 \\ 3 \end{pmatrix}$, $\begin{pmatrix} 6 & 3 \\ 3 & 2 \end{pmatrix}$
4. $\begin{pmatrix} 3 \\ 3 \end{pmatrix}$, $\begin{pmatrix} 2 & 1 \\ 1 & \frac{2}{3} \end{pmatrix}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114572

Option 1 ID : 55125156765

Option 2 ID : 55125156766

Option 3 ID : 55125156767

Option 4 ID : 55125156768

Status : Answered

Chosen Option : 3

Q.55 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	$> x < -C$ (12, 4, -8, 54, 23, -51) : x	I.	[1] 4 3 2 6 5 1
B.	$>$ sort (C(12, 4, -8, 54, 23, -51))	II.	[1] 6 3 2 1 5 4
C.	$>$ rank (C(12, 4, -8, 54, 23, -51))	III.	[1] 12 4 -8 54 23 -51
D.	$>$ order (C(12, 4, -8, 54, 23, -51))	IV.	[1] -51 -8 4 12 23 54

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114594

Option 1 ID : 55125156853

Option 2 ID : 55125156854

Option 3 ID : 55125156855

Option 4 ID : 55125156856

Status : Answered

Chosen Option : 2

Q.56 The moment generating function of a random variable X is given by $M_X(t) = e^{2t(1+t)}$. The fourth order central moment of the distribution should be:

1. 0
2. 3
3. 12
4. 48

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114508

Option 1 ID : 55125156509

Option 2 ID : 55125156510

Option 3 ID : 55125156511

Option 4 ID : 55125156512

Status : Answered

Chosen Option : 1

Q.57 Let $X_1, X_2, \dots, X_n$ be a random sample from $N(\mu, \sigma^2)$ population. Then $(1-\alpha)$ upper confidence bound for μ is given by:

1. $(-\infty, \bar{X} + t_{n-1, \alpha} S/\sqrt{n})$
2. $(-\infty, \bar{X} - t_{n-1, \alpha} S/\sqrt{n})$
3. $(-\infty, \bar{X} + t_{n, \alpha} S/\sqrt{n})$
4. $(-\infty, \bar{X} - t_{n, \alpha} S/\sqrt{n})$

Options

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

Question Type : **MCQ**

Question ID : **55125114539**

Option 1 ID : **55125156633**

Option 2 ID : **55125156634**

Option 3 ID : **55125156635**

Option 4 ID : **55125156636**

Status : **Answered**

Chosen Option : **4**

Q.58 A part of R program is given below:

```
> x <- 3  
> f = function (y) {  
  
  x <- 5  
  
  x + y  
}  
  
> f(4)
```

The output of the program is :

1. 7
2. 9
3. 4
4. 5

Options

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

Question Type : MCQ

Question ID : 55125114589

Option 1 ID : 55125156833

Option 2 ID : 55125156834

Option 3 ID : 55125156835

Option 4 ID : 55125156836

Status : Answered

Chosen Option : 1

Q.59 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	$> \min (C(1, 6, -14, -154, 0))$	I.	$[1] -154 \quad 6$
B.	$> \max (C(1, 6, -14, -154, 0))$	II.	$[1] 6$
C.	$> \text{range} (C(1, 6, -14, -154, 0))$	III.	$[1] -154$
D.	$> \text{which} (C(1, 6, -14, -154, 0))$	IV.	$[1] 3 \quad 4$

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114595**

Option 1 ID : **55125156857**

Option 2 ID : **55125156858**

Option 3 ID : **55125156859**

Option 4 ID : **55125156860**

Status : **Answered**

Chosen Option : **2**

Q.60 Suppose, for a Markov Chain, C_1 is the communicative class of state i and C_2 is the communicate class of state j . State k is communicative with i and j . Then

1. $C_1 \cap C_2 = \Phi$
2. $C_1 = C_2$
3. k belongs to neither C_1 nor C_2
4. k has different period than that of i and j

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114583**

Option 1 ID : **55125156809**

Option 2 ID : **55125156810**

Option 3 ID : **55125156811**

Option 4 ID : **55125156812**

Status : **Answered**

Chosen Option : **4**

Q.61 The National Sample Survey Office (NSSO) in India primarily follows which sampling design for its large scale socio-economic surveys?

1. Simple Random sampling
2. Systematic sampling
3. Double sampling
4. Stratified multi-stage sampling

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114587**

Option 1 ID : **55125156825**

Option 2 ID : **55125156826**

Option 3 ID : **55125156827**

Option 4 ID : **55125156828**

Status : **Answered**

Chosen Option : 1

Q.62 Let X_1, X_2, Y_1, Y_2 and Y_3 are independent random vectors with $X_i \sim N_4(Q, \Sigma_i)$ and $Y_j \sim N_4(Q, \Sigma_j)$

Define $X_{4 \times 2} = (X_1, X_2)$, $Y_{4 \times 3} = (Y_1, Y_2, Y_3)$ and $Z = \Sigma_1^{-1/2} X X' \Sigma_1^{-1/2} + \Sigma_2^{-1/2} Y Y' \Sigma_2^{-1/2}$. Let $W_p(n, \Sigma)$ represents a p variable Wishart distribution with n degrees of freedom, then

1. $Z \sim W_5(5, I_5)$
2. $Z \sim W_4(5, I_4)$
3. $Z \sim W_4(4, I_5)$
4. $Z \sim W_5(4, I_4)$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114576**

Option 1 ID : **55125156781**

Option 2 ID : **55125156782**

Option 3 ID : **55125156783**

Option 4 ID : **55125156784**

Status : **Answered**

Chosen Option : 2

Q.63 Let x follows exponential distribution with mean $\frac{1}{\lambda}$ and y given $X = x$ follows Poisson distribution with parameter x , then $\text{Var}(X)$ equals

1. $\frac{\lambda(\lambda+1)}{\lambda^2}$
2. $\frac{\lambda^2}{\lambda+1}$
3. $\lambda(\lambda+1)$
4. $\frac{\lambda+1}{\lambda^2}$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **55125114506**
Option 1 ID : **55125156501**
Option 2 ID : **55125156502**
Option 3 ID : **55125156503**
Option 4 ID : **55125156504**
Status : **Answered**
Chosen Option : **4**

Q.64 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Testing equality of means of two populations when population variances are known	I.	χ^2 - test
B.	Testing equality of variances of two normal populations	II.	t - test
C.	Testing equality of several population proportions	III.	F - test
D.	Testing significance of mean in a single population with unknown variance	IV.	Z - test

Choose the **correct** answer from the options 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-IV, B-I, C-III, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **55125114555**
Option 1 ID : **55125156697**
Option 2 ID : **55125156698**
Option 3 ID : **55125156699**
Option 4 ID : **55125156700**
Status : **Answered**
Chosen Option : **4**

Q.65

Let $X = \begin{bmatrix} x_1 \\ x_1 \\ x_1 \end{bmatrix} \sim N_3(\mu, \Sigma)$ where $\mu = \begin{bmatrix} 2 \\ -2 \\ 1 \end{bmatrix}$ and $\Sigma = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 3 & 2 \\ 1 & 2 & 2 \end{bmatrix}$. Write $X = \begin{bmatrix} x_1 \\ X^{(2)} \end{bmatrix}$ where $X^{(2)} = \begin{bmatrix} x_2 \\ x_3 \end{bmatrix}$.

Then the conditional mean and conditional variance of $X^{(2)}$ given $x_1 = 1$ will be, respectively:

1. $\begin{bmatrix} -2 \\ 1 \end{bmatrix}$, $\begin{bmatrix} 3 & 2 \\ 2 & 2 \end{bmatrix}$
2. $\begin{bmatrix} -3 \\ 0 \end{bmatrix}$, $\begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$
3. $\begin{bmatrix} 1 \\ -2 \end{bmatrix}$, $\begin{bmatrix} 2 & 2 \\ 2 & 3 \end{bmatrix}$
4. $\begin{bmatrix} 0 \\ -3 \end{bmatrix}$, $\begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114573

Option 1 ID : 55125156769

Option 2 ID : 55125156770

Option 3 ID : 55125156771

Option 4 ID : 55125156772

Status : Answered

Chosen Option : 2

Q.66 Consider the following statements regarding the different sampling methods:

- A. Simple random sampling with replacement is more efficient than simple random sampling without replacement.
- B. In ratio method of estimation, the usual ratio estimator ($\bar{y}_R$) of the population mean ($\bar{Y}$) is a biased estimator.
- C. If intraclass correlation between elements of a cluster is negative, the cluster sampling is more efficient than the SRSWOR.
- D. If the intraclass correlation between units of a column is greater than $\frac{-1}{(kn-1)}$, the systematic sampling is superior to simple random sampling.

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114533**

Option 1 ID : **55125156609**

Option 2 ID : **55125156610**

Option 3 ID : **55125156611**

Option 4 ID : **55125156612**

Status : **Answered**

Chosen Option : **4**

Q.67 Let X be an $n \times k$ matrix of rank k ($\leq n$) and $P = I_n - X(X'X)^{-1}X'$. Then

- 1. All eigen values of P are 1.
- 2. k eigen values of P are 1 and $n - k$ eigen values are 0.
- 3. $n - k$ eigen values of P are 1 and k eigen values are 0.
- 4. All eigen values of P are different from 1 and 0.

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114520**

Option 1 ID : **55125156557**

Option 2 ID : **55125156558**

Option 3 ID : **55125156559**

Option 4 ID : **55125156560**

Status : **Answered**

Chosen Option : **2**

Q.68 In samples of size 5 from $U[0, 1]$ population, the mean of the distribution of median is:

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114542

Option 1 ID : 55125156645

Option 2 ID : 55125156646

Option 3 ID : 55125156647

Option 4 ID : 55125156648

Status : Answered

Chosen Option : 1

Q.69 In the multiple linear regression model

$$\underset{(n \times 1)}{y} = \underset{(n \times k)}{X} \underset{(k \times 1)}{\beta} + \underset{(n \times 1)}{u}, E(u) = 0, E(uu') = \sigma^2 I_n,$$

If $C = X(X'X)^{-1}X'$, then $E[(C y)\{I_n - C\}y']$ is

1. $\sigma^2 C$
2. 0
3. $\sigma^2 C C'$
4. $\sigma^2 (n - k) C C'$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114561

Option 1 ID : 55125156721

Option 2 ID : 55125156722

Option 3 ID : 55125156723

Option 4 ID : 55125156724

Status : Answered

Chosen Option : 2

Q.70 For the multiple linear regression model

$$\underset{(n \times 1)}{y} = \underset{(n \times k)}{X} \underset{(k \times 1)}{\beta} + \underset{(n \times 1)}{u}, E(u) = 0, E(uu') = \sigma^2 I_n,$$

let $P = X(X'X)^{-1}X'$, $e = (I_n - P)y$. Then

$E(ee')$ is

1. $\sigma^2 I_n + X\beta\beta'X'$
2. $\sigma^2 (I_n - \beta) + X\beta\beta'X'$
3. $\sigma^2 P$
4. $\sigma^2 (I_n - P)$

Options

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

Question Type : MCQ

Question ID : 55125114559

Option 1 ID : 55125156713

Option 2 ID : 55125156714

Option 3 ID : 55125156715

Option 4 ID : 55125156716

Status : Answered

Chosen Option : 3

Q.71 The maximum value of the function

$$f(x) = 2^{x(1-x)}; 0 \leq x \leq 1 \text{ is}$$

1. 1
2. $\sqrt{2}$
3. 2
4. $2^{1/4}$

Options

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

Question Type : MCQ

Question ID : 55125114523

Option 1 ID : 55125156569

Option 2 ID : 55125156570

Option 3 ID : 55125156571

Option 4 ID : 55125156572

Status : Answered

Chosen Option : 4

Q.72 In a randomized block design with four treatments and six block, if the sum of squares due to treatments is 177, the sum of squares due to blocks is 195 and the sum of squares due to total is 477, then the mean sum of square due to error will be:

1. 7
2. 23
3. 39
4. 59

Options

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

Question Type : MCQ

Question ID : 55125114527

Option 1 ID : 55125156585

Option 2 ID : 55125156586

Option 3 ID : 55125156587

Option 4 ID : 55125156588

Status : Answered

Chosen Option : 2

Q.73 Consider a three state Markov Chain with transition probability matrix

$$P = \begin{bmatrix} 0 & 1 & 0 \\ 0.5 & 0 & 0.5 \\ 0 & 1 & 0 \end{bmatrix}$$

$$\text{so that } P^2 = \begin{bmatrix} 0.5 & 0 & 0.5 \\ 0 & 1 & 0 \\ 0.5 & 0 & 0.5 \end{bmatrix}, P^3 = P$$

Then the Markov Chain is

1. Irreducible and aperiodic
2. Irreducible and periodic
3. Reducible and aperiodic
4. Reducible and periodic

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114582

Option 1 ID : 55125156805

Option 2 ID : 55125156806

Option 3 ID : 55125156807

Option 4 ID : 55125156808

Status : Answered

Chosen Option : 1

Q.74 Which of the following is **not** a consequence of near multicollinearity on the performance of ordinary least squares estimator?

1. Small changes in data produce large changes in estimates
2. Estimates are large in magnitude
3. Estimates are biased
4. Estimates have high standard errors and low significance value, though R^2 is very high

Options

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

Question Type : **MCQ**

Question ID : **55125114557**

Option 1 ID : **55125156705**

Option 2 ID : **55125156706**

Option 3 ID : **55125156707**

Option 4 ID : **55125156708**

Status : **Answered**

Chosen Option : **1**

Q.75 A 2^3 factorial experiment with the factors A, B and C is replicated twice. The error degrees of freedom will be:

1. 8
2. 7
3. 15
4. 16

Options

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

Question Type : **MCQ**

Question ID : **55125114529**

Option 1 ID : **55125156593**

Option 2 ID : **55125156594**

Option 3 ID : **55125156595**

Option 4 ID : **55125156596**

Status : **Answered**

Chosen Option : **2**

Q.76 For the exponential distribution $f(x) = e^{-x}$, $x \geq 0$, the cumulative distribution function of $X_{(7)}$ in a random sample size 7 is:

1. $(e^{-x})^7$
2. $(1 + e^{-x})^7$
3. $(1 - e^{-x})^7$
4. $(-e^{-x})^7$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114541**

Option 1 ID : **55125156641**

Option 2 ID : **55125156642**

Option 3 ID : **55125156643**

Option 4 ID : **55125156644**

Status : **Answered**

Chosen Option : **4**

Q.77 Let $X_1, X_2, \dots, X_n$ be iid random variables each following the distribution with pdf

$$f(x|\theta) = \begin{cases} e^{-(x-\theta)}; & x \geq \theta \\ 0; & \text{otherwise} \end{cases}$$

then

- A. $\bar{X}_n \xrightarrow{p} 1 + \theta$, where $\bar{X}_n = \frac{1}{n} \sum_{i=1}^n x_i$
- B. If $y = \min(X_1, X_2, \dots, X_n)$ then $f(y) = n e^{-n(y-\theta)}$; $y \geq \theta$
- C. $V(\bar{X}_n) = n$
- D. $\bar{X}_n \xrightarrow{L} \theta$

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114514**

Option 1 ID : **55125156533**

Option 2 ID : **55125156534**

Option 3 ID : **55125156535**

Option 4 ID : **55125156536**

Status : **Answered**

Chosen Option : **2**

Q.78 4 coins are tossed 160 times and the following results were obtained:

No. of heads	0	1	2	3	4
Observed frequencies	17	52	54	31	6

Under the assumption that the coins are unbiased, we obtain the expected frequencies of getting 0, 1, 2 3 or 4 heads and tested the goodness of fit. Applying the χ^2 that for testing the goodness of fit, the calculated value of χ^2 comes out to be:

1. 8.275
2. 10.275
3. 12.725
4. 15.725

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114546**

Option 1 ID : **55125156661**

Option 2 ID : **55125156662**

Option 3 ID : **55125156663**

Option 4 ID : **55125156664**

Status : **Answered**

Chosen Option : **2**

Q.79 Let $A_1, A_2, \dots, A_n$ be n independent events such that $P(A_i) = 1 - \frac{1}{2^i}$; $i = 1, 2, \dots, n$, then the probability that at least one of the events $A_1, A_2, \dots, A_n$ occurs is:

1. $\frac{1}{2^n}$
2. $1 - \frac{1}{2^n}$
3. $\frac{1}{2^{n(n+1)/2}}$
4. $1 - \frac{1}{2^{n(n+1)/2}}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114511**

Option 1 ID : **55125156521**

Option 2 ID : **55125156522**

Option 3 ID : **55125156523**

Option 4 ID : **55125156524**

Status : **Answered**

Chosen Option : **4**

Q.80 Let p be the probability that a coin will fall head in a single toss in order to test $H_0 : p = \frac{1}{2}$ against $H_1 : p = \frac{3}{4}$.

The coin is tossed 5 times and H_0 is rejected if more than 3 heads are obtained. The size and power of the test, respectively are:

1. $\left(\frac{3}{16}, \frac{47}{128}\right)$
2. $\left(\frac{3}{16}, \frac{81}{128}\right)$
3. $\left(\frac{9}{16}, \frac{18}{128}\right)$
4. $\left(\frac{9}{16}, \frac{47}{128}\right)$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114550**

Option 1 ID : **55125156677**

Option 2 ID : **55125156678**

Option 3 ID : **55125156679**

Option 4 ID : **55125156680**

Status : **Answered**

Chosen Option : **2**

Q.81

Let $\underline{X}' = (X_1 X_2 X_3)$ be a vector with $E(\underline{X}) = 0$ and $\Sigma = \begin{bmatrix} 1 & \frac{1}{2} & \frac{1}{2} \\ \frac{1}{2} & 1 & \frac{1}{2} \\ \frac{1}{2} & \frac{1}{2} & 1 \end{bmatrix}$. Read the following statements:

- A. The first principal component of Σ is $Y_1 = \frac{1}{\sqrt{3}} \sum_{i=1}^3 X_i$
- B. The largest Eigen value of Σ is 3.
- C. The first principal component explains approximately 66.7% of total variables.
- D. The smallest eigen value is $\frac{1}{2}$.

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114578

Option 1 ID : 55125156789

Option 2 ID : 55125156790

Option 3 ID : 55125156791

Option 4 ID : 55125156792

Status : Answered

Chosen Option : 1

Q.82 Arrange the following statistical organizations in order of their year of establishment from oldest to latest.

- A. Central Statistics Office (CSO)
- B. National Sample Survey Office (NSSO)
- C. National Statistical Office (NSO)
- D. Ministry of Statistical and Programme Implementation (MOSPI)
- E. National Statistical Commission (NSC)

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114590**

Option 1 ID : **55125156837**

Option 2 ID : **55125156838**

Option 3 ID : **55125156839**

Option 4 ID : **55125156840**

Status : **Answered**

Chosen Option : **2**

Q.83 For the model $y_t = \alpha + \beta x_t + u_t$ with $u_t = \rho u_{t-1} + \epsilon_t$, $t = 1, 2, \dots, n$ and $\epsilon_t \sim N(0, \sigma^2)$. If ϵ_t , $t = 1, 2, \dots, n$ are the residuals with $\sum_{t=1}^n e_t^2 \simeq 5.28$ and $\sum_{t=1}^n e_t e_{t-1} \simeq 1.32$ for sufficiently large n , then the estimated value of ρ and the value of Durbin - Watson statistic are, respectively:

- 1. 0.75, 1.50
- 2. 0.25, 1.50
- 3. 0.25, 0.75
- 4. 0.25, 0.50

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114563**

Option 1 ID : **55125156729**

Option 2 ID : **55125156730**

Option 3 ID : **55125156731**

Option 4 ID : **55125156732**

Status : **Answered**

Chosen Option : **3**

Q.84 Given the p.d.f

$$f(x, \theta) = \begin{cases} \frac{1}{\theta}, & 0 \leq x \leq \theta \\ 0, & \text{otherwise} \end{cases}$$

For testing $H_0: \theta = 1$ against $H_1: \theta = 2$, based on single observed value of x , let the critical region be $w = \{x: x \geq 0.5\}$. Then the power of the test is:

1. 0.25
2. 0.75
3. 0.5
4. 0.05

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114548**

Option 1 ID : **55125156669**

Option 2 ID : **55125156670**

Option 3 ID : **55125156671**

Option 4 ID : **55125156672**

Status : **Answered**

Chosen Option : **1**

Q.85 For estimating the spectral density function of a time series, one can use

1. Partial Auto correlation function
2. Auto correlation function
3. Yule - Walker equations
4. Periodogram

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114566**

Option 1 ID : **55125156741**

Option 2 ID : **55125156742**

Option 3 ID : **55125156743**

Option 4 ID : **55125156744**

Status : **Answered**

Chosen Option : **3**

Q.86 Let $\underline{X} \sim N_3(\underline{Q}, \Sigma)$ where,

$$\Sigma = \begin{bmatrix} 1 & \frac{1}{2} & \frac{1}{2} \\ \frac{1}{2} & 1 & \frac{1}{2} \\ \frac{1}{2} & \frac{1}{2} & 1 \end{bmatrix}, \text{ then}$$

A. $R_{3,12} = R_{2,13}$

B. $r_{13,2} = \frac{1}{3}$

C. $R_{1,23} = \frac{2}{3}$

D. $r_{23,1} = r_{13,2}$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114580

Option 1 ID : 55125156797

Option 2 ID : 55125156798

Option 3 ID : 55125156799

Option 4 ID : 55125156800

Status : Answered

Chosen Option : 2

Q.87 Let $y_1 = \beta_1 + \beta_2 + u_1$, $y_2 = 2\beta_1 + u_2$, $y_3 = \beta_1 - \beta_2 + u_3$ with $V(u_i) = \sigma^2$; $i = 1, 2, 3$. Then the best linear unbiased estimators of β_1 and β_2 are respectively:

1. $\frac{y_1 + 2y_2 + y_3}{2}$, $\frac{y_1 - y_3}{6}$
2. $\frac{1}{6}(y_1 + 2y_2 + y_3)$, $\frac{1}{2}(y_1 - y_3)$
3. $\frac{y_1 + 2y_2 + y_3}{2}$, $\frac{y_1 + y_3}{6}$
4. $6(y_1 + y_2 + y_3)$, $2(y_1 - y_3)$

Options

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

Question Type : **MCQ**

Question ID : **55125114564**

Option 1 ID : **55125156733**

Option 2 ID : **55125156734**

Option 3 ID : **55125156735**

Option 4 ID : **55125156736**

Status : **Answered**

Chosen Option : **2**

Q.88 For testing of a hypothesis, the different steps are given below (A to E). Arrange the steps in proper sequence.

- A. Checking the assumptions of the test.
- B. Calculation of test statistic.
- C. Formation of hypothesis.
- D. Comparing with the tabulated values.
- E. Drawing the inference.

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

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

Options

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

Question Type : **MCQ**

Question ID : **55125114551**

Option 1 ID : **55125156681**

Option 2 ID : **55125156682**

Option 3 ID : **55125156683**

Option 4 ID : **55125156684**

Status : **Answered**

Chosen Option : **1**

Q.89 Consider two modules

$$(I) y_i = \alpha + \beta x_i + u_i; i = 1, 2, \dots, n$$

$$\text{and (II) } y_i = \alpha + \beta x_i + \gamma x_i^2 + v_i; i = 1, 2, \dots, n$$

$$\text{Define } A = \sum (y_i - a - b x_i)^2$$

$$B = \sum (y_i - \hat{\alpha} - \hat{\beta} x_i - \hat{\gamma} x_i^2)^2$$

where a and b are the least squares estimates of α and β from model (I) and $\hat{\alpha}$, $\hat{\beta}$ and $\hat{\gamma}$ are the least square estimates of α , β and γ from model II. Then which of the following is always correct?

1. $A \geq B$
2. $A \leq B$
3. It can happen that $A = 0$ but $B \leq 0$
4. It can happen that $B = 0$ but $A \geq 0$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114565**

Option 1 ID : **55125156737**

Option 2 ID : **55125156738**

Option 3 ID : **55125156739**

Option 4 ID : **55125156740**

Status : **Answered**

Chosen Option : **4**

Q.90 Match the LIST-I with LIST-II

LIST-I	LIST-II
A. Simple Random Sampling	I. To give due weightage to larger units
B. Stratified Random Sampling	II. Sampling frame is not available
C. Cluster Sampling	III. Homogeneous population
D. Sampling with varying probabilities	IV. Heterogeneous population

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114535**

Option 1 ID : **55125156617**

Option 2 ID : **55125156618**

Option 3 ID : **55125156619**

Option 4 ID : **55125156620**

Status : **Answered**

Chosen Option : **4**

Q.91 If a stratified random sample of size 50 is to be selected by Neyman allocation from a population with $N_1 = 150$, $N_2 = 350$, $S_1^2 = S_2^2 = 4$, then the number of units to be selected from the second stratum is:

1. 25
2. 30
3. 35
4. 40

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114530**

Option 1 ID : **55125156597**

Option 2 ID : **55125156598**

Option 3 ID : **55125156599**

Option 4 ID : **55125156600**

Status : **Answered**

Chosen Option : **1**

Q.92 Let $X_1, X_2, \dots, X_n$ be iid exponential rv's with mean θ . Let $T_S = \sum_{i=1}^n X_i$. Consider the statistic, based on single observation, given by

$$T(X_1) = \begin{cases} 1, & \text{if } X_1 > X_0 \\ 0, & \text{otherwise} \end{cases}$$

then $E[T(X_1) | T_S]$ is UMVUE of

1. θ
2. $\frac{1}{\theta}$
3. $e^{-x_0/\theta}$
4. $1 - e^{-x_0/\theta}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114538**

Option 1 ID : **55125156629**

Option 2 ID : **55125156630**

Option 3 ID : **55125156631**

Option 4 ID : **55125156632**

Status : **Answered**

Chosen Option : **3**

Q.93 For the random walk model
 $y_t = \mu + y_{t-1} + \epsilon_t$; $t = 1, 2, \dots$,
 where $\{\epsilon_t\}$ is a purely random process with $E(\epsilon_t) = 0$, $E(\epsilon_t^2) = \sigma^2_\epsilon$, the mean and variance of y_t are respectively

1. μ, σ^2_ϵ
2. $t\mu, \sigma^2_\epsilon$
3. $\mu, t\sigma^2_\epsilon$
4. $t\mu, t\sigma^2_\epsilon$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114567**

Option 1 ID : **55125156745**

Option 2 ID : **55125156746**

Option 3 ID : **55125156747**

Option 4 ID : **55125156748**

Status : **Answered**

Chosen Option : **3**

Q.94 For testing the hypothesis is $H_0: \begin{pmatrix} 3.5 \\ 2.5 \end{pmatrix}$ based on the three observation vectors

$$X_1 = \begin{pmatrix} 1 \\ 2 \end{pmatrix} \quad X_2 = \begin{pmatrix} 4 \\ 4 \end{pmatrix} \quad X_3 = \begin{pmatrix} 4 \\ 3 \end{pmatrix}$$

from $N_2(\mu, \Sigma)$, the value of Hotelling T^2 statistic is approximately

1. 2.33
2. 3.5
3. 7.0
4. 7.5

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114575**

Option 1 ID : **55125156777**

Option 2 ID : **55125156778**

Option 3 ID : **55125156779**

Option 4 ID : **55125156780**

Status : **Answered**

Chosen Option : **2**

Q.95 Let $X_1, X_2, \dots, X_n$ be a random sample from Poisson (λ). Let $\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i$ and $S^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$.

Consider the following statements:

- A. $\bar{X}$ is unbiased for λ
- B. S^2 is unbiased for λ
- C. $\bar{X} + S^2$ is unbiased for λ
- D. $0.3 \bar{X} + 0.7 S^2$ is unbiased for λ

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114545**

Option 1 ID : **55125156657**

Option 2 ID : **55125156658**

Option 3 ID : **55125156659**

Option 4 ID : **55125156660**

Status : **Answered**

Chosen Option : **1**

Q.96 Let X and Y be jointly distributed random variables with joint pdf

$$f(x, y) = \begin{cases} \frac{1}{4}(1+cy) & ; |x| < 1, |y| < 1 \\ 0 & ; \text{otherwise} \end{cases}$$

Then

- A. x and y are independent
- B. $f(x) = \frac{1}{2} ; -1 < x < 1$
- C. X^2 and Y^2 are independent
- D. $E(X^2 Y^2) = \frac{1}{9}$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114512

Option 1 ID : 55125156525

Option 2 ID : 55125156526

Option 3 ID : 55125156527

Option 4 ID : 55125156528

Status : Answered

Chosen Option : 1

Q.97 A gambler is playing in a Casino with an initial capital of Rs. 100. If gambler wins, he receives Rs. 1 and if he loses, he pays Rs. 1. The probability that the gambler wins is $\frac{3}{4}$. The probability of ultimate ruin of the gambler is

1. $1 - (3/4)^{100}$
2. $(1/4)^{100}$
3. 1
4. $(1/3)^{100}$

Options

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

Question Type : **MCQ**

Question ID : **55125114584**

Option 1 ID : **55125156813**

Option 2 ID : **55125156814**

Option 3 ID : **55125156815**

Option 4 ID : **55125156816**

Status : **Answered**

Chosen Option : **4**

Q.98

Let $X \sim N_3(0, \Sigma)$ where $\Sigma = \begin{bmatrix} 4 & 1 & 1 \\ 1 & 2 & \alpha \\ 1 & \alpha & 2 \end{bmatrix}$

The value of α for which $r_{23.1} = \frac{5}{7}$ should be

1. 1

2. $\frac{3}{2}$

3. $\frac{2}{3}$

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114571

Option 1 ID : 55125156761

Option 2 ID : 55125156762

Option 3 ID : 55125156763

Option 4 ID : 55125156764

Status : Answered

Chosen Option : 3

Q.99 Let $\{F_\theta; \theta \in \Theta\}$ be a family of distribution functions. Let h be an unbiased estimator of θ with $E_\theta h^2 < \infty$, and T is sufficient statistic for F_θ . Which of the following are **TRUE** statements.

- A. $E(h|T)$ is unbiased for θ .
- B. $\text{Var}\{E(h|T)\} \leq \text{Var}(h)$
- C. $E(h|T)$ is unique UMVUE of θ
- D. $E(h|T)$ is independent of θ

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114543**

Option 1 ID : **55125156649**

Option 2 ID : **55125156650**

Option 3 ID : **55125156651**

Option 4 ID : **55125156652**

Status : **Answered**

Chosen Option : **2**

Q.100 Let $X_1, X_2, \dots, X_n$ be a random sample from exponential distribution with p.d.f.

$$f(x, \theta) = \theta e^{-\theta x}, x > 0, \theta > 0$$

For testing $H_0 : \theta = \theta_0$ against $H_1 : \theta \neq \theta_0$, the UMP critical region of size α , if $\chi^2_{\alpha, n}$ denote upper ' α ' points of χ^2 distribution, is given by

- 1. $\sum_{i=1}^n X_i \leq \frac{1}{2\theta_0} \chi^2_{1-\alpha, 2n}$
- 2. $\sum_{i=1}^n X_i \geq \frac{1}{2\theta_0} \chi^2_{\alpha, 2n}$
- 3. $\frac{1}{2\theta_0} \chi^2_{\alpha, 2n} \leq \sum_{i=1}^n X_i \leq \frac{1}{2\theta_0} \chi^2_{1-\alpha, 2n}$
- 4. No UMP test exists

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114549**

Option 1 ID : **55125156673**

Option 2 ID : **55125156674**

Option 3 ID : **55125156675**

Option 4 ID : **55125156676**

Status : **Answered**

Chosen Option : **3**

Q.101 Let r be the sample correlation coefficient based on n pairs of observations then

- A. The distribution of r is skewed for values of r closer to 1.
- B. The distribution of r is non-degenerate for $-1 \leq r \leq 1$
- C. r has a U-shaped Arcsine distribution when $n = 3$
- D. r follows $U(-1, 1)$ distribution when $n = 4$

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114579

Option 1 ID : 55125156793

Option 2 ID : 55125156794

Option 3 ID : 55125156795

Option 4 ID : 55125156796

Status : Answered

Chosen Option : 1

Q.102 Let $X_1, X_2, \dots, X_n$ be n iid random variables with mean 1 and variance 4. Then which of the following statement is **incorrect**?

- 1. $\frac{1}{n} \sum_{i=1}^n X_i \xrightarrow{p} 1$
- 2. $\frac{1}{n} \sum_{i=1}^n X_i^2 \xrightarrow{p} 4$
- 3. $\frac{\sqrt{n}}{2}(\bar{X}_n - 1) \xrightarrow{d} N(0,1); \bar{X}_n = \frac{1}{n} \sum_{i=1}^n X_i$
- 4. $E\left(\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X}_n)^2\right)$

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114510

Option 1 ID : 55125156517

Option 2 ID : 55125156518

Option 3 ID : 55125156519

Option 4 ID : 55125156520

Status : Answered

Chosen Option : 1

Q.103 Study the following statements regarding the Horvitz-Thompson estimator:

- A. Horvitz - Thompson estimate is an ordered estimate
- B. The unbiased estimate of the variance of the Horvitz - Thompson estimator ($\bar{Z}_n$) does not reduce to zero when all the Z_i 's are equal.
- C. The unbiased estimate of the variance of the Horvitz - Thompson estimator ($\bar{Z}_n$) may assume negative values for some samples.
- D. Horvitz - Thompson estimator ($\bar{Z}_n$) is a biased estimator.

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114532**

Option 1 ID : **55125156605**

Option 2 ID : **55125156606**

Option 3 ID : **55125156607**

Option 4 ID : **55125156608**

Status : **Answered**

Chosen Option : **4**

Q.104 Arrange the following statements of a R programme in correct order to make a valid program.

- A. `> y = A * x`
- B. `> diag (y)`
- C. `> x <- C (1, 2, 3)`
- D. `[1] 1 20 27`
- E. `> A <- matrix (C (1:9), 3, 3)`

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

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

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114592**

Option 1 ID : **55125156845**

Option 2 ID : **55125156846**

Option 3 ID : **55125156847**

Option 4 ID : **55125156848**

Status : **Answered**

Chosen Option : **4**

Q.105 Let u and v be two $n \times 1$ vectors with $u'v \neq 0$.

$$\text{Let } P = I_n - \frac{1}{u'v} u v'$$

$$Q = u v'$$

Then PQ is equal to

1. 0
2. $u v'$
3. $1 - u'v$
4. Product of P and Q is not possible

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114522

Option 1 ID : 55125156565

Option 2 ID : 55125156566

Option 3 ID : 55125156567

Option 4 ID : 55125156568

Status : Answered

Chosen Option : 1

Q.106 For the AR (1) process

$y_t = 0.6 y_{t-1} + \epsilon_t$, with $E(\epsilon_t) = 0$, $E(\epsilon_t^2) = 4$, the variance of y_t is

1. $\frac{20}{3}$
2. 10
3. 6.25
4. $\frac{100}{9}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114568

Option 1 ID : 55125156749

Option 2 ID : 55125156750

Option 3 ID : 55125156751

Option 4 ID : 55125156752

Status : Answered

Chosen Option : 3

Q.107 For teaching a foreign language to executives, two groups of 15 executives were randomly selected and one group studied the language using the Educational Service (ES) method and the other group studied the language using the Learning Curve (LC) method. The final scores for the two groups, Educational Service (ES) and Learning Curve (LC), as follows:

ES: 65, 57, 74, 43, 39, 88, 62, 69, 70, 72, 59, 60, 80, 83, 50

LC: 85, 87, 92, 98, 90, 88, 75, 72, 60, 93, 88, 89, 96, 73, 62

To compare the effectiveness of the two methods ES and LC, Mann-Whitney U-test was applied. The value of Mann-Whitney U-statistic for this problem will be:

1. 32.5
2. 192.5
3. 112.5
4. 312.5

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114547

Option 1 ID : 55125156665

Option 2 ID : 55125156666

Option 3 ID : 55125156667

Option 4 ID : 55125156668

Status : Answered

Chosen Option : 2

Q.108 Arrange the following statements of a R program in connect order to make a valid program.

- A. `> y = x`
- B. `> x <- C (1, -1, 3.5, 2)`
- C. `[1] 1.00 1.00 12.25 4.00`
- D. `> y^2`

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

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

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **55125114591**

Option 1 ID : **55125156841**

Option 2 ID : **55125156842**

Option 3 ID : **55125156843**

Option 4 ID : **55125156844**

Status : **Answered**

Chosen Option : **4**

Q.109 Let $x_1, x_2, \dots, x_n$ be a random sample of size n from

$$f(x, \theta) = \begin{cases} \theta e^{-\theta x}; & \theta > 0, x > 0 \\ 0, & \text{otherwise} \end{cases}$$

Then,

- A. $\frac{n}{\sum_{i=1}^n x_i}$ is the maximum likelihood estimate of θ
- B. $\frac{n-1}{\sum_{i=1}^n x_i}$ is the UMVUE of θ
- C. $\sum_{i=1}^n x_i$ is the sufficient statistic of θ
- D. $\sum_{i=1}^n x_i$ follows Gamma distribution with parameter $(1, \theta)$.

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114544

Option 1 ID : 55125156653

Option 2 ID : 55125156654

Option 3 ID : 55125156655

Option 4 ID : 55125156656

Status : Answered

Chosen Option : 2

Q.110 If $X_1, X_2, \dots, X_n$ are iid $N(\mu, \sigma^2)$, then the quality $\frac{\bar{X} - \mu}{\sigma/\sqrt{n}}$ can be considered a pivot to obtain a confidence interval for

1. μ when σ^2 is known
2. μ when σ^2 is unknown
3. σ^2 when μ is known
4. both μ and σ^2

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114536**

Option 1 ID : **55125156621**

Option 2 ID : **55125156622**

Option 3 ID : **55125156623**

Option 4 ID : **55125156624**

Status : **Answered**

Chosen Option : 1

Q.111 The National Statistical Commission (NSC) was established on the basis of the recommendations of which of the following commission / committee?

1. Kelkar committee
2. Mahalanobis committee
3. Rangarajan commission
4. Kothari commission

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114586**

Option 1 ID : **55125156821**

Option 2 ID : **55125156822**

Option 3 ID : **55125156823**

Option 4 ID : **55125156824**

Status : **Answered**

Chosen Option : 2

Q.112 Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Chi - square test	I.	One-way ANOVA
B.	Wilcoxon signed rank test	II.	Homogeneity in contingency table
C.	Mann - Whitney U-Test	III.	To compare the means of two independent populations
D.	Kruskal - Wallis test	IV.	To compare the means of two related populations

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114554

Option 1 ID : 55125156693

Option 2 ID : 55125156694

Option 3 ID : 55125156695

Option 4 ID : 55125156696

Status : Answered

Chosen Option : 2

Q.113 Consider the multiple linear regression model

$$\underset{(50 \times 1)}{y} = \underset{(50 \times 5)}{x} \underset{(5 \times 1)}{\beta} + \underset{(50 \times 1)}{u}$$

If coefficient of determination $R^2 = 0.55$, then adjusted R^2 is

1. 0.49
2. 0.51
3. 0.45
4. 0.53

Options

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

Question Type : MCQ

Question ID : 55125114558

Option 1 ID : 55125156709

Option 2 ID : 55125156710

Option 3 ID : 55125156711

Option 4 ID : 55125156712

Status : Answered

Chosen Option : 1

Q.114 For the multiple linear regression model

$$\underset{(n \times 1)}{y} = \underset{(n \times k)}{X} \underset{(k \times 1)}{\beta} + \underset{(n \times 1)}{\epsilon}$$

the coefficient of determination is R^2 . The F-test statistic for testing the significance of complete regression (except the intercept) is

1. $\frac{k-1}{n-k} R^2$
2. $\frac{R^2 / (k-1)}{(1-R^2) / (n-k)}$
3. $\frac{R^2 / (n-k)}{(1-R^2) / (k-1)}$
4. $\frac{n-k}{k-1} \frac{1-R^2}{R^2}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114560

Option 1 ID : 55125156717

Option 2 ID : 55125156718

Option 3 ID : 55125156719

Option 4 ID : 55125156720

Status : Answered

Chosen Option : 4

Q.115 Which of the following designs use all the three principles of design of experiments?

- A. Completely Randomized Design (CRD)
- B. Randomized Block Design (RBD)
- C. Latin Square Design (LSD)
- D. Balanced Incomplete Block Design (BIBD)

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

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

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114534

Option 1 ID : 55125156613

Option 2 ID : 55125156614

Option 3 ID : 55125156615

Option 4 ID : 55125156616

Status : Answered

Chosen Option : 4

Q.116 Let $f(x_1, \dots, x_n, \theta)$ be the likelihood function of a sample of size n . For testing $H_0 : \theta \in \Theta_0$ against $H_1 : \theta \in \Theta_1$ where $\Theta = \Theta_0 \cup \Theta_1$ is the parameter space, the likelihood ratio test statistic λ , is used. Then

A. $\lambda = \frac{\sup_{\theta \in \Theta_0} f(x_1, \dots, x_n, \theta)}{\sup_{\theta \in \Theta} f(x_1, \dots, x_n, \theta)}$

B. $0 < \lambda < \infty$

C. $-2 \log \lambda \sim N(0, 1)$ asymptotically

D. The likelihood ratio-test is a function of sufficient statistic for θ

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114553**

Option 1 ID : **55125156689**

Option 2 ID : **55125156690**

Option 3 ID : **55125156691**

Option 4 ID : **55125156692**

Status : **Answered**

Chosen Option : **4**

Q.117 Match the LIST-I with LIST-II

LIST-I (Properties)		LIST-II (Distribution)	
A.	Probability of number of successes in a finite number of trials	I.	Negative Binomial
B.	Probability of first success	II.	Poisson
C.	Probability of number of failures preceding r^{th} success.	III.	Binomial
D.	Probability of success is infinitesimally small and number of trails is very large	IV.	Geometric

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114515

Option 1 ID : 55125156537

Option 2 ID : 55125156538

Option 3 ID : 55125156539

Option 4 ID : 55125156540

Status : Answered

Chosen Option : 1

Q.118 The rank of the matrix

$$\begin{bmatrix} 2 & 6 & 4 & 2 \\ 3 & 7 & 4 & 2 \\ 4 & 8 & 4 & 2 \\ 5 & 9 & 4 & 2 \end{bmatrix}$$

is

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

Options

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

Question Type : MCQ

Question ID : 55125114518

Option 1 ID : 55125156549

Option 2 ID : 55125156550

Option 3 ID : 55125156551

Option 4 ID : 55125156552

Status : Answered

Chosen Option : 3

Q.119 Consider the function and the statements followed:

$$f(x) = x^3 - 6x^2 + 9x - 8$$

- A. $x = 1$ is a point of local minimum.
- B. $x = 1$ is a point of local maximum.
- C. $x = 3$ is a point of local minimum.
- D. $x = 3$ is a point of local maximum.

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

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

Options 1. 1
2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114525

Option 1 ID : 55125156577

Option 2 ID : 55125156578

Option 3 ID : 55125156579

Option 4 ID : 55125156580

Status : Answered

Chosen Option : 2

Q.120 In multiple regression model $y = x\beta + u$, suppose $E(X'u) = \delta$, and b is the OLS estimator of β . Then $E(b - \beta)$ is

- 1. 0
- 2. δ
- 3. $(X'X)\delta$
- 4. $(X'X)^{-1}\delta$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114556

Option 1 ID : 55125156701

Option 2 ID : 55125156702

Option 3 ID : 55125156703

Option 4 ID : 55125156704

Status : Answered

Chosen Option : 1

Q.121

Let $f(x) = \frac{1}{2}e^{-|x|}$; $-\infty < x < \infty$ then,

E (|X|) and Var (|X|) are given by respectively

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

Options

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

Question Type : MCQ

Question ID : 55125114507

Option 1 ID : 55125156505

Option 2 ID : 55125156506

Option 3 ID : 55125156507

Option 4 ID : 55125156508

Status : Answered

Chosen Option : 4

Q.122

If N is incidence matrix of BIBD (v, r, b, k, λ), then the value of |NN'| is:

1. $\text{rk}(\lambda - r)^{v-1}$
2. $\text{rk}(r - \lambda)^{v-1}$
3. $\text{rk}(r - \lambda)^{v+1}$
4. $\text{rk}(\lambda - r)^{v+1}$

Options

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

Question Type : MCQ

Question ID : 55125114528

Option 1 ID : 55125156589

Option 2 ID : 55125156590

Option 3 ID : 55125156591

Option 4 ID : 55125156592

Status : Answered

Chosen Option : 1

Q.123 Let A and B be two square matrices of order $n \times n$ and $v(\cdot)$ denotes the nullity of matrix inside the brackets. Then

1. $\min \{v(A), v(B)\} \leq v(A+B) \leq \max \{v(A), v(B)\}$
2. $\max \{v(A), v(B)\} \leq v(A) + v(B) \leq v(AB)$
3. $\max \{v(A), v(B)\} \leq v(AB) \leq v(A) + v(B) - n$
4. $\max \{v(A), v(B)\} \leq v(AB) \leq v(A) + v(B)$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114521

Option 1 ID : 55125156561

Option 2 ID : 55125156562

Option 3 ID : 55125156563

Option 4 ID : 55125156564

Status : Answered

Chosen Option : 3

Q.124 In a plasma etching experiment for testing four levels of radio frequency (RF) power, the one way ANOVA table is obtained as follow:

Source of variation	Sum of sequences	Degrees of freedom
RF Power	66870.00	3
Error	5344.00	16
Total	72214.00	19

The calculated value of F-ratio will be:

1. 0.0150
2. 12.5248
3. 66.7365
4. 0.0798

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114526

Option 1 ID : 55125156581

Option 2 ID : 55125156582

Option 3 ID : 55125156583

Option 4 ID : 55125156584

Status : Answered

Chosen Option : 2

Q.125 Let X and Y be independent random variables each following exponential distribution with parameter λ . Then, the conditional distribution of X given $X + Y = 2$ should be

1. Exponential (2)
2. $\beta_1\left(\frac{\lambda}{2}, \frac{\lambda}{2}\right)$
3. Uniform (0, 2)
4. Gamma (2, λ)

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114509

Option 1 ID : 55125156513

Option 2 ID : 55125156514

Option 3 ID : 55125156515

Option 4 ID : 55125156516

Status : Answered

Chosen Option : 4

Q.126 Consider the process

$y_t = 0.6 y_{t-1} + 0.4 y_{t-2} + \epsilon_t$; $E(\epsilon_t) = 0$, $E(\epsilon_t^2) = \sigma^2_{\epsilon}$. Then the ACF of $\{\Delta y_t\}$, say r_k , is

1. $r_k = (0.6)^k$
2. $r_k = (0.4)^k$
3. $r_k = (-0.4)^k$
4. $r_k = (-0.6)^k$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114570

Option 1 ID : 55125156757

Option 2 ID : 55125156758

Option 3 ID : 55125156759

Option 4 ID : 55125156760

Status : Answered

Chosen Option : 2

Q.127 The arrival of customers in a bank follows a Poisson process with rate 2 customers per minute. The probability that the time interval between two successive arrivals is more than 6 minutes, given that it is more than 4 minutes is

1. e^{-1}
2. e^{-4}
3. e^{-6}
4. $1 - e^{-1}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114581**

Option 1 ID : **55125156801**

Option 2 ID : **55125156802**

Option 3 ID : **55125156803**

Option 4 ID : **55125156804**

Status : **Answered**

Chosen Option : 1

Q.128 Consider the following statements for the function $f(x) = x(x-3)^2$, $0 \leq x \leq 3$.

- A. $f(x)$ is continuous on $[0, 3]$
- B. $f(x)$ is differentiable on $(0, 3)$
- C. $\exists$ a number $C \in (0, 3)$ such that $f'(C) = 0$
- D. Rolle's theorem is satisfied

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114516**

Option 1 ID : **55125156541**

Option 2 ID : **55125156542**

Option 3 ID : **55125156543**

Option 4 ID : **55125156544**

Status : **Answered**

Chosen Option : 4

Q.129 Let λ be an eigen value of A and v is corresponding eigen vector. Then

1. λ is an eigen value of A^{-1} and corresponding eigen vector is x
2. λ^{-1} is an eigen value of A^{-1} and corresponding eigen vector is x
3. λ is an eigen value of A^{-1} but x is not corresponding eigen vector
4. λ^{-1} is an eigen value of A but x is not corresponding eigen vector

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114519

Option 1 ID : 55125156553

Option 2 ID : 55125156554

Option 3 ID : 55125156555

Option 4 ID : 55125156556

Status : Answered

Chosen Option : 2

Q.130 The price of crude oil and gasoline over a 10-year period are given below:

Year	Crude oil price (₹/l)	Gasoline price (₹/l)
1	77.91	65.46
2	82.00	64.18
3	89.20	65.66
4	73.37	59.23
5	66.42	65.68
6	80.10	69.55
7	69.78	67.81
8	72.09	67.39
9	92.14	82.06
10	96.31	84.40

The value of Spearman's rank correlation coefficient between the prices of crude oil and gasoline over the 10-year period was:

1. 0.254
2. 0.345
3. 0.456
4. 0.565

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114540**

Option 1 ID : **55125156637**

Option 2 ID : **55125156638**

Option 3 ID : **55125156639**

Option 4 ID : **55125156640**

Status : **Answered**

Chosen Option : **3**

Q.131 For estimating the AR (2) process

$$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t$$

The Yule - Walker equations are used. If sample auto correlations are $r_1 = 0.8$, $r_2 = 0.5$, then estimate of Φ_2 is

1. $-\frac{7}{18}$
2. $\frac{16}{18}$
3. $\frac{7}{18}$
4. $-\frac{16}{18}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114569

Option 1 ID : 55125156753

Option 2 ID : 55125156754

Option 3 ID : 55125156755

Option 4 ID : 55125156756

Status : Answered

Chosen Option : 2

Q.132 Using Lahiri's method to draw a sample of size N with probabilities proportional to X_i and with replacement, the probability of selecting i^{th} unit ($i = 1, 2, \dots, N$) at any given draw is:

1. $\frac{1}{N \bar{X}}$
2. $\frac{2}{N \bar{X}}$
3. $\frac{X_i}{N \bar{X}}$
4. $\frac{X_i^2}{N \bar{X}}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114531

Option 1 ID : 55125156601

Option 2 ID : 55125156602

Option 3 ID : 55125156603

Option 4 ID : 55125156604

Status : Answered

Chosen Option : 2

Q.133 Given some statements on R program:

```
f = function (n) {
```

```
  x = 1
```

```
  for (i in 1:n) {
```

```
    x = x * i
```

```
  }
```

```
  x
```

```
}
```

```
f(5)
```

which of the following is the output:

1. 1

2. 5

3. 20

4. 120

Options

1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114588

Option 1 ID : 55125156829

Option 2 ID : 55125156830

Option 3 ID : 55125156831

Option 4 ID : 55125156832

Status : Answered

Chosen Option : 2

Q.134 Let $X_{(1)} \leq X_{(2)} \leq \dots \leq X_{(r)}$ be the first r observed order statistics of a random sample of size n from the exponential distribution with mean θ . Consider the statistics $T_1 = \frac{1}{r} \sum_{i=1}^r X_{(i)}$ and $T_2 = \frac{X_{(r)}}{r}$. Which one of the following is an unbiased estimate of θ ?

1. T_1
2. $T_1 + (r-1)T_2$
3. $T_1 + (n-1)T_2$
4. $T_1 + (n-r)T_2$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114537

Option 1 ID : 55125156625

Option 2 ID : 55125156626

Option 3 ID : 55125156627

Option 4 ID : 55125156628

Status : Answered

Chosen Option : 2

Q.135 Let X be a non negative random variable with distribution function $F(x)$. Then read the following statements:

A. $\int_0^{\infty} 2x [1 - F(x)] dx = E(X^2)$

B. $\int_0^{\infty} [1 - F(x)] dx = E(X)$

C. $E\left(\frac{1}{X}\right) \leq \frac{1}{E(X)}$

D. $E(\log X) \leq \log E(X)$

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

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

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114513

Option 1 ID : 55125156529

Option 2 ID : 55125156530

Option 3 ID : 55125156531

Option 4 ID : 55125156532

Status : Answered

Chosen Option : 2

Q.136 Let $\underline{X} \sim N_3(\mu, \Sigma)$ where $\mu' = [1 \ 0 \ -1]$ and

$$\Sigma = \begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$$

then which of the following rv's are independent:

- A. X_1 and X_2
- B. (X_1, X_2) and X_3
- C. X_2 and $(X_2 + 2X_1)$
- D. $\left(\frac{X_2 + X_3}{2}\right)$ and $\left(\frac{X_1 + X_2}{2}\right)$

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

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

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114577

Option 1 ID : 55125156785

Option 2 ID : 55125156786

Option 3 ID : 55125156787

Option 4 ID : 55125156788

Status : Answered

Chosen Option : 1

Q.137 Consider the following two equations model

$$y_1 = r_1 y_2 + \beta_{11} x_1 + \beta_{12} x_2 + \epsilon_1 \quad (i)$$

$$y_2 = r_2 y_1 + \beta_{22} x_2 + \epsilon_2 \quad (ii)$$

Where y's are endogenous and x's are exogenous variables. Then

1. Both (i) and (ii) are identified
2. (i) is identified but (ii) is not
3. (ii) is identified but (i) is not
4. Both (i) and (ii) are unidentified

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114562

Option 1 ID : 55125156725

Option 2 ID : 55125156726

Option 3 ID : 55125156727

Option 4 ID : 55125156728

Status : Answered

Chosen Option : 4

Q.138

Let X has $E(X) = 0$ and $V(X) = \Sigma = \begin{pmatrix} 1 & 0 & 0.5 & 0 \\ 0 & 1 & 0.3 & 0.4 \\ 0.5 & 0.3 & 1 & 0 \\ 0 & 0.4 & 0 & 1 \end{pmatrix}$

Write $X = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} x^{(1)} \\ x^{(2)} \end{bmatrix}$ where each $x^{(1)}$ and $x^{(2)}$ are 2×1 vectors, then the maximum canonical correlation between $x^{(1)}$ and $x^{(2)}$ should be

1. 0.72
2. 0.63
3. 0.50
4. 0.40

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114574

Option 1 ID : 55125156773

Option 2 ID : 55125156774

Option 3 ID : 55125156775

Option 4 ID : 55125156776

Status : Answered

Chosen Option : 1

Q.139 Let $N_1(t)$ and $N_2(t)$ be two independent Poisson process with parameters λ and 2λ respectively. Then $P(N_1(t) = 1 | N_1(t) + N_2(t) = 4)$ is

1. $\lambda e^{-\lambda}$
2. $\frac{2^5}{3^4}$
3. $3\lambda e^{-3\lambda}$
4. $\frac{4}{3^4}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114585

Option 1 ID : 55125156817

Option 2 ID : 55125156818

Option 3 ID : 55125156819

Option 4 ID : 55125156820

Status : Answered

Chosen Option : 1

Q.140 In a sequential probability ratio test (SPRT) :

- A. We prefix type I error and minimize type II error
- B. We prefix both types of error
- C. Sample size becomes a random variable
- D. SPRT terminates surely

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

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

Options 1, 1

- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ

Question ID : 55125114552

Option 1 ID : 55125156685

Option 2 ID : 55125156686

Option 3 ID : 55125156687

Option 4 ID : 55125156688

Status : Answered

Chosen Option : 3

Comprehension:

Answer the questions, using the following passage:

Let us consider a three - state Markov Chain with the transition probability matrix

$$P = \begin{bmatrix} q & p & 0 \\ q & 0 & p \\ 0 & q & p \end{bmatrix}$$

where $0 < p < 1$, $q + p = 1$

SubQuestion No : 141

Q.141 The first passage probability $f_{12}^{(5)}$ is equal to

1. $q^4 p$
2. $p^4 q$
3. $q^3 p^2$
4. $q(p^2 + q^2)$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114599

Option 1 ID : 55125156869

Option 2 ID : 55125156870

Option 3 ID : 55125156871

Option 4 ID : 55125156872

Status : Answered

Chosen Option : 3

Comprehension:

Answer the questions, using the following passage:

Let us consider a three - state Markov Chain with the transition probability matrix

$$P = \begin{bmatrix} q & p & 0 \\ q & 0 & p \\ 0 & q & p \end{bmatrix}$$

where $0 < p < 1$, $q + p = 1$

SubQuestion No : 142

Q.142 The expected number of steps required for a transition from state 1 to state 2 (μ_{12}) is

1. ∞
2. q^{-1}
3. p
4. p^{-1}

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 55125114601

Option 1 ID : 55125156877

Option 2 ID : 55125156878

Option 3 ID : 55125156879

Option 4 ID : 55125156880

Status : Answered

Chosen Option : 3

Comprehension:

Answer the questions, using the following passage:

Let us consider a three - state Markov Chain with the transition probability matrix

$$P = \begin{bmatrix} q & p & 0 \\ q & 0 & p \\ 0 & q & p \end{bmatrix}$$

where $0 < p < 1$, $q + p = 1$

SubQuestion No : 143

Q.143 The first return probability to state 1 in three steps $f_{11}^{(3)}$ is

1. $p^2 q$
2. $p q^2$
3. 0
4. pq

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114600

Option 1 ID : 55125156873

Option 2 ID : 55125156874

Option 3 ID : 55125156875

Option 4 ID : 55125156876

Status : Answered

Chosen Option : 2

Comprehension:

Answer the questions, using the following passage:

Let us consider a three - state Markov Chain with the transition probability matrix

$$P = \begin{bmatrix} q & p & 0 \\ q & 0 & p \\ 0 & q & p \end{bmatrix}$$

where $0 < p < 1$, $q + p = 1$

SubQuestion No : 144

Q.144 The three step transition probability $p_{12}^{(3)}$ is

1. p^3
2. $pq(1+p)$
3. $pq(1+q)$
4. pq^2

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114597

Option 1 ID : 55125156861

Option 2 ID : 55125156862

Option 3 ID : 55125156863

Option 4 ID : 55125156864

Status : Answered

Chosen Option : 1

Comprehension:

Answer the questions, using the following passage:

Let us consider a three - state Markov Chain with the transition probability matrix

$$P = \begin{bmatrix} q & p & 0 \\ q & 0 & p \\ 0 & q & p \end{bmatrix}$$

where $0 < p < 1$, $q + p = 1$

SubQuestion No : 145

Q.145 The stationary probability distribution of the Markov Chain is

1. $(q \ 0 \ p)$

2. $\left(\frac{1}{2} \ 0 \ \frac{1}{2}\right)$

3. $\left(\frac{1}{4} \ \frac{1}{2} \ \frac{1}{4}\right)$

4. $\left(\frac{1}{3} \ \frac{1}{3} \ \frac{1}{3}\right)$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114598

Option 1 ID : 55125156865

Option 2 ID : 55125156866

Option 3 ID : 55125156867

Option 4 ID : 55125156868

Status : Answered

Chosen Option : 2

Comprehension:

Consider the following model for the time series $\{y_t\}$ and answer the questions:

$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t - \theta_1 \epsilon_{t-1} - \theta_2 \epsilon_{t-2}$, where $\{\epsilon_t\}$ is a purely random process and $\{\Phi_1, \Phi_2, \theta_1, \theta_2\}$ are the parameters. Further variance of ϵ_t is 1 for all t .

SubQuestion No : 146

Q.146 If $\Phi_1 = 0.6$, $\Phi_2 = 0.3$, $\theta_1 = \theta_2 = 0$ and $\alpha(h)$ is the partial correlation coefficient of the process of order h , then

1. $\alpha(h) = 0$ for all $h \geq 1$
2. $\alpha(h) = 0$ for all $h \geq 2$
3. $\alpha(h) = 0$ for all $h \geq 3$
4. $\alpha(h) \neq 0$ for all $h \geq 1$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **55125114607**

Option 1 ID : **55125156897**

Option 2 ID : **55125156898**

Option 3 ID : **55125156899**

Option 4 ID : **55125156900**

Status : **Answered**

Chosen Option : **2**

Comprehension:

Consider the following model for the time series $\{y_t\}$ and answer the questions:

$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t - \theta_1 \epsilon_{t-1} - \theta_2 \epsilon_{t-2}$, where $\{\epsilon_t\}$ is a purely random process and $\{\Phi_1, \Phi_2, \theta_1, \theta_2\}$ are the parameters. Further variance of ϵ_t is 1 for all t .

SubQuestion No : 147

Q.147 Let $\Phi_1 = 0.6$, $\Phi_2 = 0.4$, $\theta_1 = 0.5$, $\theta_2 = 0$. Then the process is a

1. ARMA (2, 1) process
2. ARMA (1, 2) process
3. ARIMA (2, 1, 0) process
4. ARIMA (1, 1, 1) process

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114606

Option 1 ID : 55125156893

Option 2 ID : 55125156894

Option 3 ID : 55125156895

Option 4 ID : 55125156896

Status : Answered

Chosen Option : 4

Comprehension:

Consider the following model for the time series $\{y_t\}$ and answer the questions:

$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t - \theta_1 \epsilon_{t-1} - \theta_2 \epsilon_{t-2}$, where $\{\epsilon_t\}$ is a purely random process and $\{\Phi_1, \Phi_2, \theta_1, \theta_2\}$ are the parameters. Further variance of ϵ_t is 1 for all t .

SubQuestion No : 148

Q.148 If $\Phi_1 = 0.4$, $\Phi_2 = 0.3$, $\theta_1 = 0.6$, $\theta_2 = 0.4$, then the process is

1. Both stationary and invertible
2. Stationary but not invertible
3. Invertible but not stationary
4. Neither stationary nor invertible

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 55125114603

Option 1 ID : 55125156881

Option 2 ID : 55125156882

Option 3 ID : 55125156883

Option 4 ID : 55125156884

Status : Answered

Chosen Option : 1

Comprehension:

Consider the following model for the time series $\{y_t\}$ and answer the questions:

$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t - \theta_1 \epsilon_{t-1} - \theta_2 \epsilon_{t-2}$, where $\{\epsilon_t\}$ is a purely random process and $\{\Phi_1, \Phi_2, \theta_1, \theta_2\}$ are the parameters. Further variance of ϵ_t is 1 for all t .

SubQuestion No : 149

Q.149 If $\Phi_1 = 0.6$, $\Phi_2 = 0$, $\theta_1 = 0$, $\theta_2 = 0$, then the auto covariance function $r(h)$, $h = 0, 1, \dots$ is

1. $(0.6)^h$
2. $r(1) = (0.6)$, $r(0) = 1$ and $r(h) = 0$ for $h \geq 2$
3. $\frac{(0.6)^h}{0.64}$
4. $\frac{(0.6)^h}{0.36}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **55125114605**

Option 1 ID : **55125156889**

Option 2 ID : **55125156890**

Option 3 ID : **55125156891**

Option 4 ID : **55125156892**

Status : **Answered**

Chosen Option : **2**

Comprehension:

Consider the following model for the time series $\{y_t\}$ and answer the questions:

$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \epsilon_t - \theta_1 \epsilon_{t-1} - \theta_2 \epsilon_{t-2}$, where $\{\epsilon_t\}$ is a purely random process and $\{\Phi_1, \Phi_2, \theta_1, \theta_2\}$ are the parameters. Further variance of ϵ_t is 1 for all t .

SubQuestion No : 150

Q.150 If $\Phi_1 = \Phi_2 = 0$, $\theta_1 = 0.7$, $\theta_2 = 0$, then the spectral density function of the process is

1. $[1.49 - 0.7 \cos(2\pi\omega)]^{-1}$
2. $[1.49 + 1.4 \cos(2\pi\omega)]$
3. $1.49 [1 + 0.7 \cos(2\pi\omega)]$
4. $[1.49 - 1.4 \cos(2\pi\omega)]^{-1}$

Options

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

Question Type : **MCQ**

Question ID : **55125114604**

Option 1 ID : **55125156885**

Option 2 ID : **55125156886**

Option 3 ID : **55125156887**

Option 4 ID : **55125156888**

Status : **Answered**

Chosen Option : **1**

Exam Summary**Statistics and General Paper**

Section Name	No. of Questions	Answered	Not Answered	Marked for Review	Answered & Marked for Review	Not Visited
General Paper	50	50	0	0	0	0
Statistics	100	100	0	0	0	0