

# UGC NET 2019

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Subject	87 Computer Science and Applications

Section : PART I General Paper

**Q.1** Consider the following argument :

Statements : Some chairs are curtains.

All curtains are bedsheets.

Conclusion : Some chairs are bedsheets.

What is the Mood of the above proposition?

- (1) IAI
- (3) IIA

- (2) IAA
- (4) AII

Options 1. 1

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

Question Type : MCQ

Question ID : 61547510460

Option 1 ID : 61547540785

Option 2 ID : 61547540786

Option 3 ID : 61547540787

Option 4 ID : 61547540788

Status : Marked For Review

Chosen Option : 2

**Q.2**

Which of the following sampling procedures will be appropriate for conducting researches with empirico-inductive research paradigm?

- (1) Simple random sampling procedure
- (2) Systematic sampling procedure
- (3) Stratified sampling procedure
- (4) Any of the non-probability sampling procedures

Options 1. 1

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

Question Type : MCQ

Question ID : 61547510446

Option 1 ID : 61547540729

Option 2 ID : 61547540730

Option 3 ID : 61547540731

Option 4 ID : 61547540732

Status : Marked For Review

Chosen Option : 4

**Q.3** Which of the following statements differentiate teaching from learning?

- (a) Teaching is a social act while learning is a personal act
- (b) Teaching implies learning
- (c) Teaching is like selling while learning is like buying
- (d) Teaching can occur without learning taking place
- (e) In teaching, influence is directed towards learning and learner, while in learning it is usually towards oneself

Choose the correct answer from the following options :

- |                      |                      |
|----------------------|----------------------|
| (1) (a), (c) and (e) | (2) (a), (b) and (c) |
| (3) (b), (c) and (d) | (4) (c), (d) and (e) |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510440

Option 1 ID : 61547540705

Option 2 ID : 61547540706

Option 3 ID : 61547540707

Option 4 ID : 61547540708

Status : Answered

Chosen Option : 1

**Q.4** A university teacher plans to improve the study habits of students in his/her class. Which type of research paradigm will be helpful in this regard?

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| (1) Evaluative research paradigm | (2) Fundamental research paradigm |
| (3) Applied research paradigm    | (4) Action research paradigm      |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510444

Option 1 ID : 61547540721

Option 2 ID : 61547540722

Option 3 ID : 61547540723

Option 4 ID : 61547540724

Status : Answered

Chosen Option : 4

**Q.5** A research scholar while submitting his/her thesis, did not acknowledge in the preface the help and support of the respondents of questionnaires used. This will be called an instance of

- |                     |                       |
|---------------------|-----------------------|
| (1) Technical lapse | (2) Wilful negligence |
| (3) Unethical act   | (4) Lack of respect   |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510448

Option 1 ID : 61547540737

Option 2 ID : 61547540738

Option 3 ID : 61547540739

Option 4 ID : 61547540740

Status : Answered

Chosen Option : 3

**Q.6**

Which of the following is converse of 'Some S is P'?

- (1) Some S is not P      (2) Some P is not S  
(3) Some P is S      (4) No P is S

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510461

Option 1 ID : 61547540789

Option 2 ID : 61547540790

Option 3 ID : 61547540791

Option 4 ID : 61547540792

Status : Answered

Chosen Option : 3

**Q.7**The sum of a number and its inverse is  $-4$ . The sum of their cubes is :

- (1)  $-52$       (2)  $52$   
(3)  $64$       (4)  $-64$

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510456

Option 1 ID : 61547540769

Option 2 ID : 61547540770

Option 3 ID : 61547540771

Option 4 ID : 61547540772

Status : Marked For Review

Chosen Option : 4

**Q.8**

Which of the following modes of communication can be employed in a classroom for effective teaching?

- (a) Top-down
- (b) Iconic
- (c) Associational
- (d) Dissociational
- (e) Symbolic
- (f) Abstract

Choose the most appropriate option from the following :

- |                      |                      |
|----------------------|----------------------|
| (1) (a), (b) and (f) | (2) (c), (e) and (f) |
| (3) (b), (c) and (e) | (4) (a), (c) and (d) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510452

Option 1 ID : 61547540753

Option 2 ID : 61547540754

**Option 3 ID : 61547540755**

Option 4 ID : 61547540756

Status : Marked For Review

Chosen Option : 3

**Q.9**

Information overload in a classroom environment by a teacher will lead to

- |                              |                        |
|------------------------------|------------------------|
| (1) High level participation | (2) Semantic precision |
| (3) Effective impression     | (4) Delayed feedback   |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510450

Option 1 ID : 61547540745

Option 2 ID : 61547540746

Option 3 ID : 61547540747

**Option 4 ID : 61547540748**

Status : Answered

Chosen Option : 4

**Q.10**

Which of the learning outcomes are intended in teaching organized at understanding level?

- (1) Longer recall and retention of facts
- (2) Seeking of relationships and patterns among facts
- (3) Creative construction and critical interpretation of ideas
- (4) Mastery of facts and information

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510439

Option 1 ID : 61547540701

Option 2 ID : 61547540702

Option 3 ID : 61547540703

Option 4 ID : 61547540704

Status : Answered

Chosen Option : 2

**Q.11**

In a certain coding language, 'AEIOU' is written as 'TNHDZ'. Using the same coding language, 'BFJPV' will be written as

- |           |           |
|-----------|-----------|
| (1) UOIEA | (2) AEIOU |
| (3) CGKQW | (4) WQKGC |

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510454

Option 1 ID : 61547540761

Option 2 ID : 61547540762

Option 3 ID : 61547540763

Option 4 ID : 61547540764

Status : Answered

Chosen Option : 1

**Q.12**

In which of the following types of learning materials, the presentations are highly structured and individualised?

- |   |
|---|
| (1) Textbooks prescribed by the universities                    |
| (2) Journals and the articles recommended for readings          |
| (3) Writings of great thinkers selected for reflective readings |
| (4) Programmed instructional and modular learning material      |

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510442

Option 1 ID : 61547540713

Option 2 ID : 61547540714

Option 3 ID : 61547540715

Option 4 ID : 61547540716

Status : Answered

Chosen Option : 4

**Q.13**

Given below are two Statements – One is labelled as Assertion (A) and other is labelled as Reason (R) :

Assertion (A) : Use of slang in formal teaching makes communication lively and interesting.

Reasons (R) : Academic decency demands the avoidance of slang in the classroom environment.

In the light of the above statements, choose the correct option :

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true and (R) is not the correct explanation of (A)
- (3) (A) is true, but (R) is false
- (4) (A) is false, but (R) is true

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ  
 Question ID : 61547510453  
 Option 1 ID : 61547540757  
 Option 2 ID : 61547540758  
 Option 3 ID : 61547540759  
 Option 4 ID : 61547540760

Status : Answered

Chosen Option : 4

**Q.14**

What is the exact equivalent discount of three successive discounts of 10%, 15% and 20% by sale of an article?

- |           |           |
|-----------|-----------|
| (1) 35.8% | (2) 38.5% |
| (3) 35.5% | (4) 38.8% |

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ  
 Question ID : 61547510458  
 Option 1 ID : 61547540777  
 Option 2 ID : 61547540778  
 Option 3 ID : 61547540779  
 Option 4 ID : 61547540780

Status : Answered

Chosen Option : 4

**Q.15**

In which of the following formats 'Chapter Scheme' of the document has to be formally approved by a research degree committee in the university?

- |                         |                         |
|-------------------------|-------------------------|
| (1) Thesis/dissertation | (2) Seminar papers      |
| (3) Research articles   | (4) Research monographs |

**Options** 1. 1

2. 2
3. 3

4. 4

Question Type : MCQ

Question ID : 61547510447

Option 1 ID : 61547540733

Option 2 ID : 61547540734

Option 3 ID : 61547540735

Option 4 ID : 61547540736

Status : Answered

Chosen Option : 1

**Q.16**

Which of the following are classroom related factors that influence effectiveness of teaching?

- (a) Prior task related behaviour of students
- (b) Adherence to linear pattern of communication by the teacher
- (c) Socio-economic status of the family to which learners belong
- (d) Inappropriate use of technological resources by the teacher
- (e) Cultural background of students

Choose your answer from the following options :

- (1) (a), (b) and (c)
- (2) (b), (c) and (d)
- (3) (a), (b) and (d)
- (4) (c), (d) and (e)

**Options 1. 1**

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 61547510441

Option 1 ID : 61547540709

Option 2 ID : 61547540710

Option 3 ID : 61547540711

Option 4 ID : 61547540712

Status : Answered

Chosen Option : 3

**Q.17**

A researcher intends to make use of ICT in his/her research. What considerations should weigh most in such a decision?

- (a) Appropriateness of the tool used
- (b) Cost involved in procuring it
- (c) Availability of tools in the department where research is to be undertaken
- (d) Willingness of his/her supervisor to offer help
- (e) The company from which the ICT equipment has been procured

Choose your answer from the following options :

- |                      |                      |
|----------------------|----------------------|
| (1) (a), (b) and (c) | (2) (c), (d) and (e) |
| (3) (a), (c) and (d) | (4) (b), (c) and (e) |

**Options 1. 1**

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 61547510445

Option 1 ID : 61547540725

Option 2 ID : 61547540726

Option 3 ID : 61547540727

Option 4 ID : 61547540728

Status : Answered

Chosen Option : 3

**Q.18** According to classical Indian school of logic, what is the correct sequence of steps involved in Anumana (influence)?

- (1) Upanaya, Pratijna, Hetu, Udāharana, Nigmana
- (2) Pratijna, Hetu, Upanaya, Udāharana, Nigmana
- (3) Pratijna, Upanaya, Hetu, Udāharana, Nigmana
- (4) Pratijna, Hetu, Udāharana, Upanaya, Nigmana

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510463

Option 1 ID : 61547540797

Option 2 ID : 61547540798

Option 3 ID : 61547540799

Option 4 ID : 61547540800

Status : Answered

Chosen Option : 3

**Q.19** Which of the following types of assessment is conducted periodically with an eye on standards?

- |                          |                            |
|--------------------------|----------------------------|
| (1) Formative assessment | (2) Summative assessment   |
| (3) Portfolio assessment | (4) Performance assessment |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510443

Option 1 ID : 61547540717

Option 2 ID : 61547540718

Option 3 ID : 61547540719

Option 4 ID : 61547540720

Status : Answered

Chosen Option : 1

**Q.20** Which one of the following fallacious hetu (middle term) is not uniformly concomitant with the major term?

- |                     |                 |
|---------------------|-----------------|
| (1) Asatpratipaksa  | (2) Auyatireki  |
| (3) Anyonya-Asiddha | (4) Suyabhicara |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510462

Option 1 ID : 61547540793

Option 2 ID : 61547540794

Option 3 ID : 61547540795

Option 4 ID : 61547540796

Status : Marked For Review

Chosen Option : 2

**Q.21**

If 3% of  $(a + b)$  = 7% of  $(ab)$

and 5% of  $(a - b)$  = 4% of  $(ab)$ ,

then what percentage of  $b$  is  $a$ ?

(1)  $\frac{47}{23}\%$

(2)  $\frac{23}{47}\%$

(3)  $\frac{4700}{23}\%$

(4)  $\frac{2300}{47}\%$

**Options**

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

Question Type : MCQ

Question ID : 61547510455

Option 1 ID : 61547540765

Option 2 ID : 61547540766

Option 3 ID : 61547540767

Option 4 ID : 61547540768

Status : Marked For Review

Chosen Option : 2

**Q.22**

Which one of the following hetwabhasa (fallacy) is involved in the argument, "Sound is element because it is caused"?

- (1) Viruddha or contradictory middle
- (2) Satpratipaksa or inferentially contradicted middle
- (3) Sadhyasama or the unproved middle
- (4) Badhita or non-inferentially contradicted middle

**Options**

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

Question Type : MCQ

Question ID : 61547510459

Option 1 ID : 61547540781

Option 2 ID : 61547540782

Option 3 ID : 61547540783

Option 4 ID : 61547540784

Status : Answered

Chosen Option : 2

**Q.23**

A verbal communication technique used in teaching is

- (1) Slow expression of words
- (2) Varying the speed of voice and tone
- (3) Presentation without pause
- (4) Resorting to semantic jugglery

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : **61547510451**  
 Option 1 ID : **61547540749**  
**Option 2 ID : 61547540750**  
 Option 3 ID : **61547540751**  
 Option 4 ID : **61547540752**  
 Status : **Answered**  
 Chosen Option : **2**

**Q.24**

When there is an animated discussion between a teacher and his or her students in the classroom, it can be classified as :

- |                              |                               |
|------------------------------|-------------------------------|
| (1) Horizontal communication | (2) Mechanical communication  |
| (3) Linear communication     | (4) Categorical communication |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : **61547510449**  
**Option 1 ID : 61547540741**  
 Option 2 ID : **61547540742**  
 Option 3 ID : **61547540743**  
 Option 4 ID : **61547540744**  
 Status : **Answered**  
 Chosen Option : **4**

**Q.25**

A certain principal invested at compound interest payable yearly amounts to Rs. 10816.00 in 3 years and Rs. 11248.64 in 4 years. What is the rate of interest?

- |          |          |
|----------|----------|
| (1) 3%   | (2) 4%   |
| (3) 4.5% | (4) 5.5% |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : **61547510457**  
 Option 1 ID : **61547540773**  
**Option 2 ID : 61547540774**  
 Option 3 ID : **61547540775**  
 Option 4 ID : **61547540776**  
 Status : **Answered**

**Comprehension:**

The following table gives the percentage of marks obtained by 6 students in 5 different subjects in an examination. The numbers in the parenthesis give the maximum marks in each subject. Answer the given questions based on the table :

Subject (Max. Marks)	Percentage (%) of marks obtained				
	Name of student	Maths (150)	Chemistry (130)	Physics (120)	Biology (100)
Ankit	90	50	80	60	70
Amar	100	60	70	40	80
Sanya	90	60	85	80	60
Rahul	80	75	65	90	90
Puneet	80	80	70	85	50
Pooja	70	75	50	80	40

**SubQuestion No : 26****Q.26**

What is the overall percentage of marks obtained by Amar?

- |         |            |
|---------|------------|
| (1) 70% | (2) 72%    |
| (3) 60% | (4) 58.33% |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510465

Option 1 ID : 61547540801

Option 2 ID : 61547540802

Option 3 ID : 61547540803

Option 4 ID : 61547540804

Status : Answered

Chosen Option : 4

**Comprehension:**

The following table gives the percentage of marks obtained by 6 students in 5 different subjects in an examination. The numbers in the parenthesis give the maximum marks in each subject. Answer the given questions based on the table :

Subject (Max. Marks)	Percentage (%) of marks obtained				
	Name of student	Maths (150)	Chemistry (130)	Physics (120)	Biology (100)
Ankit	90	50	80	60	70
Amar	100	60	70	40	80
Sanya	90	60	85	80	60
Rahul	80	75	65	90	90
Puneet	80	80	70	85	50
Pooja	70	75	50	80	40

**SubQuestion No : 27****Q.27**

What was the aggregate of marks obtained by Sanya in all the five subjects?

- |         |         |
|---------|---------|
| (1) 375 | (2) 395 |
| (3) 455 | (4) 475 |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510466  
 Option 1 ID : 61547540805  
 Option 2 ID : 61547540806  
 Option 3 ID : 61547540807  
 Option 4 ID : 61547540808  
 Status : Answered  
 Chosen Option : 3

#### Comprehension:

The following table gives the percentage of marks obtained by 6 students in 5 different subjects in an examination. The numbers in the parenthesis give the maximum marks in each subject. Answer the given questions based on the table :

Subject (Max. Marks)	Percentage (%) of marks obtained				
	Name of student	Maths (150)	Chemistry (130)	Physics (120)	Biology (100)
Ankit	90	50	80	60	70
Amar	100	60	70	40	80
Sanya	90	60	85	80	60
Rahul	80	75	65	90	90
Puneet	80	80	70	85	50
Pooja	70	75	50	80	40

SubQuestion No : 28

Q.28

How many students obtained 60% and above marks in all the subjects?

- |           |          |
|-----------|----------|
| (1) Three | (2) Two  |
| (3) One   | (4) Zero |

Options 1. 1

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

Question Type : MCQ  
 Question ID : 61547510468  
 Option 1 ID : 61547540813  
 Option 2 ID : 61547540814  
 Option 3 ID : 61547540815  
 Option 4 ID : 61547540816  
 Status : Answered  
 Chosen Option : 2

#### Comprehension:

The following table gives the percentage of marks obtained by 6 students in 5 different subjects in an examination. The numbers in the parenthesis give the maximum marks in each subject. Answer the given questions based on the table :

Subject (Max. Marks)	Percentage (%) of marks obtained				
	Name of student	Maths (150)	Chemistry (130)	Physics (120)	Biology (100)
Ankit	90	50	80	60	70
Amar	100	60	70	40	80
Sanya	90	60	85	80	60
Rahul	80	75	65	90	90
Puneet	80	80	70	85	50
Pooja	70	75	50	80	40

#### SubQuestion No : 29

**Q.29**

What is the average marks obtained by all the six students in Chemistry?

- |           |           |
|-----------|-----------|
| (1) 86.66 | (2) 76.66 |
| (3) 66.66 | (4) 60.00 |

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510467**

Option 1 ID : **61547540809**

Option 2 ID : **61547540810**

Option 3 ID : **61547540811**

Option 4 ID : **61547540812**

Status : **Answered**

Chosen Option : **1**

#### Comprehension:

The following table gives the percentage of marks obtained by 6 students in 5 different subjects in an examination. The numbers in the parenthesis give the maximum marks in each subject. Answer the given questions based on the table :

Subject (Max. Marks)	Percentage (%) of marks obtained				
	Name of student	Maths (150)	Chemistry (130)	Physics (120)	Biology (100)
Ankit	90	50	80	60	70
Amar	100	60	70	40	80
Sanya	90	60	85	80	60
Rahul	80	75	65	90	90
Puneet	80	80	70	85	50
Pooja	70	75	50	80	40

#### SubQuestion No : 30

**Q.30**

In which subject the performance of the students is worst in terms of percentage of marks?

- |               |             |
|---------------|-------------|
| (1) Chemistry | (2) Physics |
| (3) Biology   | (4) English |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510469

Option 1 ID : 61547540817

Option 2 ID : 61547540818

Option 3 ID : 61547540819

Option 4 ID : 61547540820

Status : Answered

Chosen Option : 4

**Q.31**

The term one gigabyte refers to :

- |                    |                    |
|--------------------|--------------------|
| (1) 1024 petabytes | (2) 1024 megabytes |
| (3) 1024 kilobytes | (4) 1024 bytes     |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510471

Option 1 ID : 61547540825

Option 2 ID : 61547540826

Option 3 ID : 61547540827

Option 4 ID : 61547540828

Status : Answered

Chosen Option : 2

**Q.32**

The most important pollutants that cause degradation of water quality in rivers and streams are

- (a) Bacteria
- (b) Nutrients
- (c) Metals
- (d) Total dissolved solids
- (e) Algae

Choose the most appropriate answer from the options given below :

- |                           |                                |
|---------------------------|--------------------------------|
| (1) (a), (b) and (c)      | (2) (a), (b) and (d)           |
| (3) (a), (b), (d) and (e) | (4) (a), (b), (c), (d) and (e) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510479

Option 1 ID : 61547540857

Option 2 ID : 61547540858

Option 3 ID : 61547540859

Option 4 ID : 61547540860

Status : Answered

Chosen Option : 3

**Q.33**

\_\_\_\_\_ is a wireless technology built in electronic gadgets for transferring data over short distance

- |           |               |
|-----------|---------------|
| (1) WiFi  | (2) Bluetooth |
| (3) Modem | (4) USB       |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510472  
 Option 1 ID : 61547540829  
**Option 2 ID : 61547540830**  
 Option 3 ID : 61547540831  
 Option 4 ID : 61547540832  
 Status : Answered  
 Chosen Option : 2

**Q.34** Database WOS stands for

- |                      |                    |
|----------------------|--------------------|
| (1) Web of Science   | (2) Web of Sources |
| (3) World of Science | (4) Web of Service |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510480  
**Option 1 ID : 61547540861**  
 Option 2 ID : 61547540862  
 Option 3 ID : 61547540863  
 Option 4 ID : 61547540864  
 Status : Answered  
 Chosen Option : 4

**Q.35** Identify from the options given below, the co-benefit of Montreal Protocol

- (1) Impetus to development of energy efficient systems
- (2) Reduction in carbon dioxide (equivalent) emissions
- (3) Convergence of efforts of international community in addressing air pollution
- (4) Control of transboundary movement of hazardous waste

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510475  
 Option 1 ID : 61547540841  
**Option 2 ID : 61547540842**  
 Option 3 ID : 61547540843  
 Option 4 ID : 61547540844

Status : **Answered**

Chosen Option : 3

**Q.36**

Which one of the following tasks is associated with changing appearance of a document in word processing?

- |             |                |
|-------------|----------------|
| (1) Editing | (2) Formatting |
| (3) Writing | (4) Printing   |

**Options 1. 1**

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

Question Type : **MCQ**Question ID : **61547510470**Option 1 ID : **61547540821****Option 2 ID : 61547540822**Option 3 ID : **61547540823**Option 4 ID : **61547540824**Status : **Answered**

Chosen Option : 2

**Q.37**

Which of the following statements is true in the Indian context?

- (1) Autonomous colleges can grant degrees independent of universities
- (2) Autonomous colleges can grant only bachelor's degree independent of universities
- (3) Except doctoral degrees, all other degrees and diplomas can be granted by autonomous colleges
- (4) Whatever may be the degree or diploma, autonomous colleges can grant them under their own name but under the seal of an affiliated university

**Options 1. 1**

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

Question Type : **MCQ**Question ID : **61547510483**Option 1 ID : **61547540873**Option 2 ID : **61547540874**Option 3 ID : **61547540875****Option 4 ID : 61547540876**Status : **Answered**

Chosen Option : 4

**Q.38**

The most dominant source of Benzene emissions in ambient air is

- |                     |                        |
|---------------------|------------------------|
| (1) Cement industry | (2) Cigarettes         |
| (3) Car exhausts    | (4) Paints and varnish |

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510478**Option 1 ID : **61547540853**Option 2 ID : **61547540854**Option 3 ID : **61547540855**Option 4 ID : **61547540856**Status : **Answered**Chosen Option : **4****Q.39**

The national agency for responding to computer security incidents as and when they occur, is

- |         |           |
|---------|-----------|
| (1) CAT | (2) CDAC  |
| (3) CCA | (4) ICERT |

**Options 1. 1**

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

Question Type : **MCQ**Question ID : **61547510474**Option 1 ID : **61547540837**Option 2 ID : **61547540838**Option 3 ID : **61547540839**Option 4 ID : **61547540840**Status : **Answered**Chosen Option : **2****Q.40** The major barriers for access to higher education in India are :

- (a) more opportunities of employment for less educated
- (b) government policies
- (c) language of instruction
- (d) economic status
- (e) competition from foreign universities
- (f) gender discrimination in society

Choose the correct answer from the options given below :

- |                      |                      |
|----------------------|----------------------|
| (1) (a), (b) and (c) | (2) (b), (c) and (e) |
| (3) (c), (d) and (f) | (4) (d), (e) and (f) |

**Options 1. 1**

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

Question Type : **MCQ**Question ID : **61547510481**Option 1 ID : **61547540865**Option 2 ID : **61547540866**Option 3 ID : **61547540867**Option 4 ID : **61547540868**Status : **Answered**Chosen Option : **4****Q.41**

PCI stands for

- (1) Partial Component Interconnect
- (2) Partial Component Interaction
- (3) Peripheral Component Interconnect
- (4) Peripheral Component Interaction

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510473

Option 1 ID : 61547540833

Option 2 ID : 61547540834

Option 3 ID : 61547540835

Option 4 ID : 61547540836

Status : Answered

Chosen Option : 3

**Q.42**

According to GATS (General Agreement on Trade and Services), higher education should be a commodity in the

- (1) domestic public sector
- (2) domestic private sector
- (3) non-trading sector
- (4) global marketplace

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510482

Option 1 ID : 61547540869

Option 2 ID : 61547540870

Option 3 ID : 61547540871

Option 4 ID : 61547540872

Status : Answered

Chosen Option : 3

**Q.43**

Rashtriya Uchhatar Shiksha Abhiyan (RUSA) aims to achieve the following in Higher Education System :

- (a) Equity
- (b) Access
- (c) 50% GER
- (d) Excellence

Choose the correct option from those given below :

- (1) (a), (b) and (c)
- (2) (a), (c) and (d)
- (3) (a), (b) and (d)
- (4) (b), (c) and (d)

**Options 1. 1**

- 2. 2
- 3. 3

4. 4

Question Type : MCQ

Question ID : 61547510484

Option 1 ID : 61547540877

Option 2 ID : 61547540878

Option 3 ID : 61547540879

Option 4 ID : 61547540880

Status : Answered

Chosen Option : 3

**Q.44** Under Green India Mission, how many hectares of degraded forest land is to be brought under afforestation?

- |                         |                         |
|-------------------------|-------------------------|
| (1) 02 million hectares | (2) 06 million hectares |
| (3) 08 million hectares | (4) 20 million hectares |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510476

Option 1 ID : 61547540845

Option 2 ID : 61547540846

Option 3 ID : 61547540847

Option 4 ID : 61547540848

Status : Answered

Chosen Option : 2

**Q.45** The themes of some Sustainable Development Goals are

- (a) Climate action
- (b) Sustainable cities and communities
- (c) Peace, justice and strong institutions
- (d) Skill development and decent employment
- (e) Green agriculture
- (f) Responsible consumption and production

Choose the most appropriate from those given below :

- (1) (a), (b), (c), (e) and (f)
- (2) (b), (c), (e) and (f)
- (3) (b), (c), (d), (e) and (f)
- (4) (a), (b), (c) and (f)

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510477

Option 1 ID : 61547540849

Option 2 ID : 61547540850

Option 3 ID : 61547540851

Option 4 ID : 61547540852

Status : Answered

Chosen Option : 4

**Comprehension:**

Read the passage carefully and answer questions that follow :

There is no doubt that the market as a reality and political economy as a theory played an important role in the liberal critique. But liberalism is neither the consequence nor the development of these; rather, the market played, in the liberal critique, the role of a "test", a locus of privileged experience where one can identify the effects of excessive governmentality and even weigh their significance; the analysis of the mechanisms of "dearth" or more generally, of the grain trade in the middle of the eighteenth century, was meant to show the point at which governing was always governing too much. Therefore, an analysis to make visible, in the form of evidence, the formation of the value and circulation of wealth—or, on the contrary, an analysis pre-supposing the intrinsic invisibility of the connection between individual profit-seeking and the growth of collective wealth—economics, in any case, shows a basic incompatibility between the optimal development of the economic process and maximisation of government procedures. It is by this, more than the play of ideas, the French or English economists broke away from mercantilism and commercialism; they freed reflection on economic practice from the hegemony of the "reason of state" and from the saturation of governmental intervention. By using it as a measure of "governing too much", they placed it at the limit of governmental action. Liberalism does not derive from juridical thought any more than it does from an economic analysis. It is not the idea of a political society, but the result of search for a liberal technology of government.

**SubQuestion No : 46****Q.46**

What is incompatible with optimal economic development?

- (1) Play of ideas
- (2) Absence of commercialism
- (3) Political society
- (4) Excessive government procedures

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510489

Option 1 ID : 61547540893

Option 2 ID : 61547540894

Option 3 ID : 61547540895

Option 4 ID : 61547540896

Status : Answered

Chosen Option : 4

**Comprehension:**

Read the passage carefully and answer questions that follow :

There is no doubt that the market as a reality and political economy as a theory played an important role in the liberal critique. But liberalism is neither the consequence nor the development of these; rather, the market played, in the liberal critique, the role of a "test", a locus of privileged experience where one can identify the effects of excessive governmentality and even weigh their significance; the analysis of the mechanisms of "dearth" or more generally, of the grain trade in the middle of the eighteenth century, was meant to show the point at which governing was always governing too much. Therefore, an analysis to make visible, in the form of evidence, the formation of the value and circulation of wealth—or, on the contrary, an analysis pre-supposing the intrinsic invisibility of the connection between individual profit-seeking and the growth of collective wealth—economics, in any case, shows a basic incompatibility between the optimal development of the economic process and maximisation of government procedures. It is by this, more than the play of ideas, the French or English economists broke away from mercantilism and commercialism; they freed reflection on economic practice from the hegemony of the "reason of state" and from the saturation of governmental intervention. By using it as a measure of "governing too much", they placed it at the limit of governmental action. Liberalism does not derive from juridical thought any more than it does from an economic analysis. It is not the idea of a political society, but the result of search for a liberal technology of government.

**SubQuestion No : 47**

**Q.47** Which of the following played a role in the liberal critique?

- (1) Liberalism as a consequence of market forces
- (2) Liberalism as an offshoot of political economy
- (3) Reality of market
- (4) Political economy as a practice

**Options 1. 1**

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

Question Type : MCQ

Question ID : **61547510486**

Option 1 ID : **61547540881**

Option 2 ID : **61547540882**

**Option 3 ID : 61547540883**

Option 4 ID : **61547540884**

Status : **Answered**

Chosen Option : **2**

**Comprehension:**

Read the passage carefully and answer questions that follow :

There is no doubt that the market as a reality and political economy as a theory played an important role in the liberal critique. But liberalism is neither the consequence nor the development of these; rather, the market played, in the liberal critique, the role of a "test", a locus of privileged experience where one can identify the effects of excessive governmentality and even weigh their significance; the analysis of the mechanisms of "dearth" or more generally, of the grain trade in the middle of the eighteenth century, was meant to show the point at which governing was always governing too much. Therefore, an analysis to make visible, in the form of evidence, the formation of the value and circulation of wealth—or, on the contrary, an analysis pre-supposing the intrinsic invisibility of the connection between individual profit-seeking and the growth of collective wealth—economics, in any case, shows a basic incompatibility between the optimal development of the economic process and maximisation of government procedures. It is by this, more than the play of ideas, the French or English economists broke away from mercantilism and commercialism; they freed reflection on economic practice from the hegemony of the "reason of state" and from the saturation of governmental intervention. By using it as a measure of "governing too much", they placed it at the limit of governmental action. Liberalism does not derive from juridical thought any more than it does from an economic analysis. It is not the idea of a political society, but the result of search for a liberal technology of government.

#### **SubQuestion No : 48**

**Q.48**

What kind of evidence was needed to make the liberal critique visible?

- |                               |                                     |
|-------------------------------|-------------------------------------|
| (1) Circulation of wealth     | (2) Pre-supposing individual profit |
| (3) Dearth in supply of grain | (4) Incompatibility of growth       |

**Options 1. 1**

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

Question Type : MCQ

Question ID : **61547510488**

Option 1 ID : **61547540889**

Option 2 ID : **61547540890**

Option 3 ID : **61547540891**

Option 4 ID : **61547540892**

Status : **Answered**

Chosen Option : **3**

#### **Comprehension:**

Read the passage carefully and answer questions that follow :

There is no doubt that the market as a reality and political economy as a theory played an important role in the liberal critique. But liberalism is neither the consequence nor the development of these; rather, the market played, in the liberal critique, the role of a "test", a locus of privileged experience where one can identify the effects of excessive governmentality and even weigh their significance; the analysis of the mechanisms of "dearth" or more generally, of the grain trade in the middle of the eighteenth century, was meant to show the point at which governing was always governing too much. Therefore, an analysis to make visible, in the form of evidence, the formation of the value and circulation of wealth—or, on the contrary, an analysis pre-supposing the intrinsic invisibility of the connection between individual profit-seeking and the growth of collective wealth—economics, in any case, shows a basic incompatibility between the optimal development of the economic process and maximisation of government procedures. It is by this, more than the play of ideas, the French or English economists broke away from mercantilism and commercialism; they freed reflection on economic practice from the hegemony of the "reason of state" and from the saturation of governmental intervention. By using it as a measure of "governing too much", they placed it at the limit of governmental action. Liberalism does not derive from juridical thought any more than it does from an economic analysis. It is not the idea of a political society, but the result of search for a liberal technology of government.

#### **SubQuestion No : 49**

**Q.49**

The liberal critique examined the implications of

- |                                 |                               |
|---------------------------------|-------------------------------|
| (1) market expansion            | (2) too much governance       |
| (3) growth of political economy | (4) politics of marketisation |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510487

Option 1 ID : 61547540885

Option 2 ID : 61547540886

Option 3 ID : 61547540887

Option 4 ID : 61547540888

Status : Answered

Chosen Option : 3

**Comprehension:**

Read the passage carefully and answer questions that follow :

There is no doubt that the market as a reality and political economy as a theory played an important role in the liberal critique. But liberalism is neither the consequence nor the development of these; rather, the market played, in the liberal critique, the role of a "test", a locus of privileged experience where one can identify the effects of excessive governmentality and even weigh their significance; the analysis of the mechanisms of "dearth" or more generally, of the grain trade in the middle of the eighteenth century, was meant to show the point at which governing was always governing too much. Therefore, an analysis to make visible, in the form of evidence, the formation of the value and circulation of wealth—or, on the contrary, an analysis pre-supposing the intrinsic invisibility of the connection between individual profit-seeking and the growth of collective wealth—economics, in any case, shows a basic incompatibility between the optimal development of the economic process and maximisation of government procedures. It is by this, more than the play of ideas, the French or English economists broke away from mercantilism and commercialism; they freed reflection on economic practice from the hegemony of the "reason of state" and from the saturation of governmental intervention. By using it as a measure of "governing too much", they placed it at the limit of governmental action. Liberalism does not derive from juridical thought any more than it does from an economic analysis. It is not the idea of a political society, but the result of search for a liberal technology of government.

**SubQuestion No : 50****Q.50**

The passage is indicative of the author's preference to

- (1) economic hegemony of individuals
- (2) limit government control of economics
- (3) seek liberalism from juridical thought
- (4) promote individual profits

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510490

Option 1 ID : 61547540897

Option 2 ID : 61547540898

Option 3 ID : 61547540899

Option 4 ID : 61547540900

Status : Answered

Chosen Option : 2

## Section : PART II Computer Science and Applications

**Q.1** Consider the following statements :

- (a) The running time of dynamic programming algorithm is always  $\theta(\rho)$  where  $\rho$  is number of subproblems.
- (b) When a recurrence relation has cyclic dependency, it is impossible to use that recurrence relation (unmodified) in a correct dynamic program.
- (c) For a dynamic programming algorithm, computing all values in a bottom-up fashion is asymptotically faster than using recursion and memorization.
- (d) If a problem  $X$  can be reduced to a known NP-hard problem, then  $X$  must be NP-hard.

Which of the statement(s) is (are) true?

- (1) Only (b) and (a)
- (2) Only (b)
- (3) Only (b) and (c)
- (4) Only (b) and (d)

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510566

Option 1 ID : 61547541201

Option 2 ID : 61547541202

Option 3 ID : 61547541203

Option 4 ID : 61547541204

Status : Marked For Review

Chosen Option : 2

**Q.2**Consider the following statements with respect to the language  $L = \{a^n b^n \mid n \geq 0\}$  $S_1 : L^2$  is context free language $S_2 : L^k$  is context-free language for any given  $k \geq 1$  $S_3 : \overline{L}$  and  $L^*$  are context free languages

Which one of the following is correct?

- |                          |                             |
|--------------------------|-----------------------------|
| (1) only $S_1$ and $S_2$ | (2) only $S_1$ and $S_3$    |
| (3) only $S_2$ and $S_3$ | (4) $S_1$ , $S_2$ and $S_3$ |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510537

Option 1 ID : 61547541085

Option 2 ID : **61547541086**Option 3 ID : **61547541087**Option 4 ID : **61547541088**Status : **Answered**Chosen Option : **2**

**Q.3** Given two tables EMPLOYEE (EID, ENAME, DEPTNO)

**DEPARTMENT (DEPTNO, DEPTNAME)**

Find the most appropriate statement of the given query :

Select count (\*) 'total'

from EMPLOYEE

where DEPTNO IN (D1, D2)

group by DEPTNO

having count (\*) >5

- (1) Total number of employees in each department D1 and D2
- (2) Total number of employees of department D1 and D2 if their total is >5
- (3) Display total number of employees in both departments D1 and D2
- (4) The output of the query must have atleast two rows

**Options 1.1**

2.2

3.3

4.4

Question Type : **MCQ**

Question ID : **61547510512**

Option 1 ID : **61547540985**

Option 2 ID : **61547540986**

Option 3 ID : **61547540987**

Option 4 ID : **61547540988**

Status : **Answered**

Chosen Option : **2**

**Q.4** Consider the following statements with respect to approaches to fill area on raster systems :

P : To determine the overlap intervals for scan lines that cross the area.

Q : To start from a given interior position and paint outward from this point until we encounter the specified boundary conditions.

Select the correct answer from the options given below :

- (1) P only
- (2) Q only
- (3) Both P and Q
- (4) Neither P nor Q

**Options 1.1**

2.2

3.3

4.4

Question Type : **MCQ**

Question ID : **61547510560**

Option 1 ID : **61547541177**

Option 2 ID : 61547541178

Option 3 ID : 61547541179

Option 4 ID : 61547541180

Status : Answered

Chosen Option : 3

**Q.5** Which of the following is not needed by an encryption algorithm used in Cryptography?

- |                |                  |
|----------------|------------------|
| (1) KEY        | (2) Message      |
| (3) Ciphertext | (4) User details |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510515

Option 1 ID : 61547540997

Option 2 ID : 61547540998

Option 3 ID : 61547540999

Option 4 ID : 61547541000

Status : Answered

Chosen Option : 4

**Q.6** Let the population of chromosomes in genetic algorithm is represented in terms of binary number. The strength of fitness of a chromosome in decimal form,  $x$ , is given by

$$S f(x) = \frac{f(x)}{\sum f(x)} \text{ where } f(x) = x^2$$

The population is given by  $P$  where:

$$P = \{(01101, (11000), (01000), (10011)\}$$

The strength of fitness of chromosome (11000) is \_\_\_\_\_.

- |          |          |
|----------|----------|
| (1) 24   | (2) 576  |
| (3) 14.4 | (4) 49.2 |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510555

Option 1 ID : 61547541157

Option 2 ID : 61547541158

Option 3 ID : 61547541159

Option 4 ID : 61547541160

Status : Answered

Chosen Option : 2

**Q.7** A fuzzy conjunction operators,  $t(x, y)$ , and a fuzzy disjunction operator,  $s(x, y)$ , form a pair if they satisfy:

$$t(x, y) = 1 - s(1 - x, 1 - y).$$

If  $t(x, y) = \frac{xy}{(x + y - xy)}$  then  $s(x, y)$  is given by

- |                                 |                                  |
|---------------------------------|----------------------------------|
| (1) $\frac{x + y}{1 - xy}$      | (2) $\frac{x + y - 2xy}{1 - xy}$ |
| (3) $\frac{x + y - xy}{1 - xy}$ | (4) $\frac{x + y - xy}{1 + xy}$  |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510552

Option 1 ID : 61547541145

Option 2 ID : 61547541146

Option 3 ID : 61547541147

Option 4 ID : 61547541148

Status : Marked For Review

Chosen Option : 2

**Q.8** Which of the following binary codes for decimal digits are self complementing?

- (a) 8421 code
- (b) 2421 code
- (c) excess-3 code
- (d) excess-3 gray code

Choose the correct option :

- |                 |                 |
|-----------------|-----------------|
| (1) (a) and (b) | (2) (b) and (c) |
| (3) (c) and (d) | (4) (d) and (a) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510559

Option 1 ID : 61547541173

Option 2 ID : 61547541174

Option 3 ID : 61547541175

Option 4 ID : 61547541176

Status : Answered

Chosen Option : 3

**Q.9** Consider the following grammars :

$$G_1 : S \rightarrow aSb \mid bSa \mid aa$$

$$G_2 : S \rightarrow aSb \mid bSa \mid SS \mid \lambda$$

$$G_3 : S \rightarrow aSb \mid bSa \mid SS \mid a$$

$$G_4 : S \rightarrow aSb \mid bSa \mid SS \mid SSS \mid \lambda$$

Which of the following is correct w.r.t. the above grammars?

- |                                    |                                    |
|------------------------------------|------------------------------------|
| (1) $G_1$ and $G_3$ are equivalent | (2) $G_2$ and $G_3$ are equivalent |
| (3) $G_2$ and $G_4$ are equivalent | (4) $G_3$ and $G_4$ are equivalent |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510533

Option 1 ID : 61547541069

Option 2 ID : 61547541070

Option 3 ID : 61547541071

Option 4 ID : 61547541072

Status : Answered

Chosen Option : 1

**Q.10** Consider a paging system where translation look aside buffer (TLB) a special type of associative memory is used with hit ratio of 80%.

Assume that memory reference takes 80 nanoseconds and reference time to TLB is 20 nanoseconds. What will be the effective memory access time given 80% hit ratio?

- |                     |                     |
|---------------------|---------------------|
| (1) 110 nanoseconds | (2) 116 nanoseconds |
| (3) 200 nanoseconds | (4) 100 nanoseconds |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510517

Option 1 ID : 61547541005

Option 2 ID : 61547541006

Option 3 ID : 61547541007

Option 4 ID : 61547541008

Status : Marked For Review

Chosen Option : 2

**Q.11** When using Dijkstra's algorithm to find shortest path in a graph, which of the following statement is not true?

- (1) It can find shortest path within the same graph data structure
- (2) Every time a new node is visited, we choose the node with smallest known distance/cost (weight) to visit first
- (3) Shortest path always passes through least number of vertices
- (4) The graph needs to have a non-negative weight on every edge

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510531

Option 1 ID : 61547541061

Option 2 ID : 61547541062

Option 3 ID : 61547541063

Option 4 ID : 61547541064

Status : Answered

Chosen Option : 3

**Q.12**

Match List-I and List-II :

- | List I                 | List II  |
|------------------------|--|
| (a) Physical layer     | (i) Provide token management service   |
| (b) Transport layer    | (ii) Concerned with transmitting raw bits over a communication channel       |
| (c) Session layer      | (iii) Concerned with the syntax and semantics of the information transmitted |
| (d) Presentation layer | (iv) True end-to-end layer from source to destination                        |

Choose the correct option from those given below :

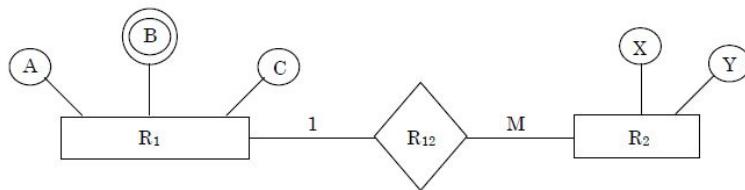
- (1) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
- (2) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
- (3) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- (4) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

**Options 1.1**

2. 2
3. 3
4. 4

Question Type : MCQ  
 Question ID : **61547510572**  
 Option 1 ID : **61547541225**  
 Option 2 ID : **61547541226**  
**Option 3 ID : 61547541227**  
 Option 4 ID : **61547541228**  
 Status : **Answered**  
 Chosen Option : 3

**Q.13** Find minimum number of tables required for converting the following entity relationship diagram into relational database?



- (1) 2
- (2) 4
- (3) 3
- (4) 5

**Options 1.1**

2. 2
3. 3
4. 4

Question Type : MCQ  
 Question ID : **61547510513**  
 Option 1 ID : **61547540989**  
 Option 2 ID : **61547540990**  
**Option 3 ID : 61547540991**  
 Option 4 ID : **61547540992**  
 Status : **Answered**  
 Chosen Option : 2

**Q.14**

Consider the following statements :

- $S_1$  : These exists no algorithm for deciding if any two Turing machines  $M_1$  and  $M_2$  accept the same language.
- $S_2$  : Let  $M_1$  and  $M_2$  be arbitrary Turing machines. The problem to determine  $L(M_1) \subseteq L(M_2)$  is undecidable.

Which of the statements is (are) correct?

- |                          |                             |
|--------------------------|-----------------------------|
| (1) Only $S_1$           | (2) Only $S_2$              |
| (3) Both $S_1$ and $S_2$ | (4) Neither $S_1$ nor $S_2$ |

**Options** 1. 1

2. 2  
3. 3  
4. 4

Question Type : MCQ  
 Question ID : **61547510541**  
 Option 1 ID : **61547541101**  
 Option 2 ID : **61547541102**  
**Option 3 ID : 61547541103**  
 Option 4 ID : **61547541104**  
 Status : **Answered**  
 Chosen Option : **3**

**Q.15** The Reduced Instruction Set Computer (RISC) characteristics are :

- (a) Single cycle instruction execution
- (b) Variable length instruction formats
- (c) Instructions that manipulates operands in memory
- (d) Efficient instruction pipeline

Choose the correct characteristics from the options given below :

- |                 |                 |
|-----------------|-----------------|
| (1) (a) and (b) | (2) (b) and (c) |
| (3) (a) and (d) | (4) (c) and (d) |

**Options** 1. 1

2. 2  
3. 3  
4. 4

Question Type : MCQ  
 Question ID : **61547510558**  
 Option 1 ID : **61547541169**  
 Option 2 ID : **61547541170**  
**Option 3 ID : 61547541171**  
 Option 4 ID : **61547541172**  
 Status : **Answered**  
 Chosen Option : **3**

**Q.16** A non-pipelined system takes 30ns to process a task. The same task can be processed in a four-segment pipeline with a clock cycle of 10ns. Determine the speed up of the pipeline for 100 tasks.

- |          |          |
|----------|----------|
| (1) 3    | (2) 4    |
| (3) 3.91 | (4) 2.91 |

**Options** 1. 1

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

Question Type : MCQ  
 Question ID : 61547510499  
 Option 1 ID : 61547540933  
 Option 2 ID : 61547540934  
 Option 3 ID : 61547540935  
 Option 4 ID : 61547540936

Status : Answered  
 Chosen Option : 2

**Q.17** Give asymptotic upper and lower bound for  $T(n)$  given below. Assume  $T(n)$  is constant for

$$n \leq 2, T(n) = 4T(\sqrt{n}) + \lg^2 n$$

- |   |                                       |
|---|---------------------------------------|
| (1) $T(n) = \theta(\lg(\lg^2 n) \lg n)$ | (2) $T(n) = \theta(\lg^2 n \lg n)$    |
| (3) $T(n) = \theta(\lg^2 n \lg \lg n)$  | (4) $T(n) = \theta(\lg(\lg n) \lg n)$ |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510529  
 Option 1 ID : 61547541053  
 Option 2 ID : 61547541054  
 Option 3 ID : 61547541055  
 Option 4 ID : 61547541056  
 Status : Answered  
 Chosen Option : 4

**Q.18** Given two tables  $R1(x, y)$  and  $R2(y, z)$  with 50 and 30 number of tuples respectively. Find

maximum number of tuples in the output of natural join between tables  $R1$  and  $R2$  i.e.

$R1 * R2?$  (\* - Natural Join)

- |        |          |
|--------|----------|
| (1) 30 | (2) 20   |
| (3) 50 | (4) 1500 |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510511  
 Option 1 ID : 61547540981  
 Option 2 ID : 61547540982  
 Option 3 ID : 61547540983  
 Option 4 ID : 61547540984  
 Status : Answered  
 Chosen Option : 4

**Q.19**

Consider the following statements:

S<sub>1</sub> :  $\forall x P(x) \vee \forall x Q(x)$  and  $\forall x (P(x) \vee Q(x))$  are not logically equivalent.

S<sub>2</sub> :  $\exists x P(x) \wedge \exists x Q(x)$  and  $\exists x (P(x) \wedge Q(x))$  are not logically equivalent

Which of the following statements is/are correct?

- |  |   |
|--|---|
| (1) Only S <sub>1</sub>                    | (2) Only S <sub>2</sub>                       |
| (3) Both S <sub>1</sub> and S <sub>2</sub> | (4) Neither S <sub>1</sub> nor S <sub>2</sub> |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510549

Option 1 ID : 61547541133

Option 2 ID : 61547541134

Option 3 ID : 61547541135

Option 4 ID : 61547541136

Status : Answered

Chosen Option : 2

**Q.20**

According to the ISO-9126 Standard Quality Model, match the attributes given in List-I with their definitions in List-II :

List I

- (a) Functionality
- (b) Reliability
- (c) Efficiency
- (d) Maintainability

List II

- |       |   |
|-------|---|
| (i)   | Relationship between level of performance and amount of resources |
| (ii)  | Characteristics related with achievement of purpose               |
| (iii) | Effort needed to make for improvement                             |
| (iv)  | Capability of software to maintain performance of software        |

Choose the correct option from the ones given below :

- (1) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
- (2) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
- (3) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- (4) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510573

Option 1 ID : 61547541229

Option 2 ID : 61547541230

Option 3 ID : 61547541231

Option 4 ID : 61547541232

Status : Answered

Chosen Option : 3

**Q.21**

Consider a subnet with 720 routers. If a three-level hierarchy is chosen, with eight clusters, each containing 9 regions of 10 routers, then total number of entries in hierarchical table of each router is

- |        |        |
|--------|--------|
| (1) 25 | (2) 27 |
| (3) 53 | (4) 72 |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510544

Option 1 ID : 61547541113

Option 2 ID : 61547541114

Option 3 ID : 61547541115

Option 4 ID : 61547541116

Status : Answered

Chosen Option : 4

**Q.22** Consider the following statements with respect to network security :

- (a) Message confidentiality means that the sender and the receiver expect privacy.
- (b) Message integrity means that the data must arrive at the receiver exactly as they were sent.
- (c) Message authentication means the receiver is ensured that the message is coming from the intended sender.

Which of the statements is (are) correct?

- |                      |                      |
|----------------------|----------------------|
| (1) Only (a) and (b) | (2) Only (a) and (c) |
| (3) Only (b) and (c) | (4) (a), (b) and (c) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510569

Option 1 ID : 61547541213

Option 2 ID : 61547541214

Option 3 ID : 61547541215

Option 4 ID : 61547541216

Status : Answered

Chosen Option : 4

**Q.23** The order of schema ?10?101? and ???0??1 are \_\_\_\_\_ and \_\_\_\_\_ respectively.

- |         |         |
|---------|---------|
| (1) 5,3 | (2) 5,2 |
| (3) 7,5 | (4) 8,7 |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510554

Option 1 ID : 61547541153

Option 2 ID : 61547541154

Option 3 ID : 61547541155

Option 4 ID : **61547541156**Status : **Answered**Chosen Option : **2**

**Q.24** Which of the component module of DBMS does rearrangement and possible ordering of operations, eliminate redundancy in query and use efficient algorithms and indexes during the execution of a query?

- |                         |                        |
|-------------------------|------------------------|
| (1) query compiler      | (2) query optimizer    |
| (3) Stored data manager | (4) Database processor |

**Options 1.1**

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

Question Type : **MCQ**Question ID : **61547510510**Option 1 ID : **61547540977**Option 2 ID : **61547540978**Option 3 ID : **61547540979**Option 4 ID : **61547540980**Status : **Answered**Chosen Option : **2**

**Q.25** According to Dempster-Shafer theory for uncertainty management,

- (1)  $Bel(A) + Bel(\neg A) \leq 1$
- (2)  $Bel(A) + Bel(\neg A) \geq 1$
- (3)  $Bel(A) + Bel(\neg A) = 1$
- (4)  $Bel(A) + Bel(\neg A) = 0$

Where  $Bel(A)$  denotes Belief of event A.

**Options 1.1**

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

Question Type : **MCQ**Question ID : **61547510548**Option 1 ID : **61547541129**Option 2 ID : **61547541130**Option 3 ID : **61547541131**Option 4 ID : **61547541132**Status : **Answered**Chosen Option : **2****Q.26**

The full form of ICANN is

- (1) Internet Corporation for Assigned Names and Numbers
- (2) Internet Corporation for Assigned Numbers and Names
- (3) Institute of Cooperation for Assigned Names and Numbers
- (4) Internet Connection for Assigned Names and Numbers

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510547**

Option 1 ID : **61547541125**

Option 2 ID : **61547541126**

Option 3 ID : **61547541127**

Option 4 ID : **61547541128**

Status : **Answered**

Chosen Option : **2**

**Q.27** Consider the following grammar :

$$S \rightarrow 0A \mid 0BB$$

$$A \rightarrow 00A \mid \lambda$$

$$B \rightarrow 1B \mid 11C$$

$$C \rightarrow B$$

Which language does this grammar generate?

- |                              |                            |
|------------------------------|----------------------------|
| (1) $L((00)^* 0 + (11)^* 1)$ | (2) $L(0(11)^* + 1(00)^*)$ |
| (3) $L((00)^* 0)$            | (4) $L(0(11)^* 1)$         |

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510535**

Option 1 ID : **61547541077**

Option 2 ID : **61547541078**

Option 3 ID : **61547541079**

Option 4 ID : **61547541080**

Status : **Answered**

Chosen Option : **3**

**Q.28** The time complexity to multiply two polynomials of degree  $n$  using Fast Fourier transform method is :

- |                       |                     |
|-----------------------|---------------------|
| (1) $\theta(n \lg n)$ | (2) $\theta(n^2)$   |
| (3) $\theta(n)$       | (4) $\theta(\lg n)$ |

**Options 1. 1**

- 2. 2

3. 3  
4. 4

Question Type : MCQ  
Question ID : 61547510532  
Option 1 ID : 61547541065  
Option 2 ID : 61547541066  
Option 3 ID : 61547541067  
Option 4 ID : 61547541068  
Status : Answered  
Chosen Option : 2

**Q.29** Consider the following statements :

- (a) Fiber optic cable is much lighter than copper cable.
- (b) Fiber optic cable is not affected by power surges or electromagnetic interference.
- (c) Optical transmission is inherently bidirectional.

Which of the statements is (are) correct?

- (1) Only (a) and (b)
- (2) Only (a) and (c)
- (3) Only (b) and (c)
- (4) (a), (b) and (c)

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ  
Question ID : 61547510567  
Option 1 ID : 61547541205  
Option 2 ID : 61547541206  
Option 3 ID : 61547541207  
Option 4 ID : 61547541208  
Status : Answered  
Chosen Option : 2

**Q.30** Which of the following CPU scheduling algorithms is/are supported by LINUX operating system?

- (1) Non-preemptive priority scheduling
- (2) Preemptive priority scheduling and time sharing CPU scheduling
- (3) Time sharing scheduling only
- (4) Priority scheduling only

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ  
Question ID : 61547510516  
Option 1 ID : 61547541001  
Option 2 ID : 61547541002  
Option 3 ID : 61547541003  
Option 4 ID : 61547541004  
Status : Answered  
Chosen Option : 1

**Q.31**

Consider the following Linear programming problem (LPP) :

Maximize  $z = x_1 + x_2$

Subject to the constraints:

$$x_1 + 2x_2 \leq 2000$$

$$x_1 + x_2 \leq 1500$$

$$x_2 \leq 600$$

$$\text{and } x_1, x_2 \geq 0$$

The solution of the above LPP is:

- (1)  $x_1 = 750, x_2 = 750, z = 1500$   
 (3)  $x_1 = 1000, x_2 = 500, z = 1500$

- (2)  $x_1 = 500, x_2 = 1000, z = 1500$   
 (4)  $x_1 = 900, x_2 = 600, z = 1500$

**Options** 1. 1

2. 2  
 3. 3  
 4. 4

Question Type : MCQ

Question ID : 61547510492

Option 1 ID : 61547540905

Option 2 ID : 61547540906

Option 3 ID : 61547540907

Option 4 ID : 61547540908

Status : Answered

Chosen Option : 2

**Q.32**

In a B-Tree, each node represents a disk block. Suppose one block holds 8192 bytes. Each key uses 32 bytes. In a B-tree of order M there are  $M - 1$  keys. Since each branch is on another disk block, we assume a branch is of 4 bytes. The total memory requirement for a non-leaf node is

- (1)  $32M - 32$   
 (3)  $36M - 36$

- (2)  $36M - 32$   
 (4)  $32M - 36$

**Options** 1. 1

2. 2  
 3. 3  
 4. 4

Question Type : MCQ

Question ID : 61547510528

Option 1 ID : 61547541049

Option 2 ID : 61547541050

Option 3 ID : 61547541051

Option 4 ID : 61547541052

Status : Marked For Review

Chosen Option : 2

**Q.33**

Consider the following statements :

- S<sub>1</sub> : If a group  $(G, *)$  is of order  $n$ , and  $a \in G$  is such that  $a^m = e$  for some integer  $m \leq n$ , then  $m$  must divide  $n$ .
- S<sub>2</sub> : If a group  $(G, *)$  is of even order, then there must be an element  $a \in G$  such that  $a \neq e$  and  $a * a = e$ .

Which of the statements is (are) correct?

- (1) Only S<sub>1</sub>
- (2) Only S<sub>2</sub>
- (3) Both S<sub>1</sub> and S<sub>2</sub>
- (4) Neither S<sub>1</sub> nor S<sub>2</sub>

#### Options 1. 1

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

Question Type : MCQ  
 Question ID : **61547510556**  
 Option 1 ID : **61547541161**  
 Option 2 ID : **61547541162**  
**Option 3 ID : 61547541163**  
 Option 4 ID : **61547541164**  
 Status : **Answered**  
 Chosen Option : **3**

#### Q.34 Match the Agile Process models with the task performed during the model :

List I	List II
(a) Scrum	(i) CRC cards
(b) Adaptive software development	(ii) Sprint backlog
(c) Extreme programming	(iii) <action> the <result> <by/for/of/to> a(n) <object>
(d) Feature-driven development	(iv) Time box release plan

Choose the correct option from those given below :

- (1) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- (2) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
- (3) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
- (4) (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)

#### Options 1. 1

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

Question Type : MCQ  
 Question ID : **61547510574**  
**Option 1 ID : 61547541233**  
 Option 2 ID : **61547541234**  
 Option 3 ID : **61547541235**  
 Option 4 ID : **61547541236**  
 Status : **Answered**  
 Chosen Option : **2**

#### Q.35

The Boolean expression  $AB + A\bar{B} + \bar{A}C + AC$  is unaffected by the value of the Boolean variable \_\_\_\_\_.

- |                             |                                     |
|-----------------------------|-------------------------------------|
| (1) <input type="radio"/> A | (2) <input type="radio"/> B         |
| (3) <input type="radio"/> C | (4) <input type="radio"/> A,B and C |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510493  
 Option 1 ID : 61547540909  
**Option 2 ID : 61547540910**  
 Option 3 ID : 61547540911  
 Option 4 ID : 61547540912  
 Status : Answered  
 Chosen Option : 2

**Q.36** Given following equation:

$$(142)_b + (112)_{b-2} = (75)_8, \text{ find base } b.$$

- |                             |                             |
|-----------------------------|-----------------------------|
| (1) <input type="radio"/> 3 | (2) <input type="radio"/> 6 |
| (3) <input type="radio"/> 7 | (4) <input type="radio"/> 5 |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510502  
 Option 1 ID : 61547540945  
 Option 2 ID : 61547540946  
 Option 3 ID : 61547540947  
**Option 4 ID : 61547540948**  
 Status : Marked For Review  
 Chosen Option : 3

**Q.37** Let  $a^{2c} \bmod n = (a^c)^2 \bmod n$  and  $a^{2c+1} \bmod n = a \cdot (a^c)^2 \bmod n$ . For  $a = 7$ ,  $b = 17$  and  $n = 561$ , what is the value of  $a^b \pmod{n}$ ?

- |                               |                               |
|-------------------------------|-------------------------------|
| (1) <input type="radio"/> 160 | (2) <input type="radio"/> 166 |
| (3) <input type="radio"/> 157 | (4) <input type="radio"/> 67  |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510525  
**Option 1 ID : 61547541037**  
 Option 2 ID : 61547541038  
 Option 3 ID : 61547541039  
 Option 4 ID : 61547541040

Status : **Marked For Review**

Chosen Option : 2

**Q.38** Consider the following language families :

$L_1$  ≡ The context – free languages

$L_2$  ≡ The context – sensitive languages

$L_3$  ≡ The recursively enumerable languages

$L_4$  ≡ The recursive languages

Which one of the following options is correct?

- |   |   |
|---|---|
| (1) $L_1 \subseteq L_2 \subseteq L_3 \subseteq L_4$ | (2) $L_2 \subseteq L_1 \subseteq L_3 \subseteq L_4$ |
| (3) $L_1 \subseteq L_2 \subseteq L_4 \subseteq L_3$ | (4) $L_2 \subseteq L_1 \subseteq L_4 \subseteq L_3$ |

**Options** 1. 1

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

Question Type : **MCQ**

Question ID : **61547510540**

Option 1 ID : **61547541097**

Option 2 ID : **61547541098**

**Option 3 ID : 61547541099**

Option 4 ID : **61547541100**

Status : **Answered**

Chosen Option : 3

**Q.39** Consider the following statements :

- (a) Windows Azure is a cloud-based operating system.
- (b) Google App Engine is an integrated set of online services for consumers to communicate and share with others.
- (c) Amazon Cloud Front is a web service for content delivery.

Which of the statements is (are) correct?

- |                      |                      |
|----------------------|----------------------|
| (1) Only (a) and (b) | (2) Only (a) and (c) |
| (3) Only (b) and (c) | (4) (a), (b) and (c) |

**Options** 1. 1

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

Question Type : **MCQ**

Question ID : **61547510568**

Option 1 ID : **61547541209**

**Option 2 ID : 61547541210**

Option 3 ID : **61547541211**

Option 4 ID : **61547541212**

Status : **Answered**

Chosen Option : 2

**Q.40**

Let  $G = (V, T, S, P)$  be any context-free grammar without any  $\lambda$ -productions or unit productions. Let  $K$  be the maximum number of symbols on the right of any production in  $P$ . The maximum number of production rules for any equivalent grammar in Chomsky normal form is given by:

- |                            |                        |
|----------------------------|------------------------|
| (1) $(K - 1) P  +  T  - 1$ | (2) $(K - 1) P  +  T $ |
| (3) $K P  +  T  - 1$       | (4) $K P  +  T $       |

Where  $| \cdot |$  denotes the cardinality of the set.

#### Options 1. 1

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

Question Type : MCQ  
 Question ID : **61547510539**  
 Option 1 ID : **61547541093**  
**Option 2 ID : 61547541094**  
 Option 3 ID : **61547541095**  
 Option 4 ID : **61547541096**  
 Status : **Answered**  
 Chosen Option : **2**

#### Q.41 Match List-I and List-II :

List I	List II
(a) Isolated I/O	(i) same set of control signal for I/O and memory communication
(b) Memory mapped I/O	(ii) separate instructions for I/O and memory communication
(c) I/O interface	(iii) requires control signals to be transmitted between the communicating units
(d) Asynchronous data transfer	(iv) resolve the differences in central computer and peripherals

Choose the correct option from those given below :

- (1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
- (2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
- (3) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
- (4) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

#### Options 1. 1

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

Question Type : MCQ  
 Question ID : **61547510577**  
 Option 1 ID : **61547541245**  
 Option 2 ID : **61547541246**  
**Option 3 ID : 61547541247**  
 Option 4 ID : **61547541248**  
 Status : **Answered**  
 Chosen Option : **3**

#### Q.42

The Data Encryption Standard (DES) has a function consists of four steps. Which of the following is correct order of these four steps?

- (1) an expansion permutation, S-boxes, an XOR operation, a straight permutation
- (2) an expansion permutation, an XOR operation, S-boxes, a straight permutation
- (3) a straight permutation, S-boxes, an XOR operation, an expansion permutation
- (4) a straight permutation, an XOR operation, S-boxes, an expansion permutation

**Options 1. 1**

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : **61547510580**

Option 1 ID : **61547541257**

**Option 2 ID : 61547541258**

Option 3 ID : **61547541259**

Option 4 ID : **61547541260**

Status : **Answered**

Chosen Option : **2**

**Q.43**

Two concurrent executing transactions  $T_1$  and  $T_2$  are allowed to update same stock item say 'A' in an uncontrolled manner. In such scenario, following problems may occur :

- (a) Dirty read problem
- (b) Lost update problem
- (c) Transaction failure
- (d) Inconsistent database state

Which of the following option is correct if database system has no concurrency module and allows concurrent execution of above two transactions?

- |                           |                           |
|---------------------------|---------------------------|
| (1) (a), (b) and (c) only | (2) (c) and (d) only      |
| (3) (a) and (b) only      | (4) (a), (b) and (d) only |

**Options 1. 1**

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : **61547510563**

Option 1 ID : **61547541189**

Option 2 ID : **61547541190**

Option 3 ID : **61547541191**

**Option 4 ID : 61547541192**

Status : **Answered**

Chosen Option : **4**

**Q.44**

Let  $W_{ij}$  represents weight between node  $i$  at layer  $k$  and node  $j$  at layer  $(k-1)$  of a given multilayer perceptron. The weight updation using gradient descent method is given by

- |   |   |
|---|---|
| (1) $W_{ij}(t+1) = W_{ij}(t) + \alpha \frac{\partial E}{\partial W_{ij}}, 0 \leq \alpha \leq 1$ | (2) $W_{ij}(t+1) = W_{ij}(t) - \alpha \frac{\partial E}{\partial W_{ij}}, 0 \leq \alpha \leq 1$ |
| (3) $W_{ij}(t+1) = \alpha \frac{\partial E}{\partial W_{ij}}, 0 \leq \alpha \leq 1$             | (4) $W_{ij}(t+1) = -\alpha \frac{\partial E}{\partial W_{ij}}, 0 \leq \alpha \leq 1$            |

Where  $\alpha$  and  $E$  represents learning rate and Error in the output respectively.

**Options 1. 1**

2. 2
3. 3

4. 4

Question Type : MCQ

Question ID : 61547510553

Option 1 ID : 61547541149

Option 2 ID : 61547541150

Option 3 ID : 61547541151

Option 4 ID : 61547541152

Status : Answered

Chosen Option : 2

**Q.45** A micro instruction format has microoperation field which is divided into 2 subfields F1 and F2, each having 15 distinct microoperations, condition field CD for four status bits, branch field BR having four options used in conjunction with address field AD. The address space is of 128 memory words. The size of micro instruction is :

- |        |        |
|--------|--------|
| (1) 19 | (2) 18 |
| (3) 17 | (4) 20 |

**Options**

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

Question Type : MCQ

Question ID : 61547510501

Option 1 ID : 61547540941

Option 2 ID : 61547540942

Option 3 ID : 61547540943

Option 4 ID : 61547540944

Status : Answered

Chosen Option : 2

**Q.46** Piconet is a basic unit of a bluetooth system consisting of \_\_\_\_\_ master node and up to \_\_\_\_\_ active slave nodes.

- |                |                |
|----------------|----------------|
| (1) one, five  | (2) one, seven |
| (3) two, eight | (4) one, eight |

**Options**

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

Question Type : MCQ

Question ID : 61547510545

Option 1 ID : 61547541117

Option 2 ID : 61547541118

Option 3 ID : 61547541119

Option 4 ID : 61547541120

Status : Answered

Chosen Option : 2

**Q.47**

Which of the following algorithms is not used for line clipping?

- (1) Cohen-Sutherland algorithm
- (2) Southerland-Hodgeman algorithm
- (3) Liang-Barsky algorithm
- (4) Nicholl-Lee-Nicholl algorithm

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510508

Option 1 ID : 61547540969

Option 2 ID : 61547540970

Option 3 ID : 61547540971

Option 4 ID : 61547540972

Status : Answered

Chosen Option : 2

**Q.48**

What is the worst case running time of Insert and Extract-min, in an implementation of a priority queue using an unsorted array? Assume that all insertions can be accommodated.

- |                               |                               |
|-------------------------------|-------------------------------|
| (1) $\theta(1)$ , $\theta(n)$ | (2) $\theta(n)$ , $\theta(1)$ |
| (3) $\theta(1)$ , $\theta(1)$ | (4) $\theta(n)$ , $\theta(n)$ |

**Options** 1. 1

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

Question Type : MCQ

Question ID : 61547510527

Option 1 ID : 61547541045

Option 2 ID : 61547541046

Option 3 ID : 61547541047

Option 4 ID : 61547541048

Status : Answered

Chosen Option : 1

**Q.49**

Identify the circumstances under which pre-emptive CPU scheduling is used :

- (a) A process switches from Running state to Ready state
- (b) A process switches from Waiting state to Ready state
- (c) A process completes its execution
- (d) A process switches from Ready to Waiting state

Choose the correct option :

- (1) (a) and (b) only
- (2) (a) and (d) only
- (3) (c) and (d) only
- (4) (a), (b), (c) only

**Options** 1. 1

- 2. 2
- 3. 3

4. 4

Question Type : MCQ

Question ID : 61547510564

Option 1 ID : 61547541193

Option 2 ID : 61547541194

Option 3 ID : 61547541195

Option 4 ID : 61547541196

Status : Answered

Chosen Option : 4

**Q.50** A network with bandwidth of 10 Mbps can pass only an average of 12,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network?

- (1) 1,000,000 bps      (2) 2,000,000 bps  
(3) 12,000,000 bps      (4) 1,200,00,000 bps

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510546

Option 1 ID : 61547541121

Option 2 ID : 61547541122

Option 3 ID : 61547541123

Option 4 ID : 61547541124

Status : Marked For Review

Chosen Option : 3

**Q.51** Which of the following methods are used to pass any number of parameters to the operating system through system calls?

- (1) Registers  
(2) Block or table in main memory  
(3) Stack  
(4) Block in main memory and stack

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510521

Option 1 ID : 61547541021

Option 2 ID : 61547541022

Option 3 ID : 61547541023

Option 4 ID : 61547541024

Status : Answered

Chosen Option : 4

**Q.52**

The following multithreaded algorithm computes transpose of a matrix in parallel :

p Trans ( $X, Y, N$ )

if  $N = 1$

then  $Y[1,1] \leftarrow X[1,1]$

else partition  $X$  into four  $(N/2) \times (N/2)$  submatrices  $X_{11}, X_{12}, X_{21}, X_{22}$

partition  $Y$  into four  $(N/2) \times (N/2)$  submatrices  $Y_{11}, Y_{12}, Y_{21}, Y_{22}$

spawn p Trans ( $X_{11}, Y_{11}, N/2$ )

spawn p Trans ( $X_{12}, Y_{12}, N/2$ )

spawn p Trans ( $X_{21}, Y_{21}, N/2$ )

spawn p Trans ( $X_{22}, Y_{22}, N/2$ )

What is the asymptotic parallelism of the algorithm?

(1)  $T_1 / T_\infty$  or  $\theta(N^2 / \lg N)$

(2)  $T_1 / T_\infty$  or  $\theta(N / \lg N)$

(3)  $T_1 / T_\infty$  or  $\theta(\lg N / N^2)$

(4)  $T_1 / T_\infty$  or  $\theta(\lg N / N)$

**Options 1.1**

2.2

3.3

4.4

Question Type : MCQ

Question ID : 61547510565

Option 1 ID : 61547541197

Option 2 ID : 61547541198

Option 3 ID : 61547541199

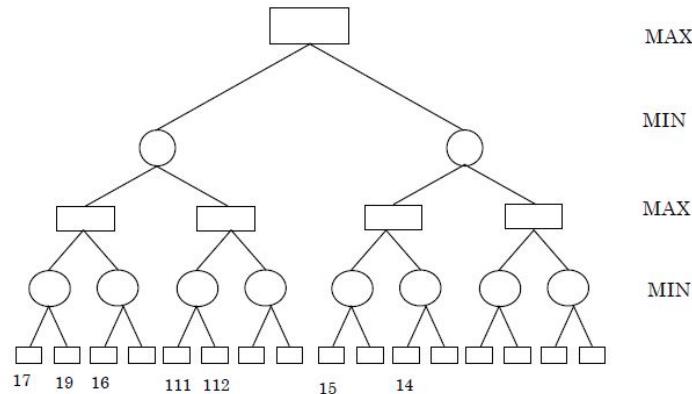
Option 4 ID : 61547541200

Status : Answered

Chosen Option : 2

**Q.53**

Consider the game tree given below



Here  $\circ$  and  $\square$  represent MIN and MAX nodes respectively. The value of the root node of the game tree is:

(1) 14

(2) 17

(3) 111

(4) 112

**Options 1.1**

2.2

3.3

4. 4

Question Type : MCQ

Question ID : 61547510550

Option 1 ID : 61547541137

Option 2 ID : 61547541138

Option 3 ID : 61547541139

Option 4 ID : 61547541140

Status : Answered

Chosen Option : 2

**Q.54** Java Virtual Machine (JVM) is used to execute architectural neutral byte code. Which of the following is needed by the JVM for execution of Java Code?

- (1) Class loader only
- (2) Class loader and Java Interpreter
- (3) Class loader, Java Interpreter and API
- (4) Java Interpreter only

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510522

Option 1 ID : 61547541025

Option 2 ID : 61547541026

Option 3 ID : 61547541027

Option 4 ID : 61547541028

Status : Answered

Chosen Option : 4

**Q.55** Consider the language  $L = \{a^n b^{n-3} \mid n > 2\}$  on  $\Sigma = \{a, b\}$ . Which one of the following grammars generates the language  $L$ ?

- |   |  |
|---|--|
| (1) $S \rightarrow aA \mid a, A \rightarrow aAb \mid b$         | (2) $S \rightarrow aaA \mid \lambda, A \rightarrow aAb \mid \lambda$ |
| (3) $S \rightarrow aaaA \mid a, A \rightarrow aAb \mid \lambda$ | (4) $S \rightarrow aaaA, A \rightarrow aAb \mid \lambda$             |

**Options 1. 1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510534

Option 1 ID : 61547541073

Option 2 ID : 61547541074

Option 3 ID : 61547541075

Option 4 ID : 61547541076

Status : Marked For Review

Chosen Option : 2

**Q.56**

A computer uses a memory unit of 512 K words of 32 bits each. A binary instruction code is stored in one word of the memory. The instruction has four parts: an addressing mode field to specify one of the two addressing modes (direct and indirect), an operation code, a register code part to specify one of the 256 registers and an address part. How many bits are there in addressing mode part, opcode part, register code part and the address part?

- |                 |                 |
|-----------------|-----------------|
| (1) 1, 3, 9, 19 | (2) 1, 4, 9, 18 |
| (3) 1, 4, 8, 19 | (4) 1, 3, 8, 20 |

**Options 1.1**

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

Question Type : MCQ  
 Question ID : **61547510500**  
 Option 1 ID : **61547540937**  
 Option 2 ID : **61547540938**  
**Option 3 ID : 61547540939**  
 Option 4 ID : **61547540940**  
 Status : **Answered**  
 Chosen Option : **3**

**Q.57**

A basic feasible solution of an  $m \times n$  transportation problem is said to be non-degenerate, if basic feasible solution contains exactly \_\_\_\_\_ number of individual allocation in \_\_\_\_\_ positions.

- |                           |                           |
|---------------------------|---------------------------|
| (1) $m+n+1$ , independent | (2) $m+n-1$ , independent |
| (3) $m+n-1$ , appropriate | (4) $m-n+1$ , independent |

**Options 1.1**

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

Question Type : MCQ  
 Question ID : **61547510491**  
 Option 1 ID : **61547540901**  
**Option 2 ID : 61547540902**  
 Option 3 ID : **61547540903**  
 Option 4 ID : **61547540904**  
 Status : **Answered**  
 Chosen Option : **2**

**Q.58**

Consider the following learning algorithms :

- (a) Logistic regression
- (b) Back propagation
- (c) Linear regression

This question is dropped.  
markes for all

Which of the following option represents classification algorithms?

- |                      |                      |
|----------------------|----------------------|
| (1) (a) and (b) only | (2) (a) and (c) only |
| (3) (b) and (c) only | (4) (a), (b) and (c) |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510571

Option 1 ID : 61547541221

Option 2 ID : 61547541222

Option 3 ID : 61547541223

Option 4 ID : 61547541224

Status : Answered

Chosen Option : 3

**Q.59** Which of the following statements are true regarding C++?

- (a) Overloading gives the capability to an existing operator to operate on other data types.
- (b) Inheritance in object oriented programming provides support to reusability.
- (c) When object of a derived class is defined, first the constructor of derived class is executed then constructor of a base class is executed.
- (d) Overloading is a type of polymorphism.

Choose the correct option from those given below :

- (1) (a) and (b) only
- (2) (a), (b) and (c) only
- (3) (a), (b) and (d) only
- (4) (b), (c) and (d) only

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510561

Option 1 ID : 61547541181

Option 2 ID : 61547541182

Option 3 ID : 61547541183

Option 4 ID : 61547541184

Status : Answered

Chosen Option : 3

**Q.60** A counting semaphore is initialized to 8. 3 wait () operations and 4 signal () operations are applied. Find the current value of semaphore variable.

- |       |       |
|-------|-------|
| (1) 9 | (2) 5 |
| (3) 1 | (4) 4 |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510514

Option 1 ID : 61547540993

Option 2 ID : 61547540994

Option 3 ID : 61547540995

Option 4 ID : 61547540996

Status : Answered

Chosen Option : 1

**Q.61**

Consider the following languages :

$$L_1 = \{a^n b^n c^m\} \cup \{a^n b^m c^n\}, n, m \geq 0$$

$$L_2 = \{ww^R \mid w \in \{a, b\}^*\} \text{ Where R represents reversible operation.}$$

Which one of the following is (are) inherently ambiguous language(s)?

- |                          |                             |
|--------------------------|-----------------------------|
| (1) only $L_1$           | (2) only $L_2$              |
| (3) both $L_1$ and $L_2$ | (4) neither $L_1$ nor $L_2$ |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510538  
**Option 1 ID : 61547541089**  
 Option 2 ID : 61547541090  
 Option 3 ID : 61547541091  
 Option 4 ID : 61547541092  
 Status : Answered  
 Chosen Option : 2

**Q.62** A tree has  $2n$  vertices of degree 1,  $3n$  vertices of degree 2,  $n$  vertices of degree 3. Determine the number of vertices and edges in tree.

- |           |           |
|-----------|-----------|
| (1) 12,11 | (2) 11,12 |
| (3) 10,11 | (4) 9,10  |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510497  
**Option 1 ID : 61547540925**  
 Option 2 ID : 61547540926  
 Option 3 ID : 61547540927  
 Option 4 ID : 61547540928  
 Status : Answered  
 Chosen Option : 3

**Q.63** Let  $P$  be the set of all people. Let  $R$  be a binary relation on  $P$  such that  $(a, b)$  is in  $R$  if  $a$  is a brother of  $b$ . Is  $R$  symmetric, transitive, an equivalence relation, a partial order relation?

- |                   |
|-------------------|
| (1) NO,NO,NO,NO   |
| (2) NO,NO,YES,NO  |
| (3) NO,YES,NO,NO  |
| (4) NO,YES,YES,NO |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510495

Option 1 ID : 61547540917

Option 2 ID : 61547540918

Option 3 ID : 61547540919

Option 4 ID : 61547540920

Status : Answered

Chosen Option : 3

- Q.64** Let  $A = \{001, 0011, 11, 101\}$  and  $B = \{01, 111, 111, 010\}$ . Similarly, let  $C = \{00, 001, 1000\}$  and  $D = \{0, 11, 011\}$ .

Which of the following pairs have a post-correspondence solution?

- |                                |                                   |
|--------------------------------|-----------------------------------|
| (1) Only pair $(A, B)$         | (2) Only pair $(C, D)$            |
| (3) Both $(A, B)$ and $(C, D)$ | (4) Neither $(A, B)$ nor $(C, D)$ |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510542

Option 1 ID : 61547541105

Option 2 ID : 61547541106

Option 3 ID : 61547541107

Option 4 ID : 61547541108

Status : Answered

Chosen Option : 2

- Q.65** An instruction is stored at location 500 with its address field at location 501. The address field has the value 400. A processor register  $R_1$  contains the number 200. Match the addressing mode (List-I) given below with effective address (List-II) for the given instruction:

List I	List II
(a) Direct	(i) 200
(b) Register indirect	(ii) 902
(c) Index with $R_1$ as the index register	(iii) 400
(d) Relative	(iv) 600

Choose the correct option from those given below :

- (1) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
- (2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
- (3) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)
- (4) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510576

Option 1 ID : 61547541241

Option 2 ID : 61547541242

Option 3 ID : 61547541243

Option 4 ID : 61547541244

Status : Marked For Review

Chosen Option : 2

**Q.66**

What is the output of following C program?

```
# include <stdio.h>

main()
{
    int i, j, x = 0;

    for (i = 0; i < 5; ++i)
        for (j = 0; j < i; ++j)
        {
            x += (i + j - 1);
            break;
        }
    printf ("%d", x);
}
```

- (1) 6  
(2) 5  
(3) 4  
(4) 3

**Options 1.1**

2. 2  
3. 3  
4. 4

Question Type : MCQ

Question ID : 61547510504

Option 1 ID : 61547540953

Option 2 ID : 61547540954

Option 3 ID : 61547540955

Option 4 ID : 61547540956

Status : Marked For Review

Chosen Option : 3

**Q.67**

Match List-I with List-II :

List I

- (a) Frame attribute  
(b) <tr> tag  
(c) Valign attribute  
(d) <a> tag

List II

- (i) to create link in HTML  
(ii) for vertical alignment of content in cell  
(iii) to enclose each row in table  
(iv) to specify the side of the table frame that display border

Choose the correct option from those given below :

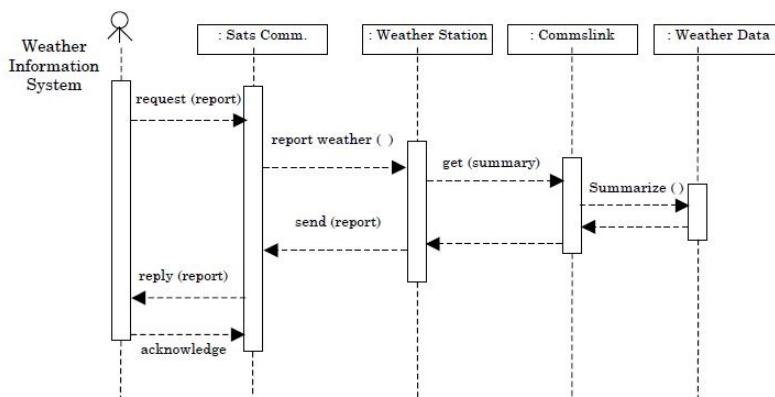
- (1) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)  
(2) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)  
(3) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)  
(4) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

**Options 1.1**

2. 2  
3. 3  
4. 4

Question Type : MCQ  
 Question ID : 61547510575  
 Option 1 ID : 61547541237  
 Option 2 ID : 61547541238  
 Option 3 ID : 61547541239  
 Option 4 ID : 61547541240  
 Status : Answered  
 Chosen Option : 3

Q.68



This Ques is dropped  
Marks for all

Figure 1

The sequence diagram given in Figure 1 for the Weather Information System takes place when an external system requests the summarized data from the weather station. The increasing order of lifeline for the objects in the system are:

- (1) Sat comms → Weather station → Comms link → Weather data
- (2) Sat comms → Comms link → Weather station → Weather data
- (3) Weather data → Comms link → Weather station → Sat Comms
- (4) Weather data → Weather station → Comms link → Sat Comms

Options 1. 1

2. 2  
3. 3  
4. 4

Question Type : MCQ  
 Question ID : 61547510579  
 Option 1 ID : 61547541253  
 Option 2 ID : 61547541254  
 Option 3 ID : 61547541255  
 Option 4 ID : 61547541256  
 Status : Answered  
 Chosen Option : 1

Q.69

How many reflexive relations are there on a set with 4 elements?

- |           |              |
|-----------|--------------|
| (1) $2^4$ | (2) $2^{12}$ |
| (3) $4^2$ | (4) 2        |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510498

Option 1 ID : 61547540929

Option 2 ID : 61547540930

Option 3 ID : 61547540931

Option 4 ID : 61547540932

Status : Answered

Chosen Option : 1

**Q.70** What are the greatest lower bound (GLB) and the least upper bound (LUB) of the sets $A = \{3, 9, 12\}$  and  $B = \{1, 2, 4, 5, 10\}$  if they exist in poset  $(z^+, /)$ ?

- (1)  $A(GLB - 3, LUB - 36); B(GLB - 1, LUB - 20)$
- (2)  $A(GLB - 3, LUB - 12); B(GLB - 1, LUB - 10)$
- (3)  $A(GLB - 1, LUB - 36); B(GLB - 2, LUB - 20)$
- (4)  $A(GLB - 1, LUB - 12); B(GLB - 2, LUB - 10)$

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510494

Option 1 ID : 61547540913

Option 2 ID : 61547540914

Option 3 ID : 61547540915

Option 4 ID : 61547540916

Status : Answered

Chosen Option : 2

**Q.71** Which of the following interprocess communication model is used to exchange messages among co-operative processes?

- (1) Shared memory model
- (2) Message passing model
- (3) Shared memory and message passing model
- (4) Queues

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510519

Option 1 ID : 61547541013

Option 2 ID : 61547541014

Option 3 ID : 61547541015

Option 4 ID : 61547541016

Status : Answered

Chosen Option : 3

**Q.72**

An \_\_\_\_\_ chart is a project schedule representation that presents project plan as a directed graph. The critical path is the \_\_\_\_\_ sequence of \_\_\_\_\_ tasks and it defines project \_\_\_\_\_.

- (1) Activity, Shortest, Independent, Cost
- (2) Activity, Longest, Dependent, Duration
- (3) Activity, Longest, Independent, Duration
- (4) Activity, Shortest, Dependent, Duration

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510524

Option 1 ID : 61547541033

Option 2 ID : 61547541034

Option 3 ID : 61547541035

Option 4 ID : 61547541036

Status : Answered

Chosen Option : 2

**Q.73** Suppose a system has 12 magnetic tape drives and at time  $t_0$ , three processes are allotted tape drives out of their need as given below :

	Maximum Needs	Current Needs
$p_0$	10	5
$p_1$	4	2
$p_2$	9	2

At time  $t_0$ , the system is in safe state. Which of the following is safe sequence so that deadlock is avoided?

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| (1) $\langle p_0, p_1, p_2 \rangle$ | (2) $\langle p_1, p_0, p_2 \rangle$ |
| (3) $\langle p_2, p_1, p_0 \rangle$ | (4) $\langle p_0, p_2, p_1 \rangle$ |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510518

Option 1 ID : 61547541009

Option 2 ID : 61547541010

Option 3 ID : 61547541011

Option 4 ID : 61547541012

Status : Answered

Chosen Option : 2

**Q.74** Let A be the base class in C++ and B be the derived class from A with protected inheritance. Which of the following statement is false for class B?

- (1) Member function of class B can access protected data of class A
- (2) Member function of Class B can access public data of class A
- (3) Member function of class B cannot access private data of class A
- (4) Object of derived class B can access public base class data

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510505

Option 1 ID : 61547540957

Option 2 ID : 61547540958

Option 3 ID : 61547540959

Option 4 ID : 61547540960

Status : Marked For Review

Chosen Option : 2

**Q.75**

Consider a weighted directed graph. The current shortest distance from source  $S$  to node  $x$  is represented by  $d[x]$ . Let  $d[v] = 29$ ,  $d[u] = 15$ ,  $w[u, v] = 12$ . What is the updated value of  $d[v]$  based on current information?

- |        |        |
|--------|--------|
| (1) 29 | (2) 27 |
| (3) 25 | (4) 17 |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510530

Option 1 ID : 61547541057

Option 2 ID : 61547541058

Option 3 ID : 61547541059

Option 4 ID : 61547541060

Status : Answered

Chosen Option : 2

**Q.76**

Which of the following are legal statements in C programming language?

- (a) int \* P = &44;
- (b) int \* P = &r;
- (c) int P = &a;
- (d) int P = a;

Choose the correct option :

- |                 |                 |
|-----------------|-----------------|
| (1) (a) and (b) | (2) (b) and (c) |
| (3) (b) and (d) | (4) (a) and (d) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510562

Option 1 ID : 61547541185

Option 2 ID : 61547541186

Option 3 ID : 61547541187

Option 4 ID : 61547541188

Status : Marked For Review

Chosen Option : 2

**Q.77** Consider  $\Sigma = \{w, x\}$  and  $T = \{x, y, z\}$ . Define homomorphism  $h$  by :

$$h(x) = xzy$$

$$h(w) = zxyy$$

If  $L$  is the regular language denoted by  $r = (w + x^*)(ww)^*$ , then the regular language  $h(L)$  is given by

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| (1) $(zx\,yy + x\,z\,y)(zx\,yy)$ | (2) $(zxyy + (xzy)^*)(zxyy\,zxyy)^*$ |
| (3) $(zxyy + xzy)(zxyy)^*$       | (4) $(zxyy + (xzy)^*)(zxyy\,zxyy)$   |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510536

Option 1 ID : 61547541081

Option 2 ID : 61547541082

Option 3 ID : 61547541083

Option 4 ID : 61547541084

Status : Answered

Chosen Option : 2

**Q.78** Given CPU time slice of 2ms and following list of processes.

Process	Burst time (ms)	Arrival time
$p_1$	3	0
$p_2$	4	2
$p_3$	5	5

Find average turnaround time and average waiting time using round robin CPU scheduling?

- |             |                |
|-------------|----------------|
| (1) 4, 0    | (2) 5.66, 1.66 |
| (3) 5.66, 0 | (4) 7, 2       |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510520

Option 1 ID : 61547541017

Option 2 ID : 61547541018

Option 3 ID : 61547541019

Option 4 ID : 61547541020

Status : Marked For Review

Chosen Option : 2

**Q.79**

Consider the following statements with respect to duality in LPP :

- (a) The final simplex table giving optimal solution of the primal also contains optimal solution of its dual in itself.
- (b) If either the primal or the dual problem has a finite optimal solution, then the other problem also has a finite optimal solution.
- (c) If either problem has an unbounded optimum solution, then the other problem has no feasible solution at all.

Which of the statements is (are) correct?

- |                      |                      |
|----------------------|----------------------|
| (1) only (a) and (b) | (2) only (a) and (c) |
| (3) only (b) and (c) | (4) (a), (b) and (c) |

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510557**

Option 1 ID : **61547541165**

Option 2 ID : **61547541166**

Option 3 ID : **61547541167**

**Option 4 ID : 61547541168**

Status : **Answered**

Chosen Option : **2**

**Q.80** Consider the following :

- (a) Trapping at local maxima
- (b) Reaching a plateau
- (c) Traversal along the ridge.

Which of the following option represents shortcomings of the hill climbing algorithm?

- |                      |                      |
|----------------------|----------------------|
| (1) (a) and (b) only | (2) (a) and (c) only |
| (3) (b) and (c) only | (4) (a), (b) and (c) |

**Options 1. 1**

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

Question Type : **MCQ**

Question ID : **61547510570**

Option 1 ID : **61547541217**

Option 2 ID : **61547541218**

Option 3 ID : **61547541219**

**Option 4 ID : 61547541220**

Status : **Answered**

Chosen Option : **2**

**Q.81**

Match List-I with List-II :

- | List I                            | List II   |
|-----------------------------------|---|
| (a) Micro operation               | (i) Specify micro operations                                    |
| (b) Micro programmed control unit | (ii) Improve CPU utilization                                    |
| (c) Interrupts                    | (iii) Control Memory  |
| (d) Micro instruction             | (iv) Elementary operation performed on data stored in registers |

Choose the correct option from those given below :

- (1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
- (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 : 61547510578

Option 1 ID : 61547541249

Option 2 ID : 61547541250

Option 3 ID : 61547541251

Option 4 ID : 61547541252

Status : Marked For Review

Chosen Option : 2

**Q.82**

The following program is stored in the memory unit of the basic computer. Give the content of accumulator register in hexadecimal after the execution of the program.

Location	Instruction
010	CLA
011	ADD 016
012	BUN 014
013	HLT
014	AND 017
015	BUN 013
016	C1A5
017	93C6

- (1) A1B4
- (2) 81B4
- (3) A184
- (4) 8184

**Options 1. 1**

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 61547510503

Option 1 ID : 61547540949

Option 2 ID : 61547540950

Option 3 ID : 61547540951

Option 4 ID : 61547540952

Status : Answered

Chosen Option : 2

**Q.83**

A rectangle is bound by the lines  $x = 0$ ;  $y = 0$ ;  $x = 5$  and  $y = 3$ . The line segment joining  $(-1, 0)$  and  $(4, 5)$ , if clipped against this window will connect the points \_\_\_\_\_.

- |                       |                       |
|-----------------------|-----------------------|
| (1) (0, 1) and (3, 3) | (2) (0, 1) and (2, 3) |
| (3) (0, 1) and (4, 5) | (4) (0, 1) and (3, 5) |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510507

Option 1 ID : 61547540965

Option 2 ID : 61547540966

Option 3 ID : 61547540967

Option 4 ID : 61547540968

Status : Answered

Chosen Option : 2

**Q.84**

Which tag is used to enclose any number of javascript statements in HTML document?

- |             |              |
|-------------|--------------|
| (1) <code>  | (2) <script> |
| (3) <title> | (4) <body>   |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510506

Option 1 ID : 61547540961

Option 2 ID : 61547540962

Option 3 ID : 61547540963

Option 4 ID : 61547540964

Status : Answered

Chosen Option : 2

**Q.85**

If we want to resize a  $1024 \times 768$  pixels image to one that is 640 pixels wide with the same aspect ratio, what would be the height of the resized image?

- |                |                |
|----------------|----------------|
| (1) 420 Pixels | (2) 460 Pixels |
| (3) 480 Pixels | (4) 540 Pixels |

**Options 1. 1**

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

Question Type : MCQ

Question ID : 61547510509

Option 1 ID : 61547540973

Option 2 ID : 61547540974

Option 3 ID : 61547540975

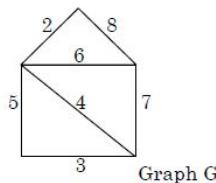
Option 4 ID : 61547540976

Status : Answered

Chosen Option : 2

**Q.86**

The weight of minimum spanning tree in graph G, calculated using Kruskal's algorithm is :



- |        |        |
|--------|--------|
| (1) 14 | (2) 15 |
| (3) 17 | (4) 18 |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510496  
 Option 1 ID : 61547540921  
**Option 2 ID : 61547540922**  
 Option 3 ID : 61547540923  
 Option 4 ID : 61547540924  
 Status : Marked For Review  
 Chosen Option : 2

**Q.87** Consider the following models:

M<sub>1</sub>: Mamdani model

M<sub>2</sub>: Takagi – Sugeno–Kang model

M<sub>3</sub>: Kosko's additive model (SAM)

Which of the following option contains examples of additive rule model?

- (1) Only M<sub>1</sub> and M<sub>2</sub>
- (2) Only M<sub>2</sub> and M<sub>3</sub>
- (3) Only M<sub>1</sub> and M<sub>3</sub>
- (4) M<sub>1</sub>,M<sub>2</sub>, and M<sub>3</sub>

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : 61547510551  
 Option 1 ID : 61547541141  
**Option 2 ID : 61547541142**  
 Option 3 ID : 61547541143  
 Option 4 ID : 61547541144  
 Status : Answered  
 Chosen Option : 2

**Q.88**

In a system for a restaurant, the main scenario for placing order is given below :

- (a) Customer reads menu
- (b) Customer places order
- (c) Order is sent to kitchen for preparation
- (d) Ordered items are served
- (e) Customer requests for a bill for the order
- (f) Bill is prepared for this order
- (g) Customer is given the bill
- (h) Customer pays the bill

A sequence diagram for the scenario will have atleast how many objects among whom the messages will be exchanged.

- |       |       |
|-------|-------|
| (1) 3 | (2) 4 |
| (3) 5 | (4) 6 |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : **61547510523**  
 Option 1 ID : **61547541029**  
 Option 2 ID : **61547541030**  
**Option 3 ID : 61547541031**  
 Option 4 ID : **61547541032**  
 Status : **Answered**  
 Chosen Option : **2**

**Q.89** Which of the following class of IP address has the last address as 223.255.255.255?

- |             |             |
|-------------|-------------|
| (1) Class A | (2) Class B |
| (3) Class C | (4) Class D |

**Options 1. 1**

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

Question Type : MCQ  
 Question ID : **61547510543**  
 Option 1 ID : **61547541109**  
 Option 2 ID : **61547541110**  
**Option 3 ID : 61547541111**  
 Option 4 ID : **61547541112**  
 Status : **Answered**  
 Chosen Option : **3**

**Q.90** A clique in an undirected graph  $G = \langle V, E \rangle$  is a subset  $V' \subseteq V$  of vertices, such that

- (1) If  $(u, v) \in E$  then  $u \in V'$  and  $v \in V'$
- (2) If  $(u, v) \in E$  then  $u \in V'$  or  $v \in V'$
- (3) Each pair of vertices in  $V'$  is connected by an edge
- (4) All pairs of vertices in  $V'$  are not connected by an edge

**Options 1. 1**

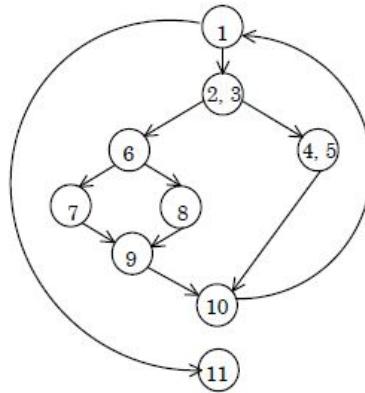
- 2. 2
- 3. 3

4. 4

Question Type : MCQ  
 Question ID : 61547510526  
 Option 1 ID : 61547541041  
 Option 2 ID : 61547541042  
 Option 3 ID : 61547541043  
 Option 4 ID : 61547541044  
 Status : Marked For Review  
 Chosen Option : 2

**Comprehension:****Answer the following question (91-95) based on flow graph F.**

A flow graph F with entry node (1) and exit node (11) is shown below :



Flowgraph F

**SubQuestion No : 91****Q.91** How many regions are there in flowgraph F?

- (1) 2  
 (3) 4

- (2) 3  
 (4) 5

**Options 1. 1**

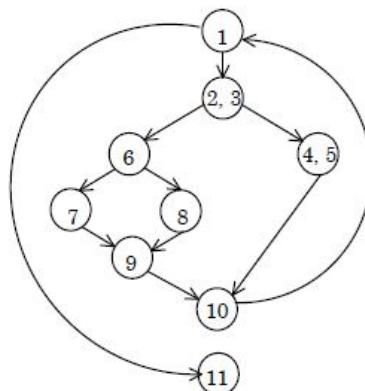
2. 2  
 3. 3  
 4. 4

Question Type : MCQ  
 Question ID : 61547510584  
 Option 1 ID : 61547541269  
 Option 2 ID : 61547541270  
 Option 3 ID : 61547541271  
 Option 4 ID : 61547541272  
 Status : Answered  
 Chosen Option : 3

**Comprehension:**

**Answer the following question (91-95) based on flow graph F.**

A flow graph F with entry node (1) and exit node (11) is shown below :



Flowgraph F

**SubQuestion No : 92**

**Q.92** How many nodes are there in the longest independent path?

- |       |       |
|-------|-------|
| (1) 6 | (2) 7 |
| (3) 8 | (4) 9 |

**Options 1. 1**

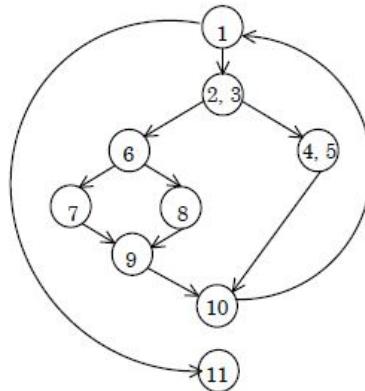
- 2. 2
- 3. 3
- 4. 4

Question Type : MCQ  
 Question ID : **61547510585**  
 Option 1 ID : **61547541273**  
 Option 2 ID : **61547541274**  
**Option 3 ID : 61547541275**  
 Option 4 ID : **61547541276**  
 Status : **Answered**  
 Chosen Option : **1**

**Comprehension:**

**Answer the following question (91-95) based on flow graph F.**

A flow graph F with entry node (1) and exit node (11) is shown below :



Flowgraph F

**SubQuestion No : 93**

**Q.93**

How many predicate nodes are there and what are their names?

- |                                |                               |
|--------------------------------|-------------------------------|
| (1) Three : (1, (2, 3), 6)     | (2) Three : (1, 4, 6)         |
| (3) Four : ((2, 3), 6, 10, 11) | (4) Four : ((2, 3), 6, 9, 10) |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510586

Option 1 ID : 61547541277

Option 2 ID : 61547541278

Option 3 ID : 61547541279

Option 4 ID : 61547541280

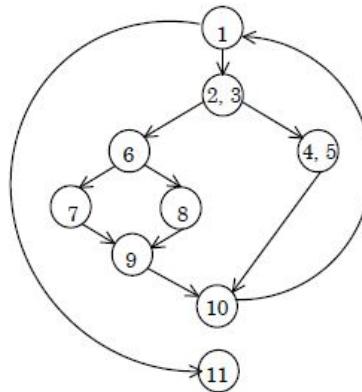
Status : Answered

Chosen Option : 3

**Comprehension:**

**Answer the following question (91-95) based on flow graph F.**

A flow graph F with entry node (1) and exit node (11) is shown below :



Flowgraph F

**SubQuestion No : 94****Q.94**

What is the cyclomatic complexity of flowgraph F?

- |       |       |
|-------|-------|
| (1) 2 | (2) 3 |
| (3) 4 | (4) 5 |

**Options 1.1**

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

Question Type : MCQ

Question ID : 61547510583

Option 1 ID : 61547541265

Option 2 ID : 61547541266

Option 3 ID : 61547541267

Option 4 ID : 61547541268

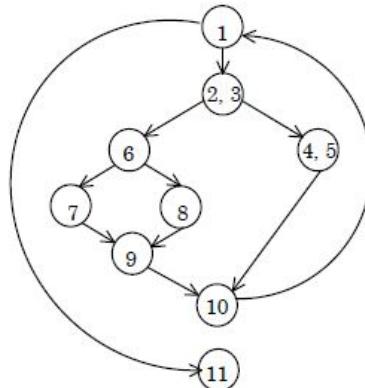
Status : Marked For Review

Chosen Option : 2

**Comprehension:**

**Answer the following question (91-95) based on flow graph F.**

A flow graph F with entry node (1) and exit node (11) is shown below :



Flowgraph F

**SubQuestion No : 95**

**Q.95** How many nodes are there in flowgraph F?

- |        |        |
|--------|--------|
| (1) 9  | (2) 10 |
| (3) 11 | (4) 12 |

**Options**

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

Question Type : **MCQ**

Question ID : **61547510582**

Option 1 ID : **61547541261**

Option 2 ID : **61547541262**

Option 3 ID : **61547541263**

Option 4 ID : **61547541264**

Status : **Marked For Review**

Chosen Option : **2**

**Comprehension:**

**Answer question (96-100) based on the problem statement given below :**

An organization needs to maintain database having five attributes  $A, B, C, D, E$ . These attributes are functionally dependent on each other for which functionally dependency set  $F$  is given as :  $F: \{A \rightarrow BC, D \rightarrow E, BC \rightarrow D, A \rightarrow D\}$ . Consider a universal relation  $R(A, B, C, D, E)$  with functional dependency set  $F$ . Also all attributes are simple and take atomic values only.

**SubQuestion No : 96**

**Q.96**

Minimal cover  $F'$  of functional dependency set  $F$  is

- (1)  $F' = \{A \rightarrow B, A \rightarrow C, BC \rightarrow D, D \rightarrow E\}$
- (2)  $F' = \{A \rightarrow BC, B \rightarrow D, D \rightarrow E\}$
- (3)  $F' = \{A \rightarrow B, A \rightarrow C, A \rightarrow D, D \rightarrow E\}$
- (4)  $F' = \{A \rightarrow B, A \rightarrow C, B \rightarrow D, C \rightarrow D, D \rightarrow E\}$

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 61547510588

Option 1 ID : 61547541281

Option 2 ID : 61547541282

Option 3 ID : 61547541283

Option 4 ID : 61547541284

Status : Marked For Review

Chosen Option : 2

#### Comprehension:

Answer question (96-100) based on the problem statement given below :

An organization needs to maintain database having five attributes  $A, B, C, D, E$ . These attributes are functionally dependent on each other for which functionally dependency set  $F$  is given as :  $F: \{A \rightarrow BC, D \rightarrow E, BC \rightarrow D, A \rightarrow D\}$ . Consider a universal relation  $R(A, B, C, D, E)$  with functional dependency set  $F$ . Also all attributes are simple and take atomic values only.

#### SubQuestion No : 97

**Q.97** Assume that given table  $R$  is decomposed in two tables

$R_1(A, B, C)$  with functional dependency set  $f_1 = \{A \rightarrow B, A \rightarrow C\}$  and

$R_2(A, D, E)$  with FD set  $F_2 = \{A \rightarrow D, D \rightarrow E\}$ .

Which of the following option is true w.r.t. given decomposition?

- (1) Dependency preservation property is followed
- (2)  $R_1$  and  $R_2$  are both in 2 NF
- (3)  $R_2$  is in 2 NF and  $R_3$  is in 3 NF
- (4)  $R_1$  is in 3 NF and  $R_2$  is in 2 NF

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 61547510592

Option 1 ID : 61547541297

Option 2 ID : 61547541298

Option 3 ID : 61547541299

Option 4 ID : 61547541300

Status : Answered

Chosen Option : 2

**Comprehension:**

**Answer question (96-100) based on the problem statement given below :**

An organization needs to maintain database having five attributes  $A, B, C, D, E$ . These attributes are functionally dependent on each other for which functionally dependency set  $F$  is given as :  $F:\{A \rightarrow BC, D \rightarrow E, BC \rightarrow D, A \rightarrow D\}$ . Consider a universal relation  $R(A, B, C, D, E)$  with functional dependency set  $F$ . Also all attributes are simple and take atomic values only.

**SubQuestion No : 98**

**Q.98** Identify primary key of table  $R$  with functional dependency set  $F$

- |          |          |
|----------|----------|
| (1) $BC$ | (2) $AD$ |
| (3) $A$  | (4) $AB$ |

**Options** 1. 1

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

Question Type : MCQ  
 Question ID : **61547510589**  
 Option 1 ID : **61547541285**  
 Option 2 ID : **61547541286**  
**Option 3 ID : 61547541287**  
 Option 4 ID : **61547541288**  
 Status : **Answered**  
 Chosen Option : **3**

**Comprehension:**

**Answer question (96-100) based on the problem statement given below :**

An organization needs to maintain database having five attributes  $A, B, C, D, E$ . These attributes are functionally dependent on each other for which functionally dependency set  $F$  is given as :  $F:\{A \rightarrow BC, D \rightarrow E, BC \rightarrow D, A \rightarrow D\}$ . Consider a universal relation  $R(A, B, C, D, E)$  with functional dependency set  $F$ . Also all attributes are simple and take atomic values only.

**SubQuestion No : 99**

**Q.99** Identify the normal form in which relation  $R$  belong to

- |             |             |
|-------------|-------------|
| (1)    1 NF | (2)    2 NF |
| (3)    3 NF | (4)    BCNF |

**Options** 1. 1

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

Question Type : MCQ  
 Question ID : **61547510590**  
 Option 1 ID : **61547541289**  
**Option 2 ID : 61547541290**  
 Option 3 ID : **61547541291**  
 Option 4 ID : **61547541292**  
 Status : **Answered**  
 Chosen Option : **2**

**Comprehension:**

**Answer question (96-100) based on the problem statement given below :**

An organization needs to maintain database having five attributes  $A, B, C, D, E$ . These attributes are functionally dependent on each other for which functionally dependency set  $F$  is given as :  $F: \{A \rightarrow BC, D \rightarrow E, BC \rightarrow D, A \rightarrow D\}$ . Consider a universal relation  $R(A, B, C, D, E)$  with functional dependency set  $F$ . Also all attributes are simple and take atomic values only.

**SubQuestion No : 100**

**Q.100**

Identify the redundant functional dependency in  $F$

- |                        |                        |
|------------------------|------------------------|
| (1) $BC \rightarrow D$ | (2) $D \rightarrow E$  |
| (3) $A \rightarrow D$  | (4) $A \rightarrow BC$ |

**Options**

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

Question Type : MCQ  
Question ID : **61547510591**  
Option 1 ID : **61547541293**  
Option 2 ID : **61547541294**  
**Option 3 ID : 61547541295**  
Option 4 ID : **61547541296**  
Status : **Answered**  
Chosen Option : **1**