# UGC NET 2019

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| Application No | 190510064918 |
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| Subject | 87 Computer Science and Applications |

Section : **PART I General Aptitude**

**Q.1** To organize discussion method in teaching effectively, which of the following conditions should be met?

(a) Topic be easy
(b) Topic be declared in advance
(c) Topic of common interest
(d) Availability of more than one teacher
(e) Language facility of participants

Select appropriate answer from the options given below :

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

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

Question Type : **MCQ**
Question ID : **64635021740**
Option 1 ID : **64635085339**
Option 2 ID : **64635085340**
Option 3 ID : **64635085341**
Option 4 ID : **64635085342**
Status : **Answered**
Chosen Option : **4**

**Q.2** Which among the following best describes the Emotional Intelligence of learners?

(a) Understand the emotion of other people and your own
(b) Express oneself very strongly
(c) Being rational in thinking
(d) Adjusting one's emotion as per situation
(e) Being creative and open to criticism
(f) Accepting other people as they are

Choose your answer from the options given below :

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

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

Question Type : **MCQ**
Question ID : **64635021744**
Option 1 ID : **64635085355**

Option 2 ID : **64635085356**
Option 3 ID : **64635085357**
Option 4 ID : **64635085358**
Status : **Answered**
Chosen Option : **1**

**Q.3** In which of the following research studies interpretation and meaning get more attention than formulation of generalisations?

(i) Historical studies
(ii) Survey studies
(iii) Philosophical studies
(iv) Ethnographic studies
(v) Hypothetico – deductive studies
(vi) Ex-post facto studies

Choose your answer from the options given below.

(1) (i), (ii) and (iii) (2) (iv), (v) and (vi)
(3) (ii), (iv) and (v) (4) (i), (iii) and (iv)

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

Question Type : **MCQ**
Question ID : **64635021748**
Option 1 ID : **64635085371**
Option 2 ID : **64635085372**
Option 3 ID : **64635085373**
Option 4 ID : **64635085374**
Status : **Answered**
Chosen Option : **1**

**Q.4** Bibliography given in a research report

(1) Helps those interested in further research
(2) Shows the vast knowledge of the researcher
(3) Makes the report authentic
(4) Is an optional part of the report

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

Question Type : **MCQ**
Question ID : **64635021745**
Option 1 ID : **64635085359**
Option 2 ID : **64635085360**
Option 3 ID : **64635085361**
Option 4 ID : **64635085362**
Status : **Answered**
Chosen Option : **4**

**Q.5** Who developed the theory of 'Multiple Intelligence'?

(1) Alfred Binet (2) L. Thurstone
(3) Charles Spearman (4) Howard Gardner

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021741**
Option 1 ID : **64635085343**
Option 2 ID : **64635085344**
Option 3 ID : **64635085345**
Option 4 ID : **64635085346**
Status : **Answered**
Chosen Option : **1**

**Q.6** The research design is specifically related to which of the following features in research?

(i) Sample selection
(ii) Formulation of a plan
(iii) Deciding about the tool for data collection
(iv) Hypothesis making
(v) Choice of a field of inquiry

Select your answer from the options given below.

(1) (ii), (iii) and (iv) (2) (i), (ii) and (iii)
(3) (ii), (iv) and (v) (4) (iii), (iv) and (v)

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

Question Type : **MCQ**
Question ID : **64635021746**
Option 1 ID : **64635085363**
Option 2 ID : **64635085364**
Option 3 ID : **64635085365**
Option 4 ID : **64635085366**
Status : **Answered**
Chosen Option : **3**

**Q.7** Through which research method, the manipulation of an independent variable and its effect on dependent variable is examined with reference to a hypothesis under controlled conditions?

(1) Ex-post facto research (2) Descriptive research
(3) Case study research (4) Experimental research

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

Question Type : **MCQ**
Question ID : **64635021747**
Option 1 ID : **64635085367**
Option 2 ID : **64635085368**
Option 3 ID : **64635085369**
Option 4 ID : **64635085370**
Status : **Answered**
Chosen Option : **4**

**Q.8**

Which of the following statements explains the concepts of inclusive teaching?

(1) Teacher facilitates the learning of the gifted students
(2) Teacher facilitates the learning of the weak students
(3) Teacher takes support of parents of the students to make them learn
(4) Teacher makes the students of different backgrounds to learn together in the same class

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

Question Type : **MCQ**
Question ID : **64635021743**
Option 1 ID : **64635085351**
Option 2 ID : **64635085352**
Option 3 ID : **64635085353**
Option 4 ID : **64635085354**
Status : **Answered**
Chosen Option : **1**

**Q.9**

Which of the following is a plagiarism checking website?

(1) http://go.turnitin.com (2) http://www.researchgate.com
(3) http://www.editorial.elsevier.com (4) http://www.grammarly.com

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

Question Type : **MCQ**
Question ID : **64635021749**
Option 1 ID : **64635085375**
Option 2 ID : **64635085376**
Option 3 ID : **64635085377**
Option 4 ID : **64635085378**
Status : **Answered**
Chosen Option : **2**

**Q.10**

From the list of the effective teaching behaviours, identify those which are called key behaviours.

(i) Direct, audible and oral delivery to all students
(ii) Encouraging students to elaborate on an answer
(iii) Warm and nurturing relationships with learners
(iv) Varying modes of presentation
(v) Preventing misbehaviour with a minimum of class disruption
(vi) Organising what is to come and summarising what has gone before

Select your answer from the options given below :

(1) (i), (iv) and (v) (2) (i), (ii) and (iii)
(3) (ii), (iii) and (iv) (4) (iv), (v) and (vi)

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

Question Type : **MCQ**
Question ID : **64635021742**

Option 1 ID : **64635085347**
Option 2 ID : **64635085348**
Option 3 ID : **64635085349**
Option 4 ID : **64635085350**
Status : **Answered**
Chosen Option : **2**

**Comprehension:**

Michaelangelo is famous for having successfully interpreted the human body. His great achievement is that of the painting of David whose hands reach out as a sign of human capability and potential. It is assumed that the time he lived was ripe for exchange of knowledge, development in science and matured enough to advance the horizon of investigation in all fields. Renaissance humanism stressed on a serious rethink on the nature of art that focussed on accurate details. In painting and sculpture, artists focussed on not so casual but verifiable and minute details. Michaelangelo's paintings are no exception to it. In a study published in the journal of the Royal Society of medicine, a group of surgeons are of the opinion that the great master was "afflicted by an illness involving his joints". They have used his portraits as evidence to argue their view. During his life, he complained of what he felt to be 'gout'. Later he complained of his sore and stiff hands which the doctors would find to be natural for someone who was engaged in handmade art. The doctors found corroboration of those claims in portraits of the artist that show a hanging left hand with both degenerative and non-degenerative changes. They attribute the pain not just to arthritis, but to the stress of hammering and chiseling and note that though the master was seen hammering days before his death at an old age, he did not write or sign his own letters before his death. In recent times there have been attempts to diagnose famous artists with diseases that were not known during their time. This practice has raised many questions, especially on the issue of ethics in research. It is also inferred from authentic analysis that Michaelangelo persisted in his work until his last days. This theory would emphasize that his artistic subject defied his physical infirmities.

**SubQuestion No : 11**

**Q.11** Renaissance painting in Europe was sceptical of

(1) The obsessive medieval method of accuracy
(2) The classical simplicity and lack of control
(3) The case and decorative excess of earlier art
(4) Expressionist technique

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

Question Type : **MCQ**
Question ID : **64635021752**
Option 1 ID : **64635085383**
Option 2 ID : **64635085384**
Option 3 ID : **64635085385**
Option 4 ID : **64635085386**
Status : **Answered**
Chosen Option : **4**

**Comprehension:**

Michaelangelo is famous for having successfully interpreted the human body. His great achievement is that of the painting of David whose hands reach out as a sign of human capability and potential. It is assumed that the time he lived was ripe for exchange of knowledge, development in science and matured enough to advance the horizon of investigation in all fields. Renaissance humanism stressed on a serious rethink on the nature of art that focussed on accurate details. In painting and sculpture, artists focussed on not so casual but verifiable and minute details. Michaelangelo's paintings are no exception to it. In a study published in the journal of the Royal Society of medicine, a group of surgeons are of the opinion that the great master was "afflicted by an illness involving his joints". They have used his portraits as evidence to argue their view. During his life, he complained of what he felt to be 'gout'. Later he complained of his sore and stiff hands which the doctors would find to be natural for someone who was engaged in handmade art. The doctors found corroboration of those claims in portraits of the artist that show a hanging left hand with both degenerative and non-degenerative changes. They attribute the pain not just to arthritis, but to the stress of hammering and chiseling and note that though the master was seen hammering days before his death at an old age, he did not write or sign his own letters before his death. In recent times there have been attempts to diagnose famous artists with diseases that were not known during their time. This practice has raised many questions, especially on the issue of ethics in research. It is also inferred from authentic analysis that Michaelangelo persisted in his work until his last days. This theory would emphasize that his artistic subject defied his physical infirmities.

**SubQuestion No : 12**

**Q.12**

The controversy that the passage above refers to is whether

(1) Michaelangelo worked under duress

(2) Michaelangelo could contain his physical infirmity by artistic excellence

(3) Michaelangelo submitted to disease

(4) Michaelangelo survived different diseases before pursuing art

**Options** 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **64635021753**
Option 1 ID : **64635085387**
Option 2 ID : **64635085388**
Option 3 ID : **64635085389**
Option 4 ID : **64635085390**
Status : **Answered**
Chosen Option : **2**

**Comprehension:**

Michaelangelo is famous for having successfully interpreted the human body. His great achievement is that of the painting of David whose hands reach out as a sign of human capability and potential. It is assumed that the time he lived was ripe for exchange of knowledge, development in science and matured enough to advance the horizon of investigation in all fields. Renaissance humanism stressed on a serious rethink on the nature of art that focussed on accurate details. In painting and sculpture, artists focussed on not so casual but verifiable and minute details. Michaelangelo's paintings are no exception to it. In a study published in the journal of the Royal Society of medicine, a group of surgeons are of the opinion that the great master was "afflicted by an illness involving his joints". They have used his portraits as evidence to argue their view. During his life, he complained of what he felt to be 'gout'. Later he complained of his sore and stiff hands which the doctors would find to be natural for someone who was engaged in handmade art. The doctors found corroboration of those claims in portraits of the artist that show a hanging left hand with both degenerative and non-degenerative changes. They attribute the pain not just to arthritis, but to the stress of hammering and chiseling and note that though the master was seen hammering days before his death at an old age, he did not write or sign his own letters before his death. In recent times there have been attempts to diagnose famous artists with diseases that were not known during their time. This practice has raised many questions, especially on the issue of ethics in research. It is also inferred from authentic analysis that Michaelangelo persisted in his work until his last days. This theory would emphasize that his artistic subject defied his physical infirmities.

**SubQuestion No : 13**

**Q.13**

What actually may be concluded from the above passage?

(1) Physical infirmities do dissuade people with capabilities from excelling
(2) Excellence in any form triumphs over extraneous factors including physical ailments
(3) Michaelangelo's gout and other ailments lessened his efficiency
(4) The diseases Michaelangelo faced were due to constant hammering

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

Question Type : **MCQ**
Question ID : **64635021755**
Option 1 ID : **64635085395**
Option 2 ID : **64635085396**
Option 3 ID : **64635085397**
Option 4 ID : **64635085398**
Status : **Answered**
Chosen Option : **1**

**Comprehension:**

Michaelangelo is famous for having successfully interpreted the human body. His great achievement is that of the painting of David whose hands reach out as a sign of human capability and potential. It is assumed that the time he lived was ripe for exchange of knowledge, development in science and matured enough to advance the horizon of investigation in all fields. Renaissance humanism stressed on a serious rethink on the nature of art that focussed on accurate details. In painting and sculpture, artists focussed on not so casual but verifiable and minute details. Michaelangelo's paintings are no exception to it. In a study published in the journal of the Royal Society of medicine, a group of surgeons are of the opinion that the great master was "afflicted by an illness involving his joints". They have used his portraits as evidence to argue their view. During his life, he complained of what he felt to be 'gout'. Later he complained of his sore and stiff hands which the doctors would find to be natural for someone who was engaged in handmade art. The doctors found corroboration of those claims in portraits of the artist that show a hanging left hand with both degenerative and non-degenerative changes. They attribute the pain not just to arthritis, but to the stress of hammering and chiseling and note that though the master was seen hammering days before his death at an old age, he did not write or sign his own letters before his death. In recent times there have been attempts to diagnose famous artists with diseases that were not known during their time. This practice has raised many questions, especially on the issue of ethics in research. It is also inferred from authentic analysis that Michaelangelo persisted in his work until his last days. This theory would emphasize that his artistic subject defied his physical infirmities.

**SubQuestion No : 14**

**Q.14** Michaelangelo lived during a time that lets us know that

(1) Human aspirations are limitless and open to new vistas of knowledge
(2) Cross cultural exchange in ideas is the only way for human progress
(3) It is progress of science and anatomy that contributes to civilizations exclusively
(4) Human beings possess language which is the only key to knowledge

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

Question Type : **MCQ**
Question ID : **64635021751**
Option 1 ID : **64635085379**
Option 2 ID : **64635085380**
Option 3 ID : **64635085381**
Option 4 ID : **64635085382**
Status : **Answered**
Chosen Option : **2**

**Comprehension:**

Michaelangelo is famous for having successfully interpreted the human body. His great achievement is that of the painting of David whose hands reach out as a sign of human capability and potential. It is assumed that the time he lived was ripe for exchange of knowledge, development in science and matured enough to advance the horizon of investigation in all fields. Renaissance humanism stressed on a serious rethink on the nature of art that focussed on accurate details. In painting and sculpture, artists focussed on not so casual but verifiable and minute details. Michaelangelo's paintings are no exception to it. In a study published in the journal of the Royal Society of medicine, a group of surgeons are of the opinion that the great master was "afflicted by an illness involving his joints". They have used his portraits as evidence to argue their view. During his life, he complained of what he felt to be 'gout'. Later he complained of his sore and stiff hands which the doctors would find to be natural for someone who was engaged in handmade art. The doctors found corroboration of those claims in portraits of the artist that show a hanging left hand with both degenerative and non-degenerative changes. They attribute the pain not just to arthritis, but to the stress of hammering and chiseling and note that though the master was seen hammering days before his death at an old age, he did not write or sign his own letters before his death. In recent times there have been attempts to diagnose famous artists with diseases that were not known during their time. This practice has raised many questions, especially on the issue of ethics in research. It is also inferred from authentic analysis that Michaelangelo persisted in his work until his last days. This theory would emphasize that his artistic subject defied his physical infirmities.

**SubQuestion No : 15**

**Q.15** What generalisations do people subscribe to?

(1) Establishing facts by DNA tests
(2) Inferring the essence of character from famous people's handwriting
(3) Carbon dating of the hair of celebrities to draw conclusion on their physical structure
(4) To retroactively diagnose famous artists and public figures of conditions that were not prevalent during their time

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

Question Type : **MCQ**
Question ID : **64635021754**
Option 1 ID : **64635085391**
Option 2 ID : **64635085392**
Option 3 ID : **64635085393**
Option 4 ID : **64635085394**
Status : **Answered**
Chosen Option : **4**

**Q.16** Given below are two premises with four conclusions drawn from them. Which of the following conclusions could be validly drawn from the premises?

Premises :

(i) No paper is pen

(ii) Some paper are handmade.

Conclusions :

(1) All paper are handmade
(2) Some handmade are pen
(3) Some handmade are not pen
(4) All handmade are paper

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

Question Type : **MCQ**
Question ID : **64635021767**

Option 1 ID : **64635085443**
Option 2 ID : **64635085444**
Option 3 ID : **64635085445**
Option 4 ID : **64635085446**
Status : **Answered**
Chosen Option : **3**

**Q.17** If the proposition 'Houses are not bricks' is taken to be False then which of the following propositions can be True?

(a) All houses are bricks
(b) No house is brick
(c) Some houses are bricks
(d) Some houses are not bricks

Select the correct answer from the options given below :

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

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

Question Type : **MCQ**
Question ID : **64635021766**
Option 1 ID : **64635085439**
Option 2 ID : **64635085440**
Option 3 ID : **64635085441**
Option 4 ID : **64635085442**
Status : **Answered**
Chosen Option : **4**

**Q.18** Today's media-society equation is largely

(1) Mystical (2) Morally bound
(3) Consumer conscious (4) Tradition centric

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

Question Type : **MCQ**
Question ID : **64635021760**
Option 1 ID : **64635085415**
Option 2 ID : **64635085416**
Option 3 ID : **64635085417**
Option 4 ID : **64635085418**
Status : **Answered**
Chosen Option : **3**

**Q.19** Choose the correct sequence of communication from the options given below :

(1) Information – exposure – persuasion – behavioural change
(2) Persuasion – information – behavioural change – exposure
(3) Exposure – information – persuasion – behavioural change
(4) Behavioural change – information – persuasion – exposure

**Options** 1. 1
2. 2

3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021757**
Option 1 ID : **64635085403**
Option 2 ID : **64635085404**
Option 3 ID : **64635085405**
Option 4 ID : **64635085406**
Status : **Answered**
Chosen Option : **1**

**Q.20** Oar is to rowboat as foot is to

(1) running (2) sneaker
(3) skateboard (4) jumping

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

Question Type : **MCQ**
Question ID : **64635021761**
Option 1 ID : **64635085419**
Option 2 ID : **64635085420**
Option 3 ID : **64635085421**
Option 4 ID : **64635085422**
Status : **Answered**
Chosen Option : **1**

**Q.21** Which of the following is a function of mass media?

(1) To transmit culture
(2) To formulate national policies
(3) To help the judiciary take its decisions
(4) To stabilise the share market

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

Question Type : **MCQ**
Question ID : **64635021758**
Option 1 ID : **64635085407**
Option 2 ID : **64635085408**
Option 3 ID : **64635085409**
Option 4 ID : **64635085410**
Status : **Answered**
Chosen Option : **1**

**Q.22** If 152 is divided into four parts proportional to 3, 4, 5 and 7, then the smallest part is

(1) 29 (2) 26
(3) 25 (4) 24

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021763**
Option 1 ID : **64635085427**
Option 2 ID : **64635085428**
Option 3 ID : **64635085429**
Option 4 ID : **64635085430**
Status : **Answered**
Chosen Option : **4**

**Q.23** A sum of money doubles at compound interest in 6 years. In how many years will it become 16 times?

(1) 16 years (2) 24 years
(3) 48 years (4) 96 years

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

Question Type : **MCQ**
Question ID : **64635021765**
Option 1 ID : **64635085435**
Option 2 ID : **64635085436**
Option 3 ID : **64635085437**
Option 4 ID : **64635085438**
Status : **Answered**
Chosen Option : **2**

**Q.24** For all integers $y > 1$, $\langle y \rangle = 2y + (2y-1) + (2y-2) + \ldots + 1$.

What is the value of $\langle 3 \rangle \times \langle 2 \rangle$? Where $\times$ is a multiplication operator?

(1) 116 (2) 210
(3) 263 (4) 478

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

Question Type : **MCQ**
Question ID : **64635021762**
Option 1 ID : **64635085423**
Option 2 ID : **64635085424**
Option 3 ID : **64635085425**
Option 4 ID : **64635085426**
Status : **Answered**
Chosen Option : **2**

**Q.25**

Identify the reasoning in the following argument :

'Use of teaching aids in the classroom to enhance learning is important in a similar way as that of the use of ICT for production of knowledge'.

(1) Hypothetical (2) Analogical

(3) Inductive (4) Deductive

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

Question Type : **MCQ**
Question ID : **64635021769**
Option 1 ID : **64635085451**
Option 2 ID : **64635085452**
Option 3 ID : **64635085453**
Option 4 ID : **64635085454**
Status : **Answered**
Chosen Option : **2**

**Q.26**

'All republics are grateful' and 'Some republics are not grateful' cannot both be true, and they cannot both be false. This is called as

(1) contraries (2) contradictories

(3) subaltern (4) super altern

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

Question Type : **MCQ**
Question ID : **64635021768**
Option 1 ID : **64635085447**
Option 2 ID : **64635085448**
Option 3 ID : **64635085449**
Option 4 ID : **64635085450**
Status : **Answered**
Chosen Option : **3**

**Q.27**

In a new budget, the price of petrol rose by 25%. By how much percent must a person reduce his consumption so that his expenditure on it does not increase?

(1) 10% (2) 15%

(3) 20% (4) 25%

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

Question Type : **MCQ**
Question ID : **64635021764**
Option 1 ID : **64635085431**
Option 2 ID : **64635085432**
Option 3 ID : **64635085433**
Option 4 ID : **64635085434**
Status : **Answered**

Chosen Option : **3**

**Q.28** In a classroom situation, a teacher organises group discussion to help arrive at a solution of a problem. In terms of a model of communication used, it will be called

(1) A transactional model (2) An interaction model
(3) A horizontal model (4) A linear model

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

Question Type : **MCQ**
Question ID : **64635021759**
Option 1 ID : **64635085411**
Option 2 ID : **64635085412**
Option 3 ID : **64635085413**
Option 4 ID : **64635085414**
Status : **Answered**
Chosen Option : **2**

**Q.29** The proposition 'No historians are non-mathematician' is equivalent to which of the following proposition?

(1) All historians are mathematicians
(2) No historians are mathematicians
(3) Some historians are mathematicians
(4) Some historians are not mathematicians

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

Question Type : **MCQ**
Question ID : **64635021770**
Option 1 ID : **64635085455**
Option 2 ID : **64635085456**
Option 3 ID : **64635085457**
Option 4 ID : **64635085458**
Status : **Answered**
Chosen Option : **1**

**Q.30** The dance of the honeybee conveying to other bees where nector will be found is an example of

(1) Mass communication (2) Group communication
(3) Interpersonal communication (4) Intrapersonal communication

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

Question Type : **MCQ**
Question ID : **64635021756**
Option 1 ID : **64635085399**
Option 2 ID : **64635085400**

Option 3 ID : **64635085401**
Option 4 ID : **64635085402**
Status : **Answered**
Chosen Option : **1**

**Comprehension:**

Consider the following table that shows the number (in lakhs) of different sizes of LED television sets sold by a company over the last seven years from 2012 to 2018. Answer the questions based on the data contained in the table :

Sale of LED Television sets (in lakhs) of different sizes (in inches)

| Year | Size of LED Television sets (in inches) | | | | |
|---|---|---|---|---|---|
| | 22" | 24" | 32" | 40" | 49" |
| 2012 | 85 | 154 | 124 | 112 | 118 |
| 2013 | 100 | 136 | 112 | 94 | 136 |
| 2014 | 106 | 124 | 85 | 115 | 145 |
| 2015 | 115 | 100 | 160 | 100 | 85 |
| 2016 | 100 | 85 | 145 | 85 | 100 |
| 2017 | 115 | 70 | 175 | 55 | 130 |
| 2018 | 125 | 95 | 170 | 110 | 155 |

**SubQuestion No : 31**

**Q.31** What is the total sale of Television sets of size 49-inches (in lakhs) over all the seven years?

(1) 912 (2) 896
(3) 879 (4) 869

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

Question Type : **MCQ**
Question ID : **64635021775**
Option 1 ID : **64635085471**
Option 2 ID : **64635085472**
Option 3 ID : **64635085473**
Option 4 ID : **64635085474**
Status : **Answered**
Chosen Option : **4**

**Comprehension:**

Consider the following table that shows the number (in lakhs) of different sizes of LED television sets sold by a company over the last seven years from 2012 to 2018. Answer the questions based on the data contained in the table :

Sale of LED Television sets (in lakhs) of different sizes (in inches)

| Year | Size of LED Television sets (in inches) | | | | |
|---|---|---|---|---|---|
| | 22" | 24" | 32" | 40" | 49" |
| 2012 | 85 | 154 | 124 | 112 | 118 |
| 2013 | 100 | 136 | 112 | 94 | 136 |
| 2014 | 106 | 124 | 85 | 115 | 145 |
| 2015 | 115 | 100 | 160 | 100 | 85 |
| 2016 | 100 | 85 | 145 | 85 | 100 |
| 2017 | 115 | 70 | 175 | 55 | 130 |
| 2018 | 125 | 95 | 170 | 110 | 155 |

**SubQuestion No : 32**

**Q.32** For which size LED Television sets is the total sales of all the seven years the maximum?

(1) 22-inch Television (2) 24-inch Television
(3) 32-inch Television (4) 49-inch Television

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021773**
Option 1 ID : **64635085463**
Option 2 ID : **64635085464**
Option 3 ID : **64635085465**
Option 4 ID : **64635085466**
Status : **Answered**
Chosen Option : **3**

**Comprehension:**

Consider the following table that shows the number (in lakhs) of different sizes of LED television sets sold by a company over the last seven years from 2012 to 2018. Answer the questions based on the data contained in the table :

Sale of LED Television sets (in lakhs) of different sizes (in inches)

| Year | Size of LED Television sets (in inches) | | | | |
|---|---|---|---|---|---|
| | 22" | 24" | 32" | 40" | 49" |
| 2012 | 85 | 154 | 124 | 112 | 118 |
| 2013 | 100 | 136 | 112 | 94 | 136 |
| 2014 | 106 | 124 | 85 | 115 | 145 |
| 2015 | 115 | 100 | 160 | 100 | 85 |
| 2016 | 100 | 85 | 145 | 85 | 100 |
| 2017 | 115 | 70 | 175 | 55 | 130 |
| 2018 | 125 | 95 | 170 | 110 | 155 |

**SubQuestion No : 33**

**Q.33** What was the approximate percentage increase/decrease in the sales of 32-inch LED Television sets in 2017 compared to that in 2013?

(1) 36% (2) 56%

(3) 57% (4) 64%

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

Question Type : **MCQ**
Question ID : **64635021772**
Option 1 ID : **64635085459**
Option 2 ID : **64635085460**
Option 3 ID : **64635085461**
Option 4 ID : **64635085462**
Status : **Answered**
Chosen Option : **3**

**Comprehension:**

Consider the following table that shows the number (in lakhs) of different sizes of LED television sets sold by a company over the last seven years from 2012 to 2018. Answer the questions based on the data contained in the table :

Sale of LED Television sets (in lakhs) of different sizes (in inches)

| Year | Size of LED Television sets (in inches) | | | | |
|---|---|---|---|---|---|
| | 22" | 24" | 32" | 40" | 49" |
| 2012 | 85 | 154 | 124 | 112 | 118 |
| 2013 | 100 | 136 | 112 | 94 | 136 |
| 2014 | 106 | 124 | 85 | 115 | 145 |
| 2015 | 115 | 100 | 160 | 100 | 85 |
| 2016 | 100 | 85 | 145 | 85 | 100 |
| 2017 | 115 | 70 | 175 | 55 | 130 |
| 2018 | 125 | 95 | 170 | 110 | 155 |

**SubQuestion No : 34**

**Q.34** For which LED Television set is the total sales of all the seven years the minimum?

(1) 22-inch Television (2) 24-inch Television
(3) 49-inch Television (4) 40-inch Television

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

Question Type : **MCQ**
Question ID : **64635021776**
Option 1 ID : **64635085475**
Option 2 ID : **64635085476**
Option 3 ID : **64635085477**
Option 4 ID : **64635085478**
Status : **Answered**
Chosen Option : **4**

**Comprehension:**

Consider the following table that shows the number (in lakhs) of different sizes of LED television sets sold by a company over the last seven years from 2012 to 2018. Answer the questions based on the data contained in the table :

Sale of LED Television sets (in lakhs) of different sizes (in inches)

| Year | Size of LED Television sets (in inches) | | | | |
|---|---|---|---|---|---|
| | 22" | 24" | 32" | 40" | 49" |
| 2012 | 85 | 154 | 124 | 112 | 118 |
| 2013 | 100 | 136 | 112 | 94 | 136 |
| 2014 | 106 | 124 | 85 | 115 | 145 |
| 2015 | 115 | 100 | 160 | 100 | 85 |
| 2016 | 100 | 85 | 145 | 85 | 100 |
| 2017 | 115 | 70 | 175 | 55 | 130 |
| 2018 | 125 | 95 | 170 | 110 | 155 |

**SubQuestion No : 35**

**Q.35** What is the difference in the number of 40-inch Television sets sold in 2013 and 2018?

(1) 1,600,000 (2) 1,500,000
(3) 15,000,000 (4) 16,000,000

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

Question Type : **MCQ**
Question ID : **64635021774**

Option 1 ID : **64635085467**
Option 2 ID : **64635085468**
Option 3 ID : **64635085469**
Option 4 ID : **64635085470**
Status : **Answered**
Chosen Option : **4**

**Q.36** Select the option that shows the storage devices in order of capacity from lowest to highest

(1) CD-ROM, DVD-ROM, Blu-ray
(2) Blu-ray, CD-ROM, DVD-ROM
(3) DVD-ROM, Blu-ray, CD-ROM
(4) DVD-ROM, CD-ROM, Blu-ray

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

Question Type : **MCQ**
Question ID : **64635021779**
Option 1 ID : **64635085487**
Option 2 ID : **64635085488**
Option 3 ID : **64635085489**
Option 4 ID : **64635085490**
Status : **Answered**
Chosen Option : **1**

**Q.37** The present form of Inter University Board that was previously established for promoting cooperation and coordination among Universities is

(1) UGC (2) AIU
(3) NUEPA (4) ICSSR

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

Question Type : **MCQ**
Question ID : **64635021789**
Option 1 ID : **64635085527**
Option 2 ID : **64635085528**
Option 3 ID : **64635085529**
Option 4 ID : **64635085530**
Status : **Answered**
Chosen Option : **1**

**Q.38**

Assertion (A) : Methemoglobinemia is a condition in which blood is not able to carry and deliver enough oxygen to the body.

Reason (R) : Consuming drinking water with high nitrate levels may cause methemoglobinemia.

Choose the correct answer from the options given below :

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (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 : **64635021784**
Option 1 ID : **64635085507**
Option 2 ID : **64635085508**
Option 3 ID : **64635085509**
Option 4 ID : **64635085510**
Status : **Answered**
Chosen Option : **1**

**Q.39** Select the true statement about an Operating System (OS)?

(1) An OS controls peripherals, allocates memory and organises data into fields and records
(2) An OS provides protection against viruses and controls peripherals
(3) An OS controls peripheral, and allocates memory and processor time
(4) An OS controls the processor and peripherals and allows the user to connect to the Internet

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

Question Type : **MCQ**
Question ID : **64635021778**
Option 1 ID : **64635085483**
Option 2 ID : **64635085484**
Option 3 ID : **64635085485**
Option 4 ID : **64635085486**
Status : **Answered**
Chosen Option : **3**

**Q.40** Which of the following NOT correctly matched?

(i) Gyan darshan – Satellite based educational T.V. Channel
(ii) Gyan vani – Educational FM Radio network
(iii) MOOCs – Massive Open Online Credits

Choose the correct answer from the options given below :

(1) Only (i) and (ii) (2) Only (ii) and (iii)
(3) Only (iii) (4) Only (i) and (iii)

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021791**
Option 1 ID : **64635085535**
Option 2 ID : **64635085536**
Option 3 ID : **64635085537**
Option 4 ID : **64635085538**
Status : **Answered**
Chosen Option : **3**

**Q.41** Which of the following are priority areas in relation to the Sustainable Development Goals?

(a) No poverty
(b) Zero hunger
(c) Reducing urbanization
(d) Peace, justice and strong institutions

Choose the correct answer from the options given below :

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

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

Question Type : **MCQ**
Question ID : **64635021783**
Option 1 ID : **64635085503**
Option 2 ID : **64635085504**
Option 3 ID : **64635085505**
Option 4 ID : **64635085506**
Status : **Answered**
Chosen Option : **4**

**Q.42** In post independence India, which one of the following Committee/Commission's report deals with all levels of education in India?

(1) Sargeant Commission
(2) Hartog Committee
(3) Kothari Commission
(4) Radhakrishnan Commission

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

Question Type : **MCQ**
Question ID : **64635021787**
Option 1 ID : **64635085519**
Option 2 ID : **64635085520**
Option 3 ID : **64635085521**
Option 4 ID : **64635085522**
Status : **Answered**
Chosen Option : **3**

**Q.43** The Education Commission of India that first took serious note of the problem of Brain Drain was

(1) The Education Commission of India
(2) The University Education Commission
(3) The Calcutta University Commission
(4) The Sargeant Commission

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

Question Type : **MCQ**
Question ID : **64635021788**
Option 1 ID : **64635085523**
Option 2 ID : **64635085524**
Option 3 ID : **64635085525**
Option 4 ID : **64635085526**
Status : **Answered**
Chosen Option : **1**

**Q.44** Which of the following is a type of malware intentionally inserted into a software system that will setoff a malicious function when specified conditions are met?

(1) Worm (2) Trojan
(3) Spyware (4) Logic bomb

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

Question Type : **MCQ**
Question ID : **64635021777**
Option 1 ID : **64635085479**
Option 2 ID : **64635085480**
Option 3 ID : **64635085481**
Option 4 ID : **64635085482**
Status : **Answered**
Chosen Option : **2**

**Q.45** Which of the following statements(s) is/are True in respect of Wireless Technology?

P : Bluetooth is a wireless technology which can be used to connect a headset to a mobile phone.

Q : Bluetooth is a long range wireless technology and is a low cost means of data transfer.

(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 : **64635021780**
Option 1 ID : **64635085491**
Option 2 ID : **64635085492**
Option 3 ID : **64635085493**

Option 4 ID : **64635085494**
Status : **Answered**
Chosen Option : **1**

**Q.46**

Assertion (A) : High concentration of ozone in the lower troposphere is desirable.

Reasons (R) : Ozone present in the atmosphere protects the living organisms on the surface of earth from the harmful ultra-violet radiation of the sun.

Choose the correct answer from the optons given below :

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (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 : **64635021785**
Option 1 ID : **64635085511**
Option 2 ID : **64635085512**
Option 3 ID : **64635085513**
Option 4 ID : **64635085514**
Status : **Answered**
Chosen Option : **1**

**Q.47**

Which one of the following pairs LEAST matches in respect of computers?

(1) 1 Giga Byte : $(1024) \times (1024) \times (1024) \times 8$ bits
(2) CRT : Cathode Ray Tube
(3) ROM : Rapid Online Memory
(4) CPU : Central Processing Unit

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

Question Type : **MCQ**
Question ID : **64635021781**
Option 1 ID : **64635085495**
Option 2 ID : **64635085496**
Option 3 ID : **64635085497**
Option 4 ID : **64635085498**
Status : **Answered**
Chosen Option : **3**

**Q.48**

Which one of the following instructional designs is not a part of SWAYAM launched by Government of India?

(1) E-tutorial (2) E-Content
(3) Physical interaction (4) Discussion Forum

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021790**
Option 1 ID : **64635085531**
Option 2 ID : **64635085532**
Option 3 ID : **64635085533**
Option 4 ID : **64635085534**
Status : **Answered**
Chosen Option : **3**

**Q.49**

Algal blooms in oligotrophic lakes are

(1) very frequent (2) frequent
(3) very rare (4) widespread

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

Question Type : **MCQ**
Question ID : **64635021786**
Option 1 ID : **64635085515**
Option 2 ID : **64635085516**
Option 3 ID : **64635085517**
Option 4 ID : **64635085518**
Status : **Answered**
Chosen Option : **1**

**Q.50**

In the last few years, India has been affected by which of the following tropical cyclones?

(1) Gaja, Hudhud, Bhima (2) Hudhud, Bhima, Ockhi
(3) Gaja, Hudhud, Ockhi (4) Gaja, Bhima, Ockhi

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

Question Type : **MCQ**
Question ID : **64635021782**
Option 1 ID : **64635085499**
Option 2 ID : **64635085500**
Option 3 ID : **64635085501**
Option 4 ID : **64635085502**
Status : **Answered**
Chosen Option : **1**

Section : **PART II Computer Science and Applications**

**Q.1**

Which data structure is used by the compiler for managing variables and their attributes?

1. Binary tree
2. Link list
3. Symbol table
4. Parse table

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

Question Type : **MCQ**
Question ID : **64635021862**
Option 1 ID : **64635085819**
Option 2 ID : **64635085820**
Option 3 ID : **64635085821**
Option 4 ID : **64635085822**
Status : **Answered**
Chosen Option : **4**

**Q.2** In relational databases, if relation R is in BCNF, then which of the following is true about relation R?

1. R is in 4NF
2. R is not in 1NF
3. R is in 2NF and not in 3NF
4. R is in 2NF and 3NF

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

Question Type : **MCQ**
Question ID : **64635021825**
Option 1 ID : **64635085671**
Option 2 ID : **64635085672**
Option 3 ID : **64635085673**
Option 4 ID : **64635085674**
Status : **Answered**
Chosen Option : **4**

**Q.3**

Consider that a process has been allocated 3 frames and has a sequence of page referencing as 1, 2, 1, 3, 7, 4, 5, 6, 3, 1.

What shall be the difference in page faults for the above string using the algorithms of LRU and optimal page replacement for referencing the string?

1. 2
2. 0
3. 1
4. 3

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

Question Type : **MCQ**
Question ID : **64635021834**
Option 1 ID : **64635085707**
Option 2 ID : **64635085708**
Option 3 ID : **64635085709**
Option 4 ID : **64635085710**
Status : **Answered**
Chosen Option : **2**

**Q.4** Which of the following are NOT shared by the threads of the same process?

(a) Stack

(b) Registers

(c) Address space

(d) Message queue

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

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

Question Type : **MCQ**
Question ID : **64635021835**
Option 1 ID : **64635085711**
Option 2 ID : **64635085712**
Option 3 ID : **64635085713**
Option 4 ID : **64635085714**
Status : **Answered**
Chosen Option : **2**

**Q.5**

Consider an LPP given as

$$\text{Max } Z = 2x_1 - x_2 + 2x_3$$

subject to the constraints

$$2x_1 + x_2 \le 10$$
$$x_1 + 2x_2 - 2x_3 \le 20$$
$$x_1 + 2x_3 \le 5$$
$$x_1, x_2, x_3 \ge 0$$

What shall be the solution of the LPP after applying first iteration of the Simplex Method?

1. $x_1 = \frac{5}{2}, x_2 = 0, x_3 = 0, Z = 5$
2. $x_1 = 0, x_2 = 0, x_3 = \frac{5}{2}, Z = 5$
3. $x_1 = 0, x_2 = \frac{5}{2}, x_3 = 0, Z = -\frac{5}{2}$
4. $x_1 = 0, x_2 = 0, x_3 = 10, Z = 20$

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

Question Type : **MCQ**
Question ID : **64635021801**
Option 1 ID : **64635085575**
Option 2 ID : **64635085576**
Option 3 ID : **64635085577**
Option 4 ID : **64635085578**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.6** In the TCP/IP model, encryption and decryption are functions of _____ layer.

1. data link
2. network
3. transport
4. application

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

Question Type : **MCQ**
Question ID : **64635021877**
Option 1 ID : **64635085879**
Option 2 ID : **64635085880**

Option 3 ID : **64635085881**
Option 4 ID : **64635085882**
Status : **Answered**
Chosen Option : **3**

**Q.7** Consider double hashing of the form

$$h(k, i) = (h_1(k) + ih_2(k)) \bmod m$$

where $h_1(k) = k \bmod m$

$$h_2(k) = 1 + (k \bmod n)$$

where $n = m - 1$ and $m = 701$

For $k = 123456$, what is the difference between first and second probes in terms of slots?

1. 255
2. 256
3. 257
4. 258

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

Question Type : **MCQ**
Question ID : **64635021857**
Option 1 ID : **64635085799**
Option 2 ID : **64635085800**
Option 3 ID : **64635085801**
Option 4 ID : **64635085802**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.8** Consider three CPU intensive processes, which require 10, 20 and 30 units of time and arrive at times 0, 2 and 6 respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.

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

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

Question Type : **MCQ**
Question ID : **64635021836**
Option 1 ID : **64635085715**
Option 2 ID : **64635085716**
Option 3 ID : **64635085717**
Option 4 ID : **64635085718**
Status : **Answered**
Chosen Option : **2**

**Q.9** Software reuse is

1. the process of analysing software with the objective of recovering its design and specification
2. the process of using existing software artifacts and knowledge to build new software
3. concerned with reimplementing legacy system to make them more maintainable
4. the process of analysing software to create a representation of a higher level of abstraction and breaking software down into its parts to see how it works

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

Question Type : **MCQ**
Question ID : **64635021845**
Option 1 ID : **64635085751**
Option 2 ID : **64635085752**
Option 3 ID : **64635085753**
Option 4 ID : **64635085754**
Status : **Answered**
Chosen Option : **2**

**Q.10**

Shift-reduce parser consists of

(a) input buffer

(b) stack

(c) parse table

Choose the correct option from those give below :

1. (a) and (b) only

2. (a) and (c) only

3. (c) only

4. (a), (b) and (c)

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

Question Type : **MCQ**
Question ID : **64635021865**
Option 1 ID : **64635085831**
Option 2 ID : **64635085832**
Option 3 ID : **64635085833**
Option 4 ID : **64635085834**
Status : **Answered**
Chosen Option : **1**

**Q.11**

Consider the following statements :

$S_1$ : For any integer $n>1$, $a^{\phi(n)} \equiv 1 (\text{mod} n)$ for all $a \in Z_n^*$, where $\phi(n)$ is Euler's phi function.

$S_2$ : If $p$ is prime, then $a^p \equiv 1 (\text{mod} p)$ for all $a \in Z_p^*$.

Which one of the following 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 : **64635021861**
Option 1 ID : **64635085815**
Option 2 ID : **64635085816**
Option 3 ID : **64635085817**
Option 4 ID : **64635085818**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.12** How many address lines and data lines are required to provide a memory capacity of 16K × 16?

1. 10, 4
2. 16, 16
3. 14, 16
4. 4, 16

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

Question Type : **MCQ**
Question ID : **64635021810**
Option 1 ID : **64635085611**
Option 2 ID : **64635085612**
Option 3 ID : **64635085613**
Option 4 ID : **64635085614**
Status : **Answered**
Chosen Option : **1**

**Q.13**

Match List–I with List–II :

| List–I | | List–II | |
|---|---|---|---|
| (a) | Prim's algorithm | (i) | $O(V^3 \log V)$ |
| (b) | Dijkstra's algorithm | (ii) | $O(VE^2)$ |
| (c) | Faster all-pairs shortest path | (iii) | $O(ElgV)$ |
| (d) | Edmonds-Karp algorithm | (iv) | $O(V^2)$ |

Choose the correct option from those given below :

1. (a)–(ii); (b)–(iv); (c)–(i); (d)–(iii)
2. (a)–(iii); (b)–(iv); (c)–(i); (d)–(ii)
3. (a)–(ii); (b)–(i); (c)–(iv); (d)–(iii)
4. (a)–(iii); (b)–(i); (c)–(iv); (d)–(ii)

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

Question Type : **MCQ**
Question ID : **64635021852**
Option 1 ID : **64635085779**
Option 2 ID : **64635085780**
Option 3 ID : **64635085781**
Option 4 ID : **64635085782**
Status : **Answered**
Chosen Option : **2**

**Q.14**

Match List–I with List–II :

where $L_1$ : Regular language

$L_2$ : Context-free language

$L_3$ : Recursive language

$L_4$ : Recursively enumerable language

| List–I | | List–II | |
|---|---|---|---|
| (a) | $\overline{L}_3 \cup L_4$ | (i) | Context-free language |
| (b) | $\overline{L}_2 \cup L_3$ | (ii) | Recursively enumerable language |
| (c) | $L_1^* \cap L_2$ | (iii) | Recursive language |

Choose the correct option from those given below :

1. (a)–(ii); (b)–(i); (c)–(iii)
2. (a)–(ii); (b)–(iii); (c)–(i)
3. (a)–(iii); (b)–(i); (c)–(ii)
4. (a)–(i); (b)–(ii); (c)–(iii)

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

Question Type : **MCQ**
Question ID : **64635021867**
Option 1 ID : **64635085839**
Option 2 ID : **64635085840**
Option 3 ID : **64635085841**
Option 4 ID : **64635085842**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.15** Consider the equation $(146)_b + (313)_{b-2} = (246)_8$. Which of the following is the value of $b$?

1. 8
2. 7
3. 10
4. 16

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

Question Type : **MCQ**

Question ID : **64635021809**
Option 1 ID : **64635085607**
Option 2 ID : **64635085608**
Option 3 ID : **64635085609**
Option 4 ID : **64635085610**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.16** Suppose that a connected planar graph has six vertices, each of degree four. Into how many regions is the plane divided by a planar representation of this graph?

1. 6
2. 8
3. 12
4. 20

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

Question Type : **MCQ**
Question ID : **64635021795**
Option 1 ID : **64635085551**
Option 2 ID : **64635085552**
Option 3 ID : **64635085553**
Option 4 ID : **64635085554**
Status : **Answered**
Chosen Option : **2**

**Q.17** Which of the following is principal conjunctive normal form for $[(p \vee q) \wedge \neg p \rightarrow \neg q]$?

1. $p \vee \neg q$
2. $p \vee q$
3. $\neg p \vee q$
4. $\neg p \vee \neg q$

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

Question Type : **MCQ**
Question ID : **64635021797**
Option 1 ID : **64635085559**
Option 2 ID : **64635085560**
Option 3 ID : **64635085561**
Option 4 ID : **64635085562**
Status : **Answered**
Chosen Option : **1**

**Q.18**

Which of the following features is supported in the relational database model?

1. Complex data-types
2. Multivalued attributes
3. Associations with multiplicities
4. Generalization relationships

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

Question Type : **MCQ**
Question ID : **64635021823**
Option 1 ID : **64635085663**
Option 2 ID : **64635085664**
Option 3 ID : **64635085665**
Option 4 ID : **64635085666**
Status : **Answered**
Chosen Option : **4**

**Q.19**

Which of the following UNIX/Linux pipes will count the number of lines in all the files having ·c and ·h as their extension in the current working directory?

1. cat∗·ch¦wc−1
2. cat∗·[c−h]¦wc−1
3. cat∗·[ch]¦ls−1
4. cat∗·[ch]¦wc−1

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

Question Type : **MCQ**
Question ID : **64635021841**
Option 1 ID : **64635085735**
Option 2 ID : **64635085736**
Option 3 ID : **64635085737**
Option 4 ID : **64635085738**
Status : **Answered**
Chosen Option : **4**

**Q.20**

A fully connected network topology is a topology in which there is a direct link between all pairs of nodes. Given a fully connected network with $n$ nodes, the number of direct links as a function of $n$ can be expressed as

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

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

Question Type : **MCQ**
Question ID : **64635021872**
Option 1 ID : **64635085859**
Option 2 ID : **64635085860**
Option 3 ID : **64635085861**
Option 4 ID : **64635085862**
Status : **Answered**
Chosen Option : **4**

**Q.21** A processor can support a maximum memory of 4 GB where memory is word addressable and a word is 2 bytes. What will be the size of the address bus of the processor?

1. At least 28 bits
2. At least 2 bytes
3. At least 31 bits
4. Minimum 4 bytes

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

Question Type : **MCQ**
Question ID : **64635021840**
Option 1 ID : **64635085731**
Option 2 ID : **64635085732**
Option 3 ID : **64635085733**
Option 4 ID : **64635085734**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

**Q.22**

Which of the following problems is/are decidable problem(s) (recursively enumerable) on turing machine $M$?

(a) $G$ is a CFG with $L(G)=\phi$

(b) There exist two TMs $M_1$ and $M_2$ such that $L(M)\subseteq\{L(M_1)\cup L(M_2)\}$ = language of all TMs

(c) M is a TM that accepts $\omega$ using at most $2^{|\omega|}$ cells of tape

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

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

Question Type : **MCQ**
Question ID : **64635021870**
Option 1 ID : **64635085851**
Option 2 ID : **64635085852**
Option 3 ID : **64635085853**
Option 4 ID : **64635085854**
Status : **Not Answered**
Chosen Option : **--**

**Q.23** Which of the following is an example of unsupervised neural network?

1. Back-propagation network
2. Hebb network
3. Associative memory network
4. Self-organizing feature map

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

Question Type : **MCQ**
Question ID : **64635021889**
Option 1 ID : **64635085927**
Option 2 ID : **64635085928**
Option 3 ID : **64635085929**
Option 4 ID : **64635085930**
Status : **Answered**
Chosen Option : **2**

**Q.24**

Which of the following statements is/are true with regard to various layers in the Internet stack?

P : At the link layer, a packet of transmitted information is called a frame.

Q : At the network layer, a packet of transmitted information is called a segment.

1. P only
2. Q only
3. P and Q
4. Neither P nor Q

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

Question Type : **MCQ**
Question ID : **64635021878**
Option 1 ID : **64635085883**
Option 2 ID : **64635085884**
Option 3 ID : **64635085885**
Option 4 ID : **64635085886**
Status : **Answered**
Chosen Option : **1**

**Q.25**

Match List–I with List–II :

| List–I | | List–II | |
|---|---|---|---|
| (a) | Disk | (i) | Thread |
| (b) | CPU | (ii) | Signal |
| (c) | Memory | (iii) | File system |
| (d) | Interrupt | (iv) | Virtual address space |

Choose the correct option from those given below :

1. (a)–(i); (b)–(ii); (c)–(iii); (d)–(iv)

2. (a)–(iii); (b)–(i); (c)–(iv); (d)–(ii)

3. (a)–(ii); (b)–(i); (c)–(iv); (d)–(iii)

4. (a)–(ii); (b)–(iv); (c)–(iii); (d)–(i)

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

Question Type : **MCQ**
Question ID : **64635021833**
Option 1 ID : **64635085703**
Option 2 ID : **64635085704**
Option 3 ID : **64635085705**
Option 4 ID : **64635085706**
Status : **Answered**
Chosen Option : **2**

**Q.26**

Consider the following C++ function f() :

```
unsigned int f (unsigned int n){
    unsigned int b=0;
    while (n){
        b += n & 1;
        n>>=1;
    }
    return b;
}
```

The function f() returns the int that represents the ___P___ in the binary representation of positive integer n, where P is

1. number of 0's
2. number of bits
3. number of consecutive 1's
4. number of 1's

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

Question Type : **MCQ**
Question ID : **64635021815**
Option 1 ID : **64635085631**
Option 2 ID : **64635085632**
Option 3 ID : **64635085633**
Option 4 ID : **64635085634**
Status : **Answered**
Chosen Option : **2**

**Q.27** Which of the following key constraints is required for functioning of foreign key in the context of relational databases?

1. Unique key
2. Primary key
3. Candidate key
4. Check key

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

Question Type : **MCQ**
Question ID : **64635021826**
Option 1 ID : **64635085675**
Option 2 ID : **64635085676**
Option 3 ID : **64635085677**
Option 4 ID : **64635085678**
Status : **Answered**
Chosen Option : **4**

**Q.28**

Consider the following pseudo-code fragment in which an invariant for the loop is " $m*x^k = p^n$ and $k \geq 0$" (here, p and n are integer variables that have been initialized) :

```
/* Pre-conditions : p ≥ 1 ∧ n ≥ 0 */
/* Assume that overflow never occurs */
int x=p; int k=n; int m=1;
while (k< >0){
    if (k is odd) then m=m*x;
    x=x*x;
    k = ⌊k / 2⌋;        /*floor(k/2)*/
}
```

Which of the following must be true at the end of the while loop?

1. $x = p^n$
2. $m = p^n$
3. $p = x^n$
4. $p = m^n$

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

Question Type : **MCQ**
Question ID : **64635021812**
Option 1 ID : **64635085619**
Option 2 ID : **64635085620**
Option 3 ID : **64635085621**
Option 4 ID : **64635085622**
Status : **Marked For Review**
Chosen Option : **2**

**Q.29** For a statement

A language $L \subseteq \Sigma^*$ is recursive if there exists some turing machine $M$.

Which of the following conditions is satisfied for any string $\omega$?

1. If $\omega \in L$, then $M$ accepts $\omega$ and $M$ will not halt
2. If $\omega \notin L$, then $M$ accepts $\omega$ and $M$ will halt by reaching at final state
3. If $\omega \notin L$, then $M$ halts without reaching to acceptable state
4. If $\omega \in L$, then $M$ halts without reaching to an acceptable state

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

Question Type : **MCQ**
Question ID : **64635021871**
Option 1 ID : **64635085855**
Option 2 ID : **64635085856**
Option 3 ID : **64635085857**
Option 4 ID : **64635085858**
Status : **Answered**
Chosen Option : **1**

**Q.30** Which of the following is best running time to sort $n$ integers in the range 0 to $n^2 - 1$?

1. $O(\lg n)$
2. $O(n)$
3. $O(n \lg n)$
4. $O(n^2)$

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

Question Type : **MCQ**
Question ID : **64635021855**
Option 1 ID : **64635085791**
Option 2 ID : **64635085792**
Option 3 ID : **64635085793**
Option 4 ID : **64635085794**
Status : **Answered**
Chosen Option : **3**

**Q.31** Which of the following are the primary objectives of risk monitoring in software project tracking?

P : To assess whether predicted risks do, in fact, occur

Q : To ensure that risk aversion steps defined for the risk are being properly applied

R : To collect information that can be used for future risk analysis

1. Only P and Q
2. Only P and R
3. Only Q and R
4. All of P, Q, R

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

Question Type : **MCQ**

Question ID : **64635021850**
Option 1 ID : **64635085771**
Option 2 ID : **64635085772**
Option 3 ID : **64635085773**
Option 4 ID : **64635085774**
Status : **Answered**
Chosen Option : **4**

**Q.32** How can the decision algorithm be constructed for deciding whether context-free language $L$ is finite?

(a) By constructing redundant CFG G in CNF generating language $L$

(b) By constructing non-redundant CFG G in CNF generating language $L$

(c) By constructing non-redundant CFG G in CNF generating language $L-\{\wedge\}$ ($\wedge$ stands for null)

Which of the following is correct?

1. (a) only
2. (b) only
3. (c) only
4. None of (a), (b) and (c)

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

Question Type : **MCQ**
Question ID : **64635021868**
Option 1 ID : **64635085843**
Option 2 ID : **64635085844**
Option 3 ID : **64635085845**
Option 4 ID : **64635085846**
Status : **Answered**
Chosen Option : **2**

**Q.33** How many states are there in a minimum state automata equivalent to regular expression given below?

Regular expression is $a*b(a+b)$

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

**Options** 1. 1
2. 2
3. 3

4. 4

Question Type : **MCQ**
Question ID : **64635021866**
Option 1 ID : **64635085835**
Option 2 ID : **64635085836**
Option 3 ID : **64635085837**
Option 4 ID : **64635085838**
Status : **Answered**
Chosen Option : **2**

**Q.34** With respect to relational algebra, which of the following operations are included from mathematical set theory?

(a) Join

(b) Intersection

(c) Cartisian product

(d) Project

1. (a) and (d)
2. (b) and (c)
3. (c) and (d)
4. (b) and (d)

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

Question Type : **MCQ**
Question ID : **64635021824**
Option 1 ID : **64635085667**
Option 2 ID : **64635085668**
Option 3 ID : **64635085669**
Option 4 ID : **64635085670**
Status : **Answered**
Chosen Option : **4**

**Q.35** For which values of $m$ and $n$ does the complete bipartite graph $k_{m,n}$ have a Hamilton circuit?

1. $m \neq n,\ m, n \geq 2$
2. $m \neq n,\ m, n \geq 3$
3. $m = n,\ m, n \geq 2$
4. $m = n,\ m, n \geq 3$

**Options** 1. 1
2. 2

3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021796**
Option 1 ID : **64635085555**
Option 2 ID : **64635085556**
Option 3 ID : **64635085557**
Option 4 ID : **64635085558**
Status : **Answered**
Chosen Option : **2**

**Q.36** Match List–I with List–II :

| List–I (Software Process Models) | | List–II (Software Systems) | |
|---|---|---|---|
| (a) | Waterfall model | (i) | e-business software that starts with only the basic functionalities and then moves on to more advanced features |
| (b) | Incremental development | (ii) | An inventory control system for a super-market to be developed within three months |
| (c) | Prototyping | (iii) | A virtual reality system for simulating vehicle navigation in a highway |
| (d) | RAD | (iv) | Automate the manual system for student record maintenance in a school |

Choose the correct option from those given below :

1. (a)–(ii); (b)–(iv); (c)–(i); (d)–(iii)
2. (a)–(i); (b)–(iii); (c)–(iv); (d)–(ii)
3. (a)–(iii); (b)–(ii); (c)–(iv); (d)–(i)
4. (a)–(iv); (b)–(i); (c)–(iii); (d)–(ii)

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

Question Type : **MCQ**
Question ID : **64635021848**
Option 1 ID : **64635085763**
Option 2 ID : **64635085764**
Option 3 ID : **64635085765**
Option 4 ID : **64635085766**
Status : **Answered**
Chosen Option : **4**

**Q.37**

In relational database management, which of the following is/are property/properties of candidate key?

P : Uniqueness

Q : Irreducibility

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 : **64635021827**
Option 1 ID : **64635085679**
Option 2 ID : **64635085680**
Option 3 ID : **64635085681**
Option 4 ID : **64635085682**
Status : **Answered**
Chosen Option : **1**

**Q.38** In the context of software testing, which of the following statements is/are NOT correct?

P : A minimal test set that achieves 100% path coverage will also achieve 100% statement coverage.

Q : A minimal test set that achieves 100% path coverage will generally detect more faults than one that achieves 100% statement coverage.

R : A minimal test set that achieves 100% statement coverage will generally detect more faults than one that achieves 100% branch coverage.

1. R only
2. Q only
3. P and Q only
4. Q and R only

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

Question Type : **MCQ**
Question ID : **64635021844**
Option 1 ID : **64635085747**
Option 2 ID : **64635085748**
Option 3 ID : **64635085749**
Option 4 ID : **64635085750**
Status : **Answered**
Chosen Option : **2**

**Q.39** Software products need adaptive maintenance for which of the following reasons?

1. To rectify bugs observed while the system is in use
2. When the customers need the product to run on new platforms
3. To support the new features that users want it to support
4. To overcome wear and tear caused by the repeated use of the software

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

Question Type : **MCQ**
Question ID : **64635021849**
Option 1 ID : **64635085767**
Option 2 ID : **64635085768**
Option 3 ID : **64635085769**
Option 4 ID : **64635085770**
Status : **Answered**
Chosen Option : **2**

**Q.40** Which of the following terms best describes Git?

1. Issue Tracking System
2. Integrated Development Environment
3. Distributed Version Control System
4. Web-based Repository Hosting Service

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

Question Type : **MCQ**
Question ID : **64635021846**
Option 1 ID : **64635085755**
Option 2 ID : **64635085756**
Option 3 ID : **64635085757**
Option 4 ID : **64635085758**
Status : **Answered**
Chosen Option : **3**

**Q.41**

Consider the complexity class $CO - NP$ as the set of languages $L$ such that $\bar{L} \in NP$, and the following two statements :

$S_1$ : $P \subseteq CO - NP$

$S_2$ : If $NP \neq CO - NP$, then $P \neq NP$

Which of the following 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 : **64635021858**
Option 1 ID : **64635085803**
Option 2 ID : **64635085804**
Option 3 ID : **64635085805**
Option 4 ID : **64635085806**
Status : **Answered**
Chosen Option : **2**

**Q.42** For a magnetic disk with concentric circular tracks, the seek latency is not linearly proportional to the seek distance due to

1. non-uniform distribution of requests
2. arm starting or stopping inertia
3. higher capacity of tracks on the periphery of the platter
4. use of unfair arm scheduling policies

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

Question Type : **MCQ**
Question ID : **64635021807**
Option 1 ID : **64635085599**
Option 2 ID : **64635085600**
Option 3 ID : **64635085601**
Option 4 ID : **64635085602**
Status : **Answered**
Chosen Option : **2**

**Q.43**

A Web application and its support environment has not been fully fortified against attack. Web engineers estimate that the likelihood of repelling an attack is only 30 percent. The application does not contain sensitive or controversial information, so the threat probability is 25 percent. What is the integrity of the web application?

1. 0·625
2. 0·725
3. 0·775
4. 0·825

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

Question Type : **MCQ**
Question ID : **64635021847**
Option 1 ID : **64635085759**
Option 2 ID : **64635085760**
Option 3 ID : **64635085761**
Option 4 ID : **64635085762**
Status : **Answered**
Chosen Option : **2**

**Q.44** Following table has two attributes Employee_id and Manager_id, where Employee_id is a primary key and manager_id is a foreign key referencing Employee_id with on-delete cascade :

| Employee_id | Manager_id |
|---|---|
| 20 | 40 |
| 25 | 40 |
| 30 | 35 |
| 35 | 20 |
| 40 | 45 |
| 45 | 25 |

On deleting the table (20, 40), the set of other tuples that must be deleted to maintain the referential integrity of table is

1. (30, 35) only
2. (30, 35) and (35, 20) only
3. (35, 20) only
4. (40, 45) and (25, 40) only

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

Question Type : **MCQ**
Question ID : **64635021830**
Option 1 ID : **64635085691**
Option 2 ID : **64635085692**
Option 3 ID : **64635085693**
Option 4 ID : **64635085694**
Status : **Not Attempted and**

Marked For Review
Chosen Option : --

**Q.45** How many ways are there to place 8 indistinguishable balls into four distinguishable bins?

1. 70
2. 165
3. ${}^{8}C_{4}$
4. ${}^{8}P_{4}$

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

Question Type : **MCQ**
Question ID : **64635021793**
Option 1 ID : **64635085543**
Option 2 ID : **64635085544**
Option 3 ID : **64635085545**
Option 4 ID : **64635085546**
Status : **Answered**
Chosen Option : **2**

**Q.46** Match List–I with List–II :

| List–I | | List–II | |
|---|---|---|---|
| (a) | Greedy best-first | (i) | Minimal cost $(p)+h(p)$ |
| (b) | Lowest cost-first | (ii) | Minimal $h(p)$ |
| (c) | $A^*$ algorithm | (iii) | Minimal cost $(p)$ |

Choose the correct option from those given below :

1. (a)–(i); (b)–(ii); (c)–(iii)
2. (a)–(iii); (b)–(ii); (c)–(i)
3. (a)–(i); (b)–(iii); (c)–(ii)
4. (a)–(ii); (b)–(iii); (c)–(i)

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

Question Type : **MCQ**
Question ID : **64635021883**
Option 1 ID : **64635085903**
Option 2 ID : **64635085904**
Option 3 ID : **64635085905**

Option 4 ID : **64635085906**
Status : **Answered**
Chosen Option : **2**

**Q.47** A computer has six tape drives with $n$ processes competing for them. Each process may need two drives. What is the maximum value of $n$ for the system to be deadlock free?

1. 5
2. 4
3. 3
4. 6

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

Question Type : **MCQ**
Question ID : **64635021839**
Option 1 ID : **64635085727**
Option 2 ID : **64635085728**
Option 3 ID : **64635085729**
Option 4 ID : **64635085730**
Status : **Answered**
Chosen Option : **3**

**Q.48** Consider the following properties with respect to a flow network $G=(V,E)$ in which a flow is a real-valued function $f:V\times V\rightarrow R$ :

$P_1$ : For all $u,v\in V$, $f(u,v)=-f(v,u)$

$P_2$ : $\sum_{v\in V} f(u,v)=0$ for all $u\in V$

Which one of the following is/are correct?

1. Only $P_1$
2. Only $P_2$
3. Both $P_1$ and $P_2$
4. Neither $P_1$ nor $P_2$

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

Question Type : **MCQ**
Question ID : **64635021860**
Option 1 ID : **64635085811**
Option 2 ID : **64635085812**
Option 3 ID : **64635085813**
Option 4 ID : **64635085814**
Status : **Answered**
Chosen Option : **2**

**Q.49**

The M components in MVC are responsible for

1. user interface
2. security of the system
3. business logic and domain objects
4. translating between user interface actions/events and operations on the domain objects

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

Question Type : **MCQ**
Question ID : **64635021843**
Option 1 ID : **64635085743**
Option 2 ID : **64635085744**
Option 3 ID : **64635085745**
Option 4 ID : **64635085746**
Status : **Answered**
Chosen Option : **3**

**Q.50** Which of the following statements is/are true?

P : In software engineering, defects that are discovered earlier are more expensive to fix.

Q : A software design is said to be a good design, if the components are strongly cohesive and weakly coupled.

Select the correct answer from the options given below :

1. P only
2. Q only
3. P and Q
4. Neither P nor Q

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

Question Type : **MCQ**
Question ID : **64635021842**
Option 1 ID : **64635085739**
Option 2 ID : **64635085740**
Option 3 ID : **64635085741**
Option 4 ID : **64635085742**
Status : **Answered**
Chosen Option : **2**

**Q.51**

Reinforcement learning can be formalized in terms of _____ in which the agent initially only knows the set of possible _____ and the set of possible actions.

1. Markov decision processes, objects
2. Hidden states, objects
3. Markov decision processes, states
4. objects, states

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

Question Type : **MCQ**
Question ID : **64635021891**
Option 1 ID : **64635085935**
Option 2 ID : **64635085936**
Option 3 ID : **64635085937**
Option 4 ID : **64635085938**
Status : **Answered**
Chosen Option : **4**

**Q.52** On translating the expression given below into quadruple representation, how many operations are required?

$$(i*j)+(e+f)*(a*b+c)$$

1. 5
2. 6
3. 3
4. 7

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

Question Type : **MCQ**
Question ID : **64635021863**
Option 1 ID : **64635085823**
Option 2 ID : **64635085824**
Option 3 ID : **64635085825**
Option 4 ID : **64635085826**
Status : **Answered**
Chosen Option : **3**

**Q.53**

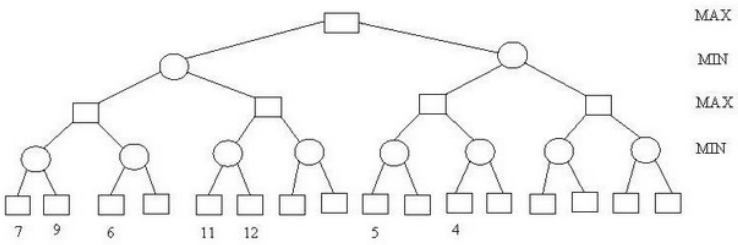
There are many sorting algorithms based on comparison. The running time of heapsort algorithm is $O(n\lg n)$. Like P, but unlike Q, heapsort sorts in place where (P, Q) is equal to

1. Merge sort, Quick sort
2. Quick sort, insertion sort
3. Insertion sort, Quick sort
4. Insertion sort, Merge sort

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

Question Type : **MCQ**
Question ID : **64635021853**
Option 1 ID : **64635085783**
Option 2 ID : **64635085784**
Option 3 ID : **64635085785**
Option 4 ID : **64635085786**
Status : **Answered**
Chosen Option : **2**

**Q.54** Consider the game tree given below :




Here ○ and □ represents MIN and MAX nodes respectively. The value of the root node of the game tree is

1. 4
2. 7
3. 11
4. 12

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

Question Type : **MCQ**
Question ID : **64635021882**
Option 1 ID : **64635085899**
Option 2 ID : **64635085900**
Option 3 ID : **64635085901**
Option 4 ID : **64635085902**
Status : **Answered**

Chosen Option : **2**

**Q.55** Suppose that the register $A$ and the register $K$ have the bit configuration. Only the three leftmost bits of $A$ are compared with memory words because $K$ has 1's in these positions. Because of its organization, this type of memory is uniquely suited to parallel searches by data association. This type of memory is known as

1. RAM
2. ROM
3. content addressable memory
4. secondary memory

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

Question Type : **MCQ**
Question ID : **64635021803**
Option 1 ID : **64635085583**
Option 2 ID : **64635085584**
Option 3 ID : **64635085585**
Option 4 ID : **64635085586**
Status : **Answered**
Chosen Option : **2**

**Q.56** Consider the following C-code fragment running on a 32-bit x86 machine :

```
typedef struct {
        union {
                unsigned char a;
                unsigned short b;
        }U;
        unsigned char c;
}S;
```

```
        S   B[10];
        S*p=&B[4];
        S*q=&B[5];
        p→U·b = 0x1234;
/* structure S takes 32-bits */
```

If M is the value of $q - p$ and N is the value of $((\text{int})\ \&\ (p \rightarrow c)) - ((\text{int})p)$, then (M, N) is

1. (1, 1)
2. (3, 2)
3. (1, 2)
4. (4, 4)

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

Question Type : **MCQ**
Question ID : **64635021813**
Option 1 ID : **64635085623**
Option 2 ID : **64635085624**
Option 3 ID : **64635085625**
Option 4 ID : **64635085626**
Status : **Answered**
Chosen Option : **2**

**Q.57** Consider the following grammar :

$S \rightarrow XY$

$X \rightarrow YaY \mid a$ and $Y \rightarrow bbX$

Which of the following statements is/are true about the above grammar?

(a) Strings produced by the grammar can have consecutive three $a$'s.

(b) Every string produced by the grammar have alternate $a$ and $b$.

(c) Every string produced by the grammar have at least two $a$'s.

(d) Every string produced by the grammar have $b$'s in multiple of 2.

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

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

Question Type : **MCQ**
Question ID : **64635021869**
Option 1 ID : **64635085847**
Option 2 ID : **64635085848**
Option 3 ID : **64635085849**
Option 4 ID : **64635085850**
Status : **Answered**
Chosen Option : **4**

**Q.58** What percentage (%) of the IPv4, IP address space do all class C addresses consume?

1. 12·5%
2. 25%
3. 37·5%
4. 50%

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

Question Type : **MCQ**

Question ID : **64635021879**
Option 1 ID : **64635085887**
Option 2 ID : **64635085888**
Option 3 ID : **64635085889**
Option 4 ID : **64635085890**
Status : **Answered**
Chosen Option : **4**

**Q.59** How many cards must be selected from a standard deck of 52 cards to guarantee that at least three hearts are present among them?

1. 9
2. 13
3. 17
4. 42

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

Question Type : **MCQ**
Question ID : **64635021798**
Option 1 ID : **64635085563**
Option 2 ID : **64635085564**
Option 3 ID : **64635085565**
Option 4 ID : **64635085566**
Status : **Answered**
Chosen Option : **2**

**Q.60** How many bit strings of length ten either start with a 1 bit or end with two bits 00?

1. 320
2. 480
3. 640
4. 768

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

Question Type : **MCQ**
Question ID : **64635021794**
Option 1 ID : **64635085547**
Option 2 ID : **64635085548**
Option 3 ID : **64635085549**
Option 4 ID : **64635085550**
Status : **Answered**
Chosen Option : **3**

**Q.61**

A fuzzy conjunction operator denoted as $t(x, y)$ and a fuzzy disjunction operator denoted as $s(x, y)$ form a dual pair if they satisfy the condition :

1. $t(x, y) = 1 - s(x, y)$
2. $t(x, y) = s(1 - x, 1 - y)$
3. $t(x, y) = 1 - s(1 - x, 1 - y)$
4. $t(x, y) = s(1 + x, 1 + y)$

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

Question Type : **MCQ**
Question ID : **64635021885**
Option 1 ID : **64635085911**
Option 2 ID : **64635085912**
Option 3 ID : **64635085913**
Option 4 ID : **64635085914**
Status : **Answered**
Chosen Option : **2**

**Q.62** The ability to inject packets into the Internet with a false source address is known as

1. Man-in-the-middle attack
2. IP phishing
3. IP sniffing
4. IP spoofing

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

Question Type : **MCQ**
Question ID : **64635021880**
Option 1 ID : **64635085891**
Option 2 ID : **64635085892**
Option 3 ID : **64635085893**
Option 4 ID : **64635085894**
Status : **Answered**
Chosen Option : **2**

**Q.63** The RSA encryption algorithm also works in reverse, that is, you can encrypt a message with the private key and decrypt it using the public key. This property is used in

1. intrusion detection systems
2. digital signatures
3. data compression
4. certification

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

Question Type : **MCQ**
Question ID : **64635021881**
Option 1 ID : **64635085895**
Option 2 ID : **64635085896**
Option 3 ID : **64635085897**
Option 4 ID : **64635085898**
Status : **Answered**
Chosen Option : **1**

**Q.64** K-mean clustering algorithm has clustered the given 8 observations into 3 clusters after 1st iteration as follows :

C1 : {(3, 3), (5, 5), (7, 7)}

C2 : {(0, 6), (6, 0), (3, 0)}

C3 : {(8, 8), (4, 4)}

What will be the Manhattan distance for observation (4, 4) from cluster centroid C1 in second iteration?

1. 2
2. $\sqrt{2}$
3. 0
4. 18

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

Question Type : **MCQ**
Question ID : **64635021831**
Option 1 ID : **64635085695**
Option 2 ID : **64635085696**
Option 3 ID : **64635085697**
Option 4 ID : **64635085698**
Status : **Answered**
Chosen Option : **2**

**Q.65** The STRIPS representation is

1. a feature-centric representation
2. an action-centric representation
3. a combination of feature-centric and action-centric representations
4. a hierarchical feature-centric representation

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021884**
Option 1 ID : **64635085907**
Option 2 ID : **64635085908**
Option 3 ID : **64635085909**
Option 4 ID : **64635085910**
Status : **Answered**
Chosen Option : **2**

**Q.66** The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by

1. page size
2. physical size of memory
3. the instruction set architecture
4. number of processes in memory

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

Question Type : **MCQ**
Question ID : **64635021838**
Option 1 ID : **64635085723**
Option 2 ID : **64635085724**
Option 3 ID : **64635085725**
Option 4 ID : **64635085726**
Status : **Answered**
Chosen Option : **1**

**Q.67**

Match List–I with List–II :

| List–I | | List–II | |
|---|---|---|---|
| (a) | $p \to q$ | (i) | $\neg(q \to \neg p)$ |
| (b) | $p \vee q$ | (ii) | $p \wedge \neg q$ |
| (c) | $p \wedge q$ | (iii) | $\neg p \to q$ |
| (d) | $\neg(p \to q)$ | (iv) | $\neg p \vee q$ |

Choose the correct option from those given below :

1. (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)
2. (a)–(ii); (b)–(i); (c)–(iii); (d)–(iv)
3. (a)–(iv); (b)–(i); (c)–(iii); (d)–(ii)
4. (a)–(iv); (b)–(iii); (c)–(i); (d)–(ii)

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

Question Type : **MCQ**
Question ID : **64635021799**
Option 1 ID : **64635085567**
Option 2 ID : **64635085568**
Option 3 ID : **64635085569**
Option 4 ID : **64635085570**
Status : **Answered**
Chosen Option : **4**

**Q.68** How many different Boolean functions of degree $n$ are there?

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

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

Question Type : **MCQ**

Question ID : **64635021804**
Option 1 ID : **64635085587**
Option 2 ID : **64635085588**
Option 3 ID : **64635085589**
Option 4 ID : **64635085590**
Status : **Answered**
Chosen Option : **2**

**Q.69** The fault can be easily diagnosed in the micro-program control unit using diagnostic tools by maintaining the contents of

1. flags and counters
2. registers and counters
3. flags and registers
4. flags, registers and counters

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

Question Type : **MCQ**
Question ID : **64635021805**
Option 1 ID : **64635085591**
Option 2 ID : **64635085592**
Option 3 ID : **64635085593**
Option 4 ID : **64635085594**
Status : **Answered**
Chosen Option : **3**

**Q.70** Using the phong reflectance model, the strength of the specular highlight is determined by the angle between

1. the view vector and the normal vector
2. the light vector and the normal vector
3. the light vector and the reflected vector
4. the reflected vector and the view vector

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

Question Type : **MCQ**
Question ID : **64635021821**
Option 1 ID : **64635085655**
Option 2 ID : **64635085656**
Option 3 ID : **64635085657**
Option 4 ID : **64635085658**
Status : **Answered**
Chosen Option : **2**

**Q.71**

Which of the following statements is/are true?

P : In a scripting language like JavaScript, types are typically associated with values, not variables.

Q : It is not possible to show images on a web page without the <img> tag of HTML.

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 : **64635021816**
Option 1 ID : **64635085635**
Option 2 ID : **64635085636**
Option 3 ID : **64635085637**
Option 4 ID : **64635085638**
Status : **Answered**
Chosen Option : **1**

**Q.72**

Which of the following statements are DML statements?

(a) Update [tablename]
Set [columnname] = VALUE

(b) Delete [tablename]

(c) Select * from [tablename]

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

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

Question Type : **MCQ**

Question ID : **64635021828**
Option 1 ID : **64635085683**
Option 2 ID : **64635085684**
Option 3 ID : **64635085685**
Option 4 ID : **64635085686**
Status : **Answered**
Chosen Option : **3**

**Q.73** Let $A_{\alpha_0}$ denotes the $\alpha$-cut of a fuzzy set $A$ at $\alpha_0$. If $\alpha_1 < \alpha_2$, then

1. $A_{\alpha_1} \supseteq A_{\alpha_2}$
2. $A_{\alpha_1} \supset A_{\alpha_2}$
3. $A_{\alpha_1} \subseteq A_{\alpha_2}$
4. $A_{\alpha_1} \subset A_{\alpha_2}$

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

Question Type : **MCQ**
Question ID : **64635021886**
Option 1 ID : **64635085915**
Option 2 ID : **64635085916**
Option 3 ID : **64635085917**
Option 4 ID : **64635085918**
Status : **Answered**
Chosen Option : **4**

**Q.74** The parallel bus arbitration technique uses an external priority encoder and a decoder. Suppose, a parallel arbiter has 5 bus arbiters. What will be the size of priority encoder and decoder respectively?

1. 4×2, 2×4
2. 2×4, 4×2
3. 3×8, 8×3
4. 8×3, 3×8

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

Question Type : **MCQ**
Question ID : **64635021808**
Option 1 ID : **64635085603**
Option 2 ID : **64635085604**
Option 3 ID : **64635085605**
Option 4 ID : **64635085606**
Status : **Answered**
Chosen Option : **3**

**Q.75**

Which type of addressing mode, less number of memory references are required?

1. Immediate
2. Implied
3. Register
4. Indexed

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

Question Type : **MCQ**
Question ID : **64635021802**
Option 1 ID : **64635085579**
Option 2 ID : **64635085580**
Option 3 ID : **64635085581**
Option 4 ID : **64635085582**
Status : **Answered**
Chosen Option : **3**

**Q.76**

You need 500 subnets, each with about 100 usable host addresses per subnet. What network mask will you assign using a class B network address?

1. 255·255·255·252
2. 255·255·255·128
3. 255·255·255·0
4. 255·255·254·0

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

Question Type : **MCQ**
Question ID : **64635021875**
Option 1 ID : **64635085871**
Option 2 ID : **64635085872**
Option 3 ID : **64635085873**
Option 4 ID : **64635085874**
Status : **Answered**
Chosen Option : **4**

**Q.77**

Which of the following has same expressive power with regard to relational query language?

(a) Relational algebra and domain relational calculus

(b) Relational algebra and tuples relational calculus

(c) Relational algebra and domain relational calculus restricted to safe expression

(d) Relational algebra and tuples relational calculus restricted to safe expression

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

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

Question Type : **MCQ**
Question ID : **64635021822**
Option 1 ID : **64635085659**
Option 2 ID : **64635085660**
Option 3 ID : **64635085661**
Option 4 ID : **64635085662**
Status : **Answered**
Chosen Option : **3**

**Q.78** At a particular time of computation, the value of a counting semaphore is 7. Then 20 P (wait) operations and 15 V (signal) operations are completed on this semaphore. What is the resulting value of the semaphore?

1. 28
2. 12
3. 2
4. 42

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

Question Type : **MCQ**
Question ID : **64635021837**
Option 1 ID : **64635085719**
Option 2 ID : **64635085720**
Option 3 ID : **64635085721**
Option 4 ID : **64635085722**
Status : **Answered**
Chosen Option : **3**

**Q.79** Which of the following statements is/are true?

P : An XML document with correct syntax as specified by W3C is called "Well Formed".

Q : An XML documented validated against a DTD is both "Well formed" and "Valid".

R : <xml version="1·0" encoding="UTF-8">

is syntactly correct declaration for the version of an XML document.

Select the correct answer from the options given below :

1. P and Q only
2. P and R only
3. Q and R only
4. All of P, Q and R

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

Question Type : **MCQ**
Question ID : **64635021817**
Option 1 ID : **64635085639**
Option 2 ID : **64635085640**
Option 3 ID : **64635085641**
Option 4 ID : **64635085642**
Status : **Answered**
Chosen Option : **3**

**Q.80** Which of the following is application of depth-first search?

1. Only topological sort
2. Only strongly connected components
3. Both topological sort and strongly connected components
4. Neither topological sort nor strongly connected components

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

Question Type : **MCQ**
Question ID : **64635021856**
Option 1 ID : **64635085795**
Option 2 ID : **64635085796**
Option 3 ID : **64635085797**
Option 4 ID : **64635085798**
Status : **Answered**
Chosen Option : **1**

**Q.81**

What will be the number of states when a MOD-2 counter is followed by a MOD-5 counter?

1. 5
2. 10
3. 15
4. 20

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

Question Type : **MCQ**
Question ID : **64635021806**
Option 1 ID : **64635085595**
Option 2 ID : **64635085596**
Option 3 ID : **64635085597**
Option 4 ID : **64635085598**
Status : **Answered**
Chosen Option : **2**

**Q.82**

Replacing the expression $4*2\cdot14$ by $8\cdot56$ is known as

1. constant folding
2. induction variable
3. strength reduction
4. code reduction

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

Question Type : **MCQ**
Question ID : **64635021864**
Option 1 ID : **64635085827**
Option 2 ID : **64635085828**
Option 3 ID : **64635085829**
Option 4 ID : **64635085830**
Status : **Answered**
Chosen Option : **2**

**Q.83**

Hadoop (a big data tool) works with number of related tools. Choose from the following, the common tools included into Hadoop :

1. MySQL, Google API and Map reduce
2. Map reduce, Scala and Hummer
3. Map reduce, H Base and Hive
4. Map reduce, Hummer and Heron

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

Question Type : **MCQ**
Question ID : **64635021829**
Option 1 ID : **64635085687**
Option 2 ID : **64635085688**
Option 3 ID : **64635085689**
Option 4 ID : **64635085690**
Status : **Answered**
Chosen Option : **2**

**Q.84**

What is the name of the protocol that allows a client to send a broadcast message with its MAC address and receive an IP address in reply?

1. ARP
2. DNS
3. RARP
4. ICMP

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

Question Type : **MCQ**
Question ID : **64635021873**
Option 1 ID : **64635085863**
Option 2 ID : **64635085864**
Option 3 ID : **64635085865**
Option 4 ID : **64635085866**
Status : **Answered**
Chosen Option : **4**

**Q.85**

Consider the following methods :

$M_1$ : Mean of maximum

$M_2$ : Centre of area

$M_3$ : Height method

Which of the following is/are defuzzification method(s)?

1. Only $M_2$
2. Only $M_1$ and $M_2$
3. Only $M_2$ and $M_3$
4. $M_1$, $M_2$ and $M_3$

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

Question Type : **MCQ**
Question ID : **64635021887**
Option 1 ID : **64635085919**
Option 2 ID : **64635085920**
Option 3 ID : **64635085921**
Option 4 ID : **64635085922**
Status : **Answered**
Chosen Option : **2**

**Q.86** Consider the following statements regarding 2D transforms in computer graphics :

S1 : $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ is a 2×2 matrix that reflects (mirrors) only 2D point about the X-axis.

S2 : A 2×2 matrix which mirrors any 2D point about the X-axis, is a rotation matrix.

What can you say about the statements S1 and S2?

1. Both S1 and S2 are true
2. Only S1 is true
3. Only S2 is true
4. Both S1 and S2 are false

**Options** 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **64635021819**
Option 1 ID : **64635085647**
Option 2 ID : **64635085648**
Option 3 ID : **64635085649**
Option 4 ID : **64635085650**
Status : **Answered**
Chosen Option : **2**

**Q.87** Suppose that a computer program takes 100 seconds of execution time on a computer with multiplication operation responsible for 80 seconds of this time. How much do you have to improve the speed of multiplication operation if you are asked to execute this program four times faster?

1. 14 times faster
2. 15 times faster
3. 16 times faster
4. 17 times faster

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

Question Type : **MCQ**
Question ID : **64635021811**
Option 1 ID : **64635085615**
Option 2 ID : **64635085616**
Option 3 ID : **64635085617**
Option 4 ID : **64635085618**
Status : **Answered**
Chosen Option : **2**

**Q.88** Consider a disk system with 100 cylinders. The requests to access the cylinders occur in the following sequence :

4, 34, 10, 7, 19, 73, 2, 15, 6, 20

Assuming that the head is currently at cylinder 50, what is the time taken to satisfy all requests if it takes 1ms to move from the cylinder to adjacent one and the shortest seek time first policy is used?

1. 357 ms
2. 238 ms
3. 276 ms
4. 119 ms

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

Question Type : **MCQ**

Question ID : **64635021832**
Option 1 ID : **64635085699**
Option 2 ID : **64635085700**
Option 3 ID : **64635085701**
Option 4 ID : **64635085702**
Status : **Answered**
Chosen Option : **4**

**Q.89** Find the zero-one matrix of the transitive closure of the relation given by the matrix $A$ :

$$A=\begin{bmatrix}1&0&1\\0&1&0\\1&1&0\end{bmatrix}$$

1. $\begin{bmatrix}1&1&1\\0&1&0\\1&1&1\end{bmatrix}$

2. $\begin{bmatrix}1&0&1\\0&1&0\\1&1&0\end{bmatrix}$

3. $\begin{bmatrix}1&0&1\\0&1&0\\1&0&1\end{bmatrix}$

4. $\begin{bmatrix}1&1&1\\0&1&0\\1&0&1\end{bmatrix}$

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

Question Type : **MCQ**
Question ID : **64635021800**
Option 1 ID : **64635085571**
Option 2 ID : **64635085572**
Option 3 ID : **64635085573**
Option 4 ID : **64635085574**
Status : **Answered**
Chosen Option : **2**

**Q.90**

The value of the derivative of Sigmoid function given by

$$f(x)=\frac{1}{1+e^{-2x}}$$

at $x=0$ is

1. 0
2. $\frac{1}{2}$
3. $\frac{1}{4}$
4. $\infty$

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

Question Type : **MCQ**
Question ID : **64635021890**
Option 1 ID : **64635085931**
Option 2 ID : **64635085932**
Option 3 ID : **64635085933**
Option 4 ID : **64635085934**
Status : **Answered**
Chosen Option : **2**

**Q.91** Consider the following two statements with respect to IPv4 in computer networking :

P : The loopback (IP) address is a member of class B network.

Q : The loopback (IP) address is used to send a packet from host to itself.

What can you say about the statements P and Q?

1. P–True; Q–False
2. P–False; Q–True
3. P–True; Q–True
4. P–False; Q–False

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

Question Type : **MCQ**
Question ID : **64635021876**
Option 1 ID : **64635085875**
Option 2 ID : **64635085876**
Option 3 ID : **64635085877**
Option 4 ID : **64635085878**
Status : **Answered**
Chosen Option : **2**

**Q.92**

Consider the following :

(a) Evolution
(b) Selection
(c) Reproduction
(d) Mutation

Which of the following are found in genetic algorithms?

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

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

Question Type : **MCQ**
Question ID : **64635021888**
Option 1 ID : **64635085923**
Option 2 ID : **64635085924**
Option 3 ID : **64635085925**
Option 4 ID : **64635085926**
Status : **Answered**
Chosen Option : **1**

**Q.93** Consider a raster system with resolution 640 by 480. What size is frame buffer (in bytes) for this system to store 12 bits per pixel?

1. 450 kilobytes
2. 500 kilobytes
3. 350 kilobytes
4. 400 kilobytes

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

Question Type : **MCQ**
Question ID : **64635021818**

Option 1 ID : **64635085643**
Option 2 ID : **64635085644**
Option 3 ID : **64635085645**
Option 4 ID : **64635085646**
Status : **Answered**
Chosen Option : **3**

**Q.94**

Consider the following steps :

$S_1$ : Characterize the structure of an optimal solution

$S_2$ : Compute the value of an optimal solution in bottom-up fashion

Which of the step(s) is/are common to both dynamic programming and greedy algorithms?

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 : **64635021859**
Option 1 ID : **64635085807**
Option 2 ID : **64635085808**
Option 3 ID : **64635085809**
Option 4 ID : **64635085810**
Status : **Answered**
Chosen Option : **2**

**Q.95**

In the context of 3D computer graphics, which of the following statements is/are true?

P : Orthographic transformations keep parallel lines parallel.

Q : Orthographic transformations are affine transformations.

Select the correct answer from the options given below :

1. Both P and Q
2. Neither P nor Q
3. Only P
4. Only Q

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

Question Type : **MCQ**
Question ID : **64635021820**
Option 1 ID : **64635085651**
Option 2 ID : **64635085652**
Option 3 ID : **64635085653**
Option 4 ID : **64635085654**
Status : **Answered**
Chosen Option : **3**

**Q.96** Consider the poset $(\{3, 5, 9, 15, 24, 45\}, |)$.

Which of the following is correct for the given poset?

1. There exists a greatest element and a least element
2. There exists a greatest element but not a least element
3. There exists a least element but not a greatest element
4. There does not exist a greatest element and a least element

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

Question Type : **MCQ**
Question ID : **64635021792**
Option 1 ID : **64635085539**
Option 2 ID : **64635085540**
Option 3 ID : **64635085541**
Option 4 ID : **64635085542**
Status : **Answered**
Chosen Option : **2**

**Q.97** You are designing a link layer protocol for a link with bandwidth of 1 Gbps ($10^9$ bits/second) over a fiber link with length of 800 km. Assume the speed of light in this medium is 200000 km/second. What is the propagation delay in this link?

1. 1 millisecond
2. 2 milliseconds
3. 3 milliseconds
4. 4 milliseconds

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

Question Type : **MCQ**
Question ID : **64635021874**
Option 1 ID : **64635085867**
Option 2 ID : **64635085868**
Option 3 ID : **64635085869**

Option 4 ID : **64635085870**
Status : **Answered**
Chosen Option : **2**

**Q.98**

What is the output of the following JAVA program?

```
public class Good {
    private int m;
    public Good (int m){this· m=m;}
    public Boolean equals (Good n){return n· m==m;}
    public static void main (string args []){
        Good m1 = new Good (22);
        Good m2 = new Good (22);
        Object s1 = new Good (22);
        Object s2 = new Good (22);
        System· out· println (m1 · equals (m2));
        System· out· println (s1 · equals (s2));
        System· out· println (m1 · equals (s2));
        System· out· println (s1 · equals (m2));
    }
}
```

1. True, True, False, False
2. True, False, True, False
3. True, True, False, True
4. True, False, False, False

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

Question Type : **MCQ**
Question ID : **64635021814**
Option 1 ID : **64635085627**
Option 2 ID : **64635085628**
Option 3 ID : **64635085629**
Option 4 ID : **64635085630**
Status : **Answered**
Chosen Option : **1**

**Q.99**

Software validation mainly checks for inconsistencies between

1. use cases and user requirements
2. implementation and system design blueprints
3. detailed specifications and user requirements
4. functional specifications and use cases

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

Question Type : **MCQ**
Question ID : **64635021851**
Option 1 ID : **64635085775**
Option 2 ID : **64635085776**
Option 3 ID : **64635085777**
Option 4 ID : **64635085778**
Status : **Answered**
Chosen Option : **3**

**Q.100** Consider the Euler's phi function given by

$$\phi(n) = n\prod_{p|n}\left(1-\frac{1}{p}\right)$$

where $p$ runs over all the primes dividing $n$. What is the value of $\phi(45)$?

1. 3
2. 12
3. 6
4. 24

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

Question Type : **MCQ**
Question ID : **64635021854**
Option 1 ID : **64635085787**
Option 2 ID : **64635085788**
Option 3 ID : **64635085789**
Option 4 ID : **64635085790**
Status : **Answered**

Chosen Option : **4**