

# National Testing Agency

<b>Question Paper Name :</b>	87 Computer Science and Applications 11th Nov 2020 Shift 2
<b>Subject Name :</b>	87 Computer Science and Applications
<b>Creation Date :</b>	2020-11-11 19:45:56
<b>Duration :</b>	180
<b>Number of Questions :</b>	134
<b>Total Marks :</b>	300
<b>Display Marks:</b>	Yes

## 87 Computer Science and Applications

<b>Group Number :</b>	1
<b>Group Id :</b>	53622827
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	180
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	300
<b>Is this Group for Examiner? :</b>	No

## PART I General Paper

<b>Section Id :</b>	53622857
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	42
<b>Number of Questions to be attempted :</b>	42
<b>Section Marks :</b>	100
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	536228167
<b>Question Shuffling Allowed :</b>	Yes

**Question Id : 5362284236 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No**  
**Question Numbers : (1 to 5)**  
Question Label : Comprehension

The Following table shows total number of students in the Department of the Institute along with percentage of Females and Male students. Answer questions 1 to 5 based on the data given below :

Department	Total No. of Students	Percentage of female	Percentage of Male
Computer	840	45	55
Civil	220	35	65
Mech.	900	23	77
Electrical	360	65	35
Electronics	450	44	56
Mining	540	40	60

**Sub questions**

**Question Number : 1 Question Id : 5362284237 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the respective ratio of the number of females in Mechanical Department to the number of females in Electronics Department?

- |             |             |
|-------------|-------------|
| (1) 4 : 3   | (2) 23 : 22 |
| (3) 24 : 21 | (4) 23 : 21 |

**Options :**

53622816501. 1  
53622816502. 2  
53622816503. 3  
53622816504. 4

**Question Number : 2 Question Id : 5362284238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the total number of students in all the Departments?

- |          |          |
|----------|----------|
| (1) 2210 | (2) 3210 |
| (3) 3400 | (4) 3310 |

**Options :**

53622816505. 1  
53622816506. 2  
53622816507. 3  
53622816508. 4

**Question Number : 3 Question Id : 5362284239 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the total number of male students in Computer and Mining Department together?

- |         |         |
|---------|---------|
| (1) 266 | (2) 886 |
| (3) 786 | (4) 686 |

**Options :**

- 53622816509. 1
- 53622816510. 2
- 53622816511. 3
- 53622816512. 4

**Question Number : 4 Question Id : 5362284240 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the ratio of the number of females in Civil and Electrical departments together to the number of males in the same Departments together?

- (1) 311 : 270
- (2) 329 : 261
- (3) 411 : 469
- (4) 311 : 269

**Options :**

- 53622816513. 1
- 53622816514. 2
- 53622816515. 3
- 53622816516. 4

**Question Number : 5 Question Id : 5362284241 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the average percentage of female students in the whole Institute?

- (1) 42.0%
- (2) 41.0%
- (3) 43.0%
- (4) 41.5%

**Options :**

- 53622816517. 1
- 53622816518. 2
- 53622816519. 3
- 53622816520. 4

**Question Id : 5362284236 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group  
Comprehension Questions : No**

**Question Numbers : (1 to 5)**

Question Label : Comprehension

निम्नांकित तालिका में किसी संस्थान के विभागों में विद्यार्थियों की कुल संख्या छात्राओं और छात्रों के प्रतिशत के साथ दर्शाई गई है। नीचे दिए गए आकड़ों के आधार पर प्रश्नों 1 – 5 के अन्तर दें :

विभाग	विद्यार्थियों की कुल संख्या	छात्राओं का प्रतिशत	छात्रों का प्रतिशत
कंप्यूटर	840	45	55
सिविल	220	35	65
मेकैनिकल	900	23	77
इलेक्ट्रिकल	360	65	35
इलेक्ट्रॉनिक्स	450	44	56
माइंग	540	40	60

### Sub questions

**Question Number : 1 Question Id : 5362284237 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

मेकैनिकल विभाग में छात्राओं की संख्या का इलेक्ट्रॉनिक्स विभाग में छात्राओं की संख्या के साथ क्रमिक अनुपात क्या है?

- |             |             |
|-------------|-------------|
| (1) 4 : 3   | (2) 23 : 22 |
| (3) 24 : 21 | (4) 23 : 21 |

### Options :

- 53622816501. 1
- 53622816502. 2
- 53622816503. 3
- 53622816504. 4

**Question Number : 2 Question Id : 5362284238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सभी विभागों में विद्यार्थियों की कुल संख्या कितनी है?

- |          |          |
|----------|----------|
| (1) 2210 | (2) 3210 |
| (3) 3400 | (4) 3310 |

### Options :

- 53622816505. 1
- 53622816506. 2
- 53622816507. 3
- 53622816508. 4

**Question Number : 3 Question Id : 5362284239 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

कंप्यूटर और माइनिंग विभाग को मिलाकर छात्रों की कुल संख्या कितनी है?

- |         |         |
|---------|---------|
| (1) 266 | (2) 886 |
| (3) 786 | (4) 686 |

**Options :**

53622816509. 1  
53622816510. 2  
53622816511. 3  
53622816512. 4

**Question Number : 4 Question Id : 5362284240 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सिविल और इलेक्ट्रिकल विभागों को मिलाकर छात्राओं की संख्या और उन्हीं विभागों को मिलाकर छात्रों की संख्या के बीच अनुपात क्या है?

- |               |               |
|---------------|---------------|
| (1) 311 : 270 | (2) 329 : 261 |
| (3) 411 : 469 | (4) 311 : 269 |

**Options :**

53622816513. 1  
53622816514. 2  
53622816515. 3  
53622816516. 4

**Question Number : 5 Question Id : 5362284241 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

पूरे संस्थान में छात्राओं का औसत प्रतिशत कितना है?

- |           |           |
|-----------|-----------|
| (1) 42.0% | (2) 41.0% |
| (3) 43.0% | (4) 41.5% |

**Options :**

53622816517. 1  
53622816518. 2  
53622816519. 3  
53622816520. 4

**Sub-Section Number :**

2

**Sub-Section Id :**

536228168

**Question Shuffling Allowed :**

Yes

**Question Number : 6 Question Id : 5362284242 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following teacher competency belongs to the domain of personality and attitude?

- |  |                                       |
|--|---------------------------------------|
| (1) Locus of control and self-efficacy | (2) Managing and Monitoring           |
| (3) Planning and instructing           | (4) Personalising and contextualizing |

**Options :**

- 53622816521. 1
- 53622816522. 2
- 53622816523. 3
- 53622816524. 4

**Question Number : 6 Question Id : 5362284242 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौन-कौन सी अध्यापक-प्रवीणता व्यक्तित्व और अभिवृति के अनुक्षेत्र से संबंधित हैं?

- |   |                          |
|---|--------------------------|
| (1) नियंत्रण और आत्म-सामर्थ्य की संस्थिति | (2) प्रबंधन और अनुश्रवण  |
| (3) नियोजन और अनुदेशन                     | (4) निजत्व और संदर्भीकरण |

**Options :**

- 53622816521. 1
- 53622816522. 2
- 53622816523. 3
- 53622816524. 4

**Question Number : 7 Question Id : 5362284243 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Identify the teaching strategies which are employed during indirect instruction :

- (A) Emphasizing direct and indirect exemplars
- (B) Presenting the stimulus material
- (C) Inquiry based question-answer session
- (D) Presenting, asking and providing feed back
- (E) Promoting problem solving approach

Choose the correct answer from the options given below :

- |                           |                           |
|---------------------------|---------------------------|
| (1) (A), (B) and (C) only | (2) (B), (C) and (D) only |
| (3) (C), (D) and (E) only | (4) (A), (C) and (E) only |

**Options :**

- 53622816525. 1
- 53622816526. 2
- 53622816527. 3
- 53622816528. 4

**Question Number : 7 Question Id : 5362284243 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

उन शिक्षण कार्यनीतियों की पहचान कीजिए जो अप्रत्यक्ष अनुदेश में अपनायी जाती है?

- (A) प्रत्यक्ष और परोक्ष दृष्टियों पर बल देना
- (B) उद्दीपन सामग्री प्रस्तुत करना
- (C) पृछताछ आधारित प्रश्न-उत्तर सत्र
- (D) प्रस्तुतिकरण, प्रश्न पृछना एवं प्रतिपुष्टि प्रदान करना
- (E) समस्या-समाधान उपागम को बढ़ावा देना

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B) और (C)
- (2) केवल (B), (C ) और (D)
- (3) केवल (C), (D) और (E)
- (4) केवल (A), (C) और (E)

**Options :**

- 53622816525. 1
- 53622816526. 2
- 53622816527. 3
- 53622816528. 4

**Question Number : 8 Question Id : 5362284244 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In which level of teaching, the teacher's role is more active rather than being interactive?

- (1) Memory level
- (2) Understanding level
- (3) Reflective level
- (4) Autonomous development level

**Options :**

- 53622816529. 1
- 53622816530. 2
- 53622816531. 3
- 53622816532. 4

**Question Number : 8 Question Id : 5362284244 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

शिक्षण के कौन-से स्तर पर, अध्यापक की भूमिका अन्तः क्रियात्मक होने के बजाय अधिक सक्रिय होती है?

- (1) सृजित स्तर
- (2) अवबोध स्तर
- (3) विमर्शी-चिंतन स्तर
- (4) स्वायत्त विकास स्तर

**Options :**

53622816529. 1

53622816530. 2

53622816531. 3

53622816532. 4

**Question Number : 9 Question Id : 5362284245 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II :

List I

(Scales of measurement)

- (A) Nominal
- (B) Ordinal
- (C) Interval
- (D) Ratio

List II

(Description of properties)

- (I) Classification and order
- (II) Classification
- (III) Classification, order and equal units
- (IV) Classification, order, equal units and Absolute Zero

Choose the correct answer from the options given below :

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

**Options :**

53622816533. 1

53622816534. 2

53622816535. 3

53622816536. 4

**Question Number : 9 Question Id : 5362284245 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सूची-I को सूची-II के साथ सुमेलित कीजिए :

सूची-I	सूची-II
(माप का पैमाना)	(विशेषताओं का चित्रण)
(A) नामित	(I) वर्गीकरण और क्रम
(B) क्रमिक	(II) वर्गीकरण
(C) अंतराल	(III) वर्गीकरण क्रम और इकाइयों की समानता
(D) अनुपात	(IV) वर्गीकरण, क्रम, इकाइयों की समानता और निरपेक्ष शृन्य

नीचे दिये गये विकल्पों में से सही उत्तर चुनिए :

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

**Options :**

- 53622816533. 1
- 53622816534. 2
- 53622816535. 3
- 53622816536. 4

**Question Number : 10 Question Id : 5362284246 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements :

**Statement I :** Indirect instruction is an approach to teaching and learning in which the process is inquiry, the content involves concept and the context is a problem.

**Statement II :** In NRT test data tell us about a student's level of proficiency in mastery of some skills or set of skills.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

- 53622816537. 1
- 53622816538. 2

53622816539. 3

53622816540. 4

**Question Number : 10 Question Id : 5362284246 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं :

कथन (I) : अप्रत्यक्ष अनुदेशन शिक्षण और अधिगम का वह उपागम है जिसमें प्रक्रिया पृछताछ हैं, विषय-वस्तु संप्रत्यय आधारित है और संदर्भ कोई समस्या होती है।

कथन (II) : मानक संदर्भित परीक्षण में, परीक्षण के प्रदत्त विद्यार्थी की किसी प्रवीणता या प्रवीणता समुच्चय पर अर्जित अधिकार संबंधी दक्षता के स्तर बताते हैं।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उत्तर चुनें :

- (1) कथन I और II दोनों सही हैं।
- (2) कथन I और II दोनों गलत हैं।
- (3) कथन I सत्य है किंतु कथन II गलत है।
- (4) कथन I असत्य है किंतु कथन II सही है।

**Options :**

53622816537. 1

53622816538. 2

53622816539. 3

53622816540. 4

**Question Number : 11 Question Id : 5362284247 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In which of the following, there is a greater flexibility in both the methods and process of research?

- (1) Ethnography and phenomenology
- (2) Descriptive survey and impact studies
- (3) Experimental and observation based studies
- (4) Expost facto and historical studies

**Options :**

53622816541. 1

53622816542. 2

53622816543. 3

53622816544. 4

**Question Number : 11 Question Id : 5362284247 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में किसमें शोध की विधियों एवं प्रक्रिया में अपेक्षाकृत अधिक नम्बता (लचीलापन) पाई जाती है?

- (1) नृजातीय एवं घटनावृत्तिक अध्ययन
- (2) वर्णनात्मक सर्वेक्षण तथा प्रभाव अध्ययन
- (3) प्रयोगात्मक एवं प्रेक्षण आधारित अध्ययन
- (4) कार्योत्तर एवं ऐतिहासिक अध्ययन

**Options :**

- 53622816541. 1
- 53622816542. 2
- 53622816543. 3
- 53622816544. 4

**Question Number : 12 Question Id : 5362284248 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In conducting an empirical study, a researcher employs a non-parametric test for data analysis and finds that the 'statistics' arrived at is 'significant' at .05 level. What decisions will be warranted thereafter?

- (A) Rejecting the Null hypothesis ( $H_0$ )
- (B) Accepting the Null hypothesis ( $H_0$ )
- (C) Accepting the alternate hypothesis ( $H_1$ )
- (D) Keeping the decision in abeyance
- (E) Rejecting the alternate hypothesis ( $H_1$ )

Choose the correct answer from the options given below :

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (D) only
- (4) (A) and (C) only

**Options :**

- 53622816545. 1
- 53622816546. 2
- 53622816547. 3
- 53622816548. 4

**Question Number : 12 Question Id : 5362284248 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

एक इन्द्रियानुभविक शोध के तहत शोधकर्ता प्रदत्त विश्लेषण हेतु अपरामितिक परीक्षण का अनुप्रयोग करता है तथा यह पाता है कि 'अगणित सांख्यिकी' का मान .05 स्तर पर सार्थक है। इसके बाद उसे किस तरह का निर्णय इस आधार पर करना चाहिए?

- (A) नकारात्मक शून्य परिकल्पना का ( $H_0$ ) का परिहार
- (B) शून्य परिकल्पना ( $H_0$ ) को स्वीकार करना
- (C) विकल्पात्मक परिकल्पना ( $H_1$ ) को स्वीकार करना
- (D) निर्णय को स्थगन में रखना
- (E) विकल्पात्मक परिकल्पना ( $H_1$ ) का परिहार

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A) और (B)
- (2) केवल (B) और (C)
- (3) केवल (D))
- (4) केवल (A) और (C)

**Options :**

53622816545. 1

53622816546. 2

53622816547. 3

53622816548. 4

**Question Number : 13 Question Id : 5362284249 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following are non-probability sampling methods?

- (A) Cluster sampling
- (B) Judgemental sampling
- (C) Systematic sampling
- (D) Snowball sampling
- (E) Quota sampling

Choose the correct answer from the options given below :

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

**Options :**

53622816549. 1

53622816550. 2

53622816551. 3

53622816552. 4

**Question Number : 13 Question Id : 5362284249 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौनसी गैर-संभाव्यता प्रतिदर्श प्रतिचयन विधि है?

- (A) गुच्छ प्रतिचयन
- (B) निर्णय-आधारित प्रतिचयन
- (C) व्यवस्थित प्रतिचयन
- (D) स्नोबॉल प्रतिचयन
- (E) आनुपातिक प्रतिचयन

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B) और (C)
- (2) केवल (B), (D) और (E)
- (3) केवल (B), (C) और (D)
- (4) केवल (C), (D) और (E)

**Options :**

53622816549. 1

53622816550. 2

53622816551. 3

53622816552. 4

**Question Number : 14 Question Id : 5362284250 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

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

Assertion (A) : In order to bridge the gap between theory and practice both fundamental and applied research formats have to be promoted.

Reason (R) : Fundamental research focuses on theory making and applied research is directed at exploring the applicability of theory in varied practical situations.

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

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

**Options :**

53622816553. 1

53622816554. 2

53622816555. 3

53622816556. 4

**Question Number : 14 Question Id : 5362284250 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं। एक को अभिकथन (A) और दूसरे को तर्क (R) कहा गया है।

अभिकथन (A) : सिद्धांत और व्यवहार के बीच अंतर पाठने के लिए आधारभूत एवं व्यवहृत शोध दोनों स्वरूपों को प्रोत्साहन देना आवश्यक है।

तर्क (R) : आधारभूत शोध सिद्धांत निर्माण पर ध्यान केन्द्रित करता है और व्यवहृत शोध प्रत्यक्ष रूप से विविध व्यावहारिक स्थितियों में सिद्धांत की प्रयोज्यता पर लक्षित होता है।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उपयुक्त उत्तर चुनें :

- (1) (A) और (R) दोनों सही हैं और (R), (A) की सही व्याख्या है।
- (2) (A) और (R) दोनों सही हैं परन्तु (R), (A) की सही व्याख्या नहीं है।
- (3) (A) सही है परन्तु (R) सही नहीं है।
- (4) (A) सही नहीं है परन्तु (R) सही है।

**Options :**

53622816553. 1

53622816554. 2

53622816555. 3

53622816556. 4

**Question Number : 15 Question Id : 5362284251 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements :

Statement I : Qualitative research is an umbrella term to refer to various research strategies that share certain characteristics. The data collected have been termed 'soft' i.e. rich in description.

Statement II : Quantitative research is mainly hypothetico deductive and employs mostly statistical techniques for data analysis.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622816557. 1

53622816558. 2

53622816559. 3

53622816560. 4

**Question Number : 15 Question Id : 5362284251 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं :

कथन (I) : गुणवत्तापरक शोध एकव्यापक पद है, जिसका तात्पर्य उन विभिन्न शोध रणनीतियों से है, जो किन्हीं विशेषताओं को सांझा करती हैं। सम्रहित प्रदत्तों को 'सॉफ्ट' नाम दिया गया है अर्थात् वे विवरण में प्रचुर होती हैं।

कथन (II) : परिमाणात्मक शोध प्रमुखतः परिकल्पनात्मक-निगमनात्मक प्रकृति का होता है तथा प्रदत्त विश्लेषण हेतु अधिकतर सांख्यिकीय विधियों का अनुप्रयोग करता है।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सर्वाधिक उपर्युक्त उत्तर चुनें :

- (1) कथन I और II दोनों सही हैं।
- (2) कथन I और II दोनों सही नहीं हैं।
- (3) कथन I सत्य है किंतु कथन II गलत है।
- (4) कथन I असत्य है, किंतु कथन II सही है।

**Options :**

53622816557. 1  
53622816558. 2  
53622816559. 3  
53622816560. 4

**Question Number : 16 Question Id : 5362284252 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is considered as an effective form of verbal communication?

- |                                |                  |
|--------------------------------|------------------|
| (1) Story-telling              | (2) Sloganeering |
| (3) Use of high pitch of voice | (4) Monologues   |

**Options :**

53622816561. 1  
53622816562. 2  
53622816563. 3  
53622816564. 4

**Question Number : 16 Question Id : 5362284252 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से किसे मौखिक सम्प्रेक्षण का प्रभावी रूप माना जाता है?

- |                                  |                |
|----------------------------------|----------------|
| (1) कहानी सुनाना                 | (2) नारे लगाना |
| (3) ध्वनि के उच्च स्वर का प्रयोग | (4) एकालाप     |

**Options :**

53622816561. 1  
53622816562. 2  
53622816563. 3  
53622816564. 4

**Question Number : 17 Question Id : 5362284253 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following are useful in positive components of classroom communication?

- (A) Restrictive actions  
(B) Empathy  
(C) Punctuality  
(D) Follow-up  
(E) Scattered reflections

Choose the most appropriate answer from the options given below :

- |                        |                        |
|------------------------|------------------------|
| (1) (A), (B), (C) only | (2) (B), (C), (D) only |
| (3) (C), (D), (E) only | (4) (A), (D), (E) only |

**Options :**

53622816565. 1  
53622816566. 2  
53622816567. 3  
53622816568. 4

**Question Number : 17 Question Id : 5362284253 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

कक्षा सम्प्रेषण के सकारात्मक घटकों में निम्नलिखित में से कौन से उपयोगी हैं?

- (A) प्रतिबंधात्मक क्रियाएं
- (B) तदुभूति
- (C) समयनिष्ठा
- (D) अनुवर्तन
- (E) प्रसरित विमर्श

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B) और (C)
- (2) केवल (B), (C) और (D)
- (3) केवल (C), (D) और (E)
- (4) केवल (A), (D) और (E)

**Options :**

- 53622816565. 1
- 53622816566. 2
- 53622816567. 3
- 53622816568. 4

**Question Number : 18 Question Id : 5362284254 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements :

Statement I : Interactive and multimedia systems provide for a new culture of teaching and learning.

Statement II : Virtual classrooms convert students into senseless humanoids.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

- 53622816569. 1

53622816570. 2

53622816571. 3

53622816572. 4

**Question Number : 18 Question Id : 5362284254 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं :

कथन (I) : अन्योन्यक्रिया तथा मल्टीमीडिया प्रणाली शिक्षण एंव अधिगम की नई संस्कृति की व्यवस्था करती है।

कथन (II) : आभासी कक्षाएं विद्यार्थियों को भावनाविहीन मानव के रूप में परिवर्तित करती हैं।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उत्तर चुनें :

- (1) कथन I और II दोनों सही हैं।
- (2) कथन I और II दोनों गलत हैं।
- (3) कथन I सत्य है किंतु कथन II गलत है।
- (4) कथन I असत्य है किंतु कथन II सही है।

**Options :**

53622816569. 1

53622816570. 2

53622816571. 3

53622816572. 4

**Question Number : 19 Question Id : 5362284255 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Identifying the sequence of stages of message processing

- (A) Action
- (B) Internalisation
- (C) Selection
- (D) Understanding
- (E) Perception

Choose the correct answer from the options given below :

- (1) (A), (B), (D), (E), (C)
- (2) (B), (C), (A), (D), (E)
- (3) (D), (E), (B), (A), (C)
- (4) (E), (D), (C), (B), (A)

**Options :**

53622816573. 1

53622816574. 2

53622816575. 3

53622816576. 4

**Question Number : 19 Question Id : 5362284255 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

संदेश प्रक्रिया के चरणों के क्रम की पहचान कीजिए :

- (A) क्रिया
- (B) आन्तरिकरण
- (C) चयन
- (D) समझना
- (E) अवबोधन

नीचे दिए गए विकल्पों में से सही उत्तर चुनिये :

- (1) (A), (B), (D), (E), (C)
- (2) (B), (C), (A), (D), (E)
- (3) (D), (E), (B), (A), (C)
- (4) (E), (D), (C), (B), (A)

**Options :**

- 53622816573. 1
- 53622816574. 2
- 53622816575. 3
- 53622816576. 4

**Question Number : 20 Question Id : 5362284256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II :

	List I (Medium)	List II (Example for description)
(A)	Newspaper	(I) Networking
(B)	Radio and television	(II) Audio, Video and graphics
(C)	Social Media	(III) Broadsheet
(D)	Multi-media	(IV) Broadcasting

Choose the correct answer from the options given below :

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

**Options :**

53622816577. 1

53622816578. 2

53622816579. 3

53622816580. 4

**Question Number : 20 Question Id : 5362284256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सूची-I को सूची-II से सुमेलित कीजिए :

सूची-I

सूची-II

(माध्यम)

(विवरण का उदाहरण)

- |                         |                                  |
|-------------------------|----------------------------------|
| (A) समाचार पत्र         | (I) नेटवर्किंग                   |
| (B) रेडियो एवं दूरदर्शन | (II) श्रवण, दृश्य तथा छापा चित्र |
| (C) सामाजिक मीडिया      | (III) ब्रॉडशीट                   |
| (D) मल्टी-मीडिया        | (IV) प्रसारण                     |

निम्नलिखित विकल्पों में से सही उत्तर चुनिए :

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

**Options :**

53622816577. 1

53622816578. 2

53622816579. 3

53622816580. 4

**Question Number : 21 Question Id : 5362284257 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In a park A, B, C, D, E and F are sitting. C is the brother of D's husband and son of A. F is the daughter of D and sister of E.

- (A) E is the grandson of A
- (B) F is the daughter of C
- (C) B is the father of F
- (D) There are one son and one daughter in the group
- (E) C is the uncle of E

Choose the correct answer from the options given below :

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

**Options :**

- 53622816581. 1
- 53622816582. 2
- 53622816583. 3
- 53622816584. 4

**Question Number : 21 Question Id : 5362284257 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

एक पार्क में A, B, C, D, E और F बैठे हैं, C, D के पति का भाई है और A का पुत्र है। F, D की पुत्री है तथा E की बहन है।

- (A) E, A का पौत्र है
- (B) F, C की पुत्री है
- (C) B, F का पिता है
- (D) समूह में एक पुत्र और एक पुत्री हैं
- (E) C, E का चाचा (uncle) है

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- |                          |                          |
|--------------------------|--------------------------|
| (1) केवल (A), (B) और (C) | (2) केवल (A), (C) और (E) |
| (3) केवल (B), (D) और (E) | (4) केवल (B), (C) और (D) |

**Options :**

- 53622816581. 1
- 53622816582. 2
- 53622816583. 3
- 53622816584. 4

**Question Number : 22 Question Id : 5362284258 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The ratio of ages of two persons A and B is 3 : 4 and that of ages of B and C is 4 : 5. If the average of all three is 40 years, what is B's age?

- |              |              |
|--------------|--------------|
| (1) 20 years | (2) 30 years |
| (3) 40 years | (4) 50 years |

**Options :**

- 53622816585. 1
- 53622816586. 2
- 53622816587. 3
- 53622816588. 4

**Question Number : 22 Question Id : 5362284258 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

दो व्यक्तियों A और B की आयु का अनुपात  $3 : 4$  है और B तथा C की आयु का अनुपात  $4 : 5$  है। यदि तीनों की औसत आयु 40 वर्ष हो तो B की आयु कितनी है ?

- |             |             |
|-------------|-------------|
| (1) 20 वर्ष | (2) 30 वर्ष |
| (3) 40 वर्ष | (4) 50 वर्ष |

**Options :**

53622816585. 1  
53622816586. 2  
53622816587. 3  
53622816588. 4

**Question Number : 23 Question Id : 5362284259 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If some pens are pencils but no pencil is sharpener then

- (A) All pencils are pens
- (B) Some sharpeners are pencils
- (C) Some pens are not sharpener
- (D) Some pencils are not pens

Choose the correct answer from the options given below :

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

**Options :**

53622816589. 1  
53622816590. 2  
53622816591. 3  
53622816592. 4

**Question Number : 23 Question Id : 5362284259 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

यदि कुछ पैन पेंसिल हैं परन्तु कोई पेंसिल शार्पनर नहीं है तब

- (A) सभी पेंसिल पैन हैं
- (B) कुछ शार्पनर पेंसिल हैं
- (C) कुछ पैन शार्पनर नहीं हैं
- (D) कुछ पेंसिले पैन नहीं हैं

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A) और (C)
- (2) केवल (B) और (C)
- (3) केवल (A) और (D)
- (4) केवल (B) और (D)

**Options :**

53622816589. 1  
53622816590. 2  
53622816591. 3  
53622816592. 4

**Question Number : 24 Question Id : 5362284260 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In a 100 meters race, A beat B by 10 meter or 2 second. What is the speed of A?

- (1) 5 Km/h
- (2) 10 Km/h
- (3) 15 Km/h
- (4) 20 Km/h

**Options :**

53622816593. 1  
53622816594. 2  
53622816595. 3  
53622816596. 4

**Question Number : 24 Question Id : 5362284260 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

100 मीटर की एक दौड़ में, A ने B को 10 मीटर या 2 सेकंड से हराया. A की गति क्या है?

- (1) 5 कि.मी./घंटा
- (2) 10 कि.मी./घंटा
- (3) 15 कि.मी./घंटा
- (4) 20 कि.मी./घंटा

**Options :**

53622816593. 1  
53622816594. 2

53622816595. 3

53622816596. 4

**Question Number : 25 Question Id : 5362284261 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Three pipes fill a tank in 4 hours. If two of them take 8 and 12 hours each to fill the tank, how many hours will the third pipe take to fill the tank?

(1) 6 hours

(2) 15 hours

(3) 18 hours

(4) 24 hours

**Options :**

53622816597. 1

53622816598. 2

53622816599. 3

53622816600. 4

**Question Number : 25 Question Id : 5362284261 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

तीन पाइप एक टंकी को 4 घंटे में भर सकते हैं। यदि उनमें से दो पाइप प्रत्येक टंकी को भरने में 8 और 12 घंटे का समय लेते हैं, तो तीसरे पाइप को टंकी भरने में कितने घंटे का समय लगेगा?

(1) 6 घंटे

(2) 15 घंटे

(3) 18 घंटे

(4) 24 घंटे

**Options :**

53622816597. 1

53622816598. 2

53622816599. 3

53622816600. 4

**Question Number : 26 Question Id : 5362284262 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which one of the following schools has not accepted anumāna (inference) as a valid source of knowledge?

(1) Advaita Vedānta

(2) Visistādvaita

(3) Chārvāka

(4) Sankhya

**Options :**

53622816601. 1

53622816602. 2

53622816603. 3

**Question Number : 26 Question Id : 5362284262 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौन से सम्प्रदाय ने अनुमान को एक ज्ञान के स्रोत के रूप में स्वीकार नहीं किया है?

- |                    |                   |
|--------------------|-------------------|
| (1) अद्वैत वेदान्त | (2) विशिष्टाद्वैत |
| (3) चार्वाक        | (4) सांख्य        |

**Options :**

- 53622816601. 1
- 53622816602. 2
- 53622816603. 3
- 53622816604. 4

**Question Number : 27 Question Id : 5362284263 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

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

Assertion (A) : Substance is always the subject of all predicates.

Reason (R) : Substance is self-existent and self-conceived.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true 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 :**

- 53622816605. 1
- 53622816606. 2
- 53622816607. 3
- 53622816608. 4

**Question Number : 27 Question Id : 5362284263 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं जिनमें एक को अभिकथन (A) और दूसरे को तर्क (R) कहा गया है।

अभिकथन (A) : पदार्थ सदैव सभी विधेयों का विषय है।

तर्क (R) : पदार्थ स्वतः विद्यमान एवं स्वतः विचारित होता है।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उत्तर चुनें :

- (1) (A) और (R) दोनों सही हैं और (R), (A) की सही व्याख्या है।
- (2) (A) और (R) दोनों सही हैं परन्तु (R), (A) की सही व्याख्या नहीं है।
- (3) (A) सही है परन्तु (R) सही नहीं है।
- (4) (A) सही नहीं है परन्तु (R) सही है।

**Options :**

53622816605. 1

53622816606. 2

53622816607. 3

53622816608. 4

**Question Number : 28 Question Id : 5362284264 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two Statements :

'The water of the pond is muddy. It must have rained last night.'

What kind of Anumāna (inference) has been used in the above statements. Choose the correct option from the following :

- (A) S'esavat anumāna
- (B) Comparison
- (C) Pūrvovat anumāna
- (D) Both (A) and (B)

Choose the most appropriate answer from the options given below :

- (1) (A) only
- (2) (B) only
- (3) (C) only
- (4) (D) only

**Options :**

53622816609. 1

53622816610. 2

53622816611. 3

53622816612. 4

**Question Number : 28 Question Id : 5362284264 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं :

‘तालाब का पानी मटमेला है। विगत रात अवश्य बरसात हुई होगी’।

उपरोक्त कथनों में किस प्रकार के अनुमान का प्रयोग किया गया है। निम्नलिखित में से सही विकल्प चुनिए।

- (A) शेषवत् अनुमान
- (B) तुलना
- (C) पूर्ववत् अनुमान
- (D) (A) एवं (B) दोनों

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A)
- (2) केवल (B)
- (3) केवल (C)
- (4) केवल (D)

**Options :**

- 53622816609. 1
- 53622816610. 2
- 53622816611. 3
- 53622816612. 4

**Question Number : 29 Question Id : 5362284265 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II :

	List I (Philosophical doctrines)		List II (Philosophical schools)
(A)	Syādavāda	(I)	Nyāya
(B)	Anupalabdhi	(II)	Buddhism
(C)	Apoha	(III)	Vedānta
(D)	Abhāva	(IV)	Jainism

Choose the correct answer from the options given below :

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

**Options :**

- 53622816613. 1
- 53622816614. 2
- 53622816615. 3
- 53622816616. 4

**Question Number : 29 Question Id : 5362284265 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सूची-I को सूची-II के साथ सुमेलित कीजिए :

सूची-I

(दार्शनिक सिद्धान्त)

सूची-II

(दार्शनिक विचार धारा)

- (A) स्यादवाद
- (B) अनुपलब्धि
- (C) अपोह
- (D) अभाव

- (I) न्याय
- (II) बौद्ध दर्शन
- (III) वेदान्त
- (IV) जैन दर्शन

नीचे दिये गये विकल्पों में से सही उत्तर चुनिए :

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

**Options :**

- 53622816613. 1
- 53622816614. 2
- 53622816615. 3
- 53622816616. 4

**Question Number : 30 Question Id : 5362284266 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which one of the following pramānas has been accepted in Buddhism?

- (1) Arthāpatti
- (2) Anupalabdhī
- (3) S'abda
- (4) Pratyaksha

**Options :**

- 53622816617. 1
- 53622816618. 2
- 53622816619. 3
- 53622816620. 4

**Question Number : 30 Question Id : 5362284266 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

बौद्ध मत द्वारा निम्नलिखित में से कौन से प्रमाण को स्वीकार किया गया है?

- |                |               |
|----------------|---------------|
| (1) अर्थापत्ति | (2) अनुपलब्धि |
| (3) शब्द       | (4) प्रत्यक्ष |

**Options :**

53622816617. 1  
53622816618. 2  
53622816619. 3  
53622816620. 4

**Question Number : 31 Question Id : 5362284267 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A type of memory that holds the computer startup routine is

- |           |         |
|-----------|---------|
| (1) Cache | (2) RAM |
| (3) DRAM  | (4) ROM |

**Options :**

53622816621. 1  
53622816622. 2  
53622816623. 3  
53622816624. 4

**Question Number : 31 Question Id : 5362284267 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

मेमोरी का वह प्रकार कौन-सा है, जो कम्प्यूटर स्टार्टअप को नैतिक रखता है

- |           |         |
|-----------|---------|
| (1) Cache | (2) RAM |
| (3) DRAM  | (4) ROM |

**Options :**

53622816621. 1  
53622816622. 2  
53622816623. 3  
53622816624. 4

**Question Number : 32 Question Id : 5362284268 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Cloud computing has the following distinct characteristics :

- (A) The service is hosted on the internet.
- (B) It is made available by a service provider.
- (C) It computes and predicts rain when the weather is cloudy.
- (D) The service is fully managed by the provider

Choose the correct answer from the options given below :

- (1) (A), (B) only
- (2) (A), (B), (C) only
- (3) (A), (D) only
- (4) (A), (B), (D) only

**Options :**

- 53622816625. 1
- 53622816626. 2
- 53622816627. 3
- 53622816628. 4

**Question Number : 32 Question Id : 5362284268 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

क्लाउड कम्प्यूटिंग की निम्नलिखित में से कौनसी विशिष्ट विशेषताएं हैं?

- (A) यह सेवा इंटरनेट पर प्रदान की जाती है।
- (B) यह सेवा-प्रदाता के द्वारा उपलब्ध कराई जाती है।
- (C) जब मौसम मेघाछन हो तो यह परिकलित फरवर्षा की भविष्यवाणी करता है।
- (D) प्रदाता द्वारा इस सेवा का पूर्णरूपेण प्रबंधन किया जाता है।

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B)
- (2) केवल (A), (B), (C)
- (3) केवल (A), (D)
- (4) केवल (A), (B), (D)

**Options :**

- 53622816625. 1
- 53622816626. 2
- 53622816627. 3
- 53622816628. 4

**Question Number : 33 Question Id : 5362284269 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A firewall is a software tool that protects

- (A) Server
- (B) Network
- (C) Fire
- (D) Individual Computer

Choose the correct answer from the options given below :

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

**Options :**

53622816629. 1

53622816630. 2

53622816631. 3

53622816632. 4

**Question Number : 33 Question Id : 5362284269 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

फायरवॉल एक सॉफ्टवेयर है, जो निम्नलिखित में से किसकी रक्षा करता है?

- (A) सर्वर
- (B) नेटवर्क
- (C) फायर
- (D) वैयक्तिक कम्प्यूटर

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

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

**Options :**

53622816629. 1

53622816630. 2

53622816631. 3

53622816632. 4

**Question Number : 34 Question Id : 5362284270 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The word blog is derived from the word

- |            |             |
|------------|-------------|
| (1) My log | (2) We blog |
| (3) E blog | (4) Blogger |

**Options :**

53622816633. 1

53622816634. 2

53622816635. 3

53622816636. 4

**Question Number : 34 Question Id : 5362284270 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

'ब्लॉग' शब्द निम्नलिखित में से किस शब्द से प्राप्त किया गया है

- |             |              |
|-------------|--------------|
| (1) माई लॉग | (2) वी ब्लॉग |
| (3) ई ब्लॉग | (4) ब्लॉगर   |

**Options :**

53622816633. 1

53622816634. 2

53622816635. 3

53622816636. 4

**Question Number : 35 Question Id : 5362284271 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II :

List I	List II
(A) Input	(I) Mouse
(B) Output	(II) Monitor
(C) Memory	(III) Cache
(D) Software	(IV) Python

Choose the correct answer from the options given below :

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

**Options :**

53622816637. 1

53622816638. 2

53622816639. 3

53622816640. 4

**Question Number : 35 Question Id : 5362284271 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सूची-I को सूची-II के साथ सुमेलित कीजिए :

सूची-I

सूची-II

- |               |             |
|---------------|-------------|
| (A) इनपुट     | (I) माउस    |
| (B) आउटपुट    | (II) मॉनीटर |
| (C) मेमोरी    | (III) कैच   |
| (D) सॉफ्टवेयर | (IV) पाइथोन |

नीचे दिये गये विकल्पों में से सही उत्तर चुनिए :

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

**Options :**

53622816637. 1

53622816638. 2

53622816639. 3

53622816640. 4

**Question Number : 36 Question Id : 5362284272 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the International Agreements/Convention/Protocols are legally binding on the member countries (parties)?

- (A) Convention on Biological Diversity
- (B) Kyoto Protocol
- (C) Montreal Protocol
- (D) Paris Agreement

Choose the most appropriate answer from the options given below :

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

**Options :**

53622816641. 1

53622816642. 2

53622816643. 3

53622816644. 4

**Question Number : 36 Question Id : 5362284272 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौनसे समझौते/अभिसमय/प्रोटोकॉल्स सदस्य राष्ट्रों (पक्षों) पर विधिक रूप से बाध्यकारी हैं?

(A) जेविक विविधता अभिसमय

(B) क्योटो प्रोटोकॉल

(C) मॉन्ट्रियल प्रोटोकॉल

(D) ऐरिस समझौता

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

(1) केवल (C)

(2) केवल (A) और (C)

(3) केवल (A), (B) और (C)

(4) केवल (B), (C) और (D)

**Options :**

53622816641. 1

53622816642. 2

53622816643. 3

53622816644. 4

**Question Number : 37 Question Id : 5362284273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

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

**Assertion (A) :** Carbon dioxide emissions from bioenergy production have traditionally been excluded from most emission inventories and climate impact studies.

**Reason (R) :** Carbon dioxide emissions associated with production of bioenergy are significantly less compared to those from combustion of fossil fuels.

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

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true 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 :**

53622816645. 1

53622816646. 2

53622816647. 3

53622816648. 4

**Question Number : 37 Question Id : 5362284273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं। जिनमें एक को अभिकथन (A) और दूसरे को तर्क (R) कहा गया है।

अभिकथन (A) : जैव-ऊर्जा के उत्पादन से कार्बन डाइऑक्साइड के उत्सर्जन को अधिकांश उत्सर्जन सूची और जलवायु प्रभाव अध्ययनों को पारम्परिक रूप से अपवर्जित किया गया है।

तर्क (R) : जैव-ऊर्जा से संबद्ध कार्बन डाइऑक्साइड के उत्सर्जन जीवाश्म ईधनों के ज्वलन की तुलना में महत्वपूर्ण रूप से कम होते हैं।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उत्तर चुनें :

- (1) (A) और (R) दोनों सही हैं और (R), (A) की सही व्याख्या है।
- (2) (A) और (R) दोनों सही हैं परन्तु (R), (A) की सही व्याख्या नहीं है।
- (3) (A) सही है परन्तु (R) सही नहीं है।
- (4) (A) सही नहीं है परन्तु (R) सही है।

**Options :**

53622816645. 1  
53622816646. 2  
53622816647. 3  
53622816648. 4

**Question Number : 38 Question Id : 5362284274 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Wind energy is very sensitive to the wind velocity because wind power is directly proportional to the

- |                                      |                                 |
|--------------------------------------|---------------------------------|
| (1) wind velocity                    | (2) square of the wind velocity |
| (3) square root of the wind velocity | (4) cube of the wind velocity   |

**Options :**

53622816649. 1  
53622816650. 2  
53622816651. 3  
53622816652. 4

**Question Number : 38 Question Id : 5362284274 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

पवन-ऊर्जा पवन के वेग के प्रति अत्यधिक संवेदनशील है क्योंकि पवन शक्ति निम्नलिखित में से किस एक के प्रत्यक्ष अनुपात में होती है?

- |                        |                     |
|------------------------|---------------------|
| (1) पवन वेग            | (2) पवन वेग के वर्ग |
| (3) पवन वेग के वर्गमूल | (4) पवन वेग के घन   |

**Options :**

53622816649. 1  
53622816650. 2  
53622816651. 3  
53622816652. 4

**Question Number : 39 Question Id : 5362284275 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

During physical treatment process of waste water, what is the correct order of following operations to be followed?

- (A) Flocculation  
(B) Filtration  
(C) Screening  
(D) Sedimentation

Choose the correct answer from the options given below :

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

**Options :**

53622816653. 1  
53622816654. 2  
53622816655. 3  
53622816656. 4

**Question Number : 39 Question Id : 5362284275 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

भुक्तशेष जल के भौतिक उपचार के दौरान निम्नलिखित में से कौन-सा प्रचालन का सही क्रम है?

- (A) फ्लोकुलेशन
- (B) फिल्टरेशन
- (C) स्क्रीनिंग
- (D) सेडीमेन्टेशन

नीचे दिए गए विकल्पों में से सही उत्तर चुनिए :

- (1) (C), (D), (B), (A)
- (2) (C), (D), (A), (B)
- (3) (B), (D), (A), (C)
- (4) (B), (C), (D), (A)

**Options :**

53622816653. 1

53622816654. 2

53622816655. 3

53622816656. 4

**Question Number : 40 Question Id : 5362284276 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

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

Assertion (A) : Carbon monoxide (CO) is a serious asphyxiant; even a short exposure may have fatal health issues.

Reason (R) : Hemoglobin present in the blood has greater affinity towards carbon monoxide than oxygen.

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

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

**Options :**

53622816657. 1

53622816658. 2

53622816659. 3

53622816660. 4

**Question Number : 40 Question Id : 5362284276 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं जिनमें से एक को अभिकथन (A) और दूसरे को तर्क (R) कहा गया है।

अभिकथन (A) : कार्बन मोनोऑक्साइड (CO) एक गंभीर श्वासरोधक है; इसके एक लघु अंश के उद्भासन से घातक स्वास्थ्य मसले उत्पन्न हो सकते हैं।

तर्क (R) : रक्त में विद्यमान हीमोग्लोबिन का आकसीजन की तुलना में कार्बन मोनोऑक्साइड के प्रति अधिक सहज संबंध होता है।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुनें :

- (1) (A) और (R) दोनों सही हैं और (R), (A) की सही व्याख्या है।
- (2) (A) और (R) दोनों सही हैं परन्तु (R), (A) की सही व्याख्या नहीं है।
- (3) (A) सही है परन्तु (R) सही नहीं है।
- (4) (A) सही नहीं है परन्तु (R) सही है।

**Options :**

53622816657. 1

53622816658. 2

53622816659. 3

53622816660. 4

**Question Number : 41 Question Id : 5362284277 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II : List I consists of the Vedangas and List II contains subjects dealt in them.

List I	List II
(A) Nirukta	(I) Phonetics
(B) Chhandas	(II) Ritual
(C) Shiksha	(III) Metrics
(D) Kalpa	(IV) Etymology

Choose the correct answer from the options given below :

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

**Options :**

- 53622816661. 1
- 53622816662. 2
- 53622816663. 3
- 53622816664. 4

**Question Number : 41 Question Id : 5362284277 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

सूची-I को सूची-II से सुमेलित कीजिए : सूची-I में वेदांग हैं और सूची-II में उनसे संबंधित विषय दिए गए हैं।

सूची-I

सूची-II

- |             |                        |
|-------------|------------------------|
| (A) निरुक्त | (I) स्वनविज्ञान        |
| (B) छंद     | (II) अनुष्ठान          |
| (C) शिक्षा  | (III) छंदशास्त्र       |
| (D) कल्प    | (IV) व्यत्पत्रिविज्ञान |

नीचे दिये गये विकल्पों में से सही उत्तर चुनिए :

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

**Options :**

53622816661. 1

53622816662. 2

53622816663. 3

53622816664. 4

**Question Number : 42 Question Id : 5362284278 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following explain the concept of values?

- (A) Values are beliefs tied inextricably to human emotion and behaviour
- (B) Values refer to desirable goals people strive to attain
- (C) Values are conflict-free
- (D) Values are ordered by importance relative to one another
- (E) Values are utilized primarily to effect change in knowledge of a person

Choose the correct answer from the options given below :

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

**Options :**

53622816665. 1

53622816666. 2

53622816667. 3

53622816668. 4

**Question Number : 42 Question Id : 5362284278 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौनसा कथन मूल्यों की अवधारणा की व्याख्या करता है :

- (A) मूल्य मानव संवेग और व्यवहार के साथ अविच्छिन्न रूप से सहबद्ध विश्वास हैं।
- (B) मूल्यों का तात्पर्य उन वांछित उद्देश्यों से है, जिनकी प्राप्ति के लिए व्यक्ति प्रयास करते हैं।
- (C) मूल्य संघर्ष-मुक्त हैं।
- (D) मूल्य एक-दूसरे के सापेक्षित महत्व के अनुसार क्रमित हैं।
- (E) मूल्यों को प्राथमिक रूप से व्यक्ति के ज्ञान में परिवर्तन लाने के लिये प्रयुक्त किया जाता है।

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B), (C)
- (2) केवल (A), (B), (D)
- (3) केवल (B), (C), (D)
- (4) केवल (C), (D), (E)

**Options :**

- 53622816665. 1
- 53622816666. 2
- 53622816667. 3
- 53622816668. 4

**Question Number : 43 Question Id : 5362284279 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following come under the mandate of the University Grants Commission (UGC)?

- (A) Promotion and coordination of University education.
- (B) Determining and monitoring standards of teaching, examination and research in Universities.
- (C) Organising continuous professional development programmes for college and University teachers.
- (D) Framing regulations on minimum standards of education.
- (E) Disbursing and regulating grants to the universities and colleges.

Choose the correct answer from the options given below :

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

**Options :**

53622816669. 1

53622816670. 2

53622816671. 3

53622816672. 4

**Question Number : 43 Question Id : 5362284279 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

निम्नलिखित में से कौनसे विश्वविद्यालय अनुदान आयोग (यू.जी.सी.) के अधिदेश के अंतर्गत आते हैं?

- (A) विश्वविद्यालयी शिक्षा को प्रोत्साहन और समन्वयन।
- (B) विश्वविद्यालय में शिक्षण, परीक्षा और शोध के मानकों का निर्धारण और अनुश्रवण।
- (C) महाविद्यालय और विश्वविद्यालय के शिक्षकों के लिए व्यावसायिक विकास कार्यक्रमों का सतत आयोजन।
- (D) शिक्षा के न्यूनतम मानकों के बारे में विनिमयों को बनाना।
- (E) विश्वविद्यालयों और महाविद्यालयों के अनुदान का संवितरण और विनियमन।

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B), (C), (D)
- (2) केवल (B), (C), (D), (E)
- (3) केवल (A), (C), (D), (E)
- (4) केवल (A), (B), (D), (E)

**Options :**

53622816669. 1

53622816670. 2

53622816671. 3

53622816672. 4

**Question Number : 44 Question Id : 5362284280 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements :

Statement I : Equality of educational opportunities is a pre-condition for achieving equity in education.

Statement II : Equity in education can be achieved without equality of educational opportunities.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622816673. 1

53622816674. 2

53622816675. 3

53622816676. 4

**Question Number : 44 Question Id : 5362284280 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

नीचे दो कथन दिए गए हैं :

कथन (I) : शैक्षिक अवसरों की समानता शिक्षा में समता प्राप्त करने की एक पूर्व-शर्त है।

कथन (II) : शैक्षिक अवसरों की समानता के बिना शिक्षा में समता प्राप्त की जा सकती है।

उपर्युक्त कथनों के आलोक में निम्नांकित विकल्पों में से सही उत्तर चुनें :

- (1) कथन I और II दोनों सही हैं।
- (2) कथन I और II दोनों गलत हैं।
- (3) कथन I सत्य है किंतु कथन II गलत है।
- (4) कथन I असत्य है किंतु कथन II सही है।

**Options :**

- 53622816673. 1
- 53622816674. 2
- 53622816675. 3
- 53622816676. 4

**Question Number : 45 Question Id : 5362284281 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are the advantages of Choice Based Credit System (CBCS) introduced by the UGC for higher education institutions?

- (A) Focuses on student-centric education
- (B) Allows students to choose inter-disciplinary and intra-disciplinary courses.
- (C) Makes education at par with global standards
- (D) Makes it easy to estimate the performance levels of students in terms of marks.
- (E) Offers flexibility for students to undertake studies at different times and at different institutions.

Choose the correct answer from the options given below :

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

**Options :**

- 53622816677. 1
- 53622816678. 2
- 53622816679. 3
- 53622816680. 4

**Question Number : 45 Question Id : 5362284281 Question Type : MCQ Option Shuffling : No Is Question****Mandatory : No****Correct Marks : 2 Wrong Marks : 0**

यू.जी.सी. द्वारा उच्च शिक्षा संस्थानों में प्रारम्भ की गई विकल्प आधारित क्रेडिट प्रणाली (सी.बी.सी.एस.) के क्या लाभ हैं?

- (A) इसमें छात्र-केन्द्रित शिक्षा पर ध्यान केन्द्रित किया जाता है।
- (B) इसमें छात्रों को अंतर्विद्यापरक और अतःविद्यापरक पाठ्यक्रमों के चयन की अनुमति दी जाती है।
- (C) यह शिक्षा को वैशिक मानकों के समकक्ष बनाता है।
- (D) यह प्राप्तांकों के संदर्भ में विद्यार्थियों के निष्पादन स्तरों का अनुमान लगाना सरल बनाता है।
- (E) यह भिन्न समय पर भिन्न संस्थानों में अध्ययन करने में गतिशीलता प्रदान करता है।

नीचे दिये गये विकल्पों में से सही उत्तर चुनिये :

- (1) केवल (A), (B), (C), (D)
- (2) केवल (B), (C), (D), (E)
- (3) केवल (A), (B), (C), (E)
- (4) केवल (C), (D), (E), (A)

**Options :**

- 53622816677. 1
- 53622816678. 2
- 53622816679. 3
- 53622816680. 4

**Sub-Section Number :**

3

**Sub-Section Id :**

536228169

**Question Shuffling Allowed :**

Yes

**Question Id : 5362284282 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group****Comprehension Questions : No****Question Numbers : (46 to 50)****Question Label : Comprehension**

Read the passage and answer questions from 46 to 50.

Through their work and the efforts of others, managers in all kinds of organisational settings, whether industrial, educational, governmental, or military are attempting to run their organizations with the management by objectives process as a basic underlying management concept. Management by objectives is basically a process where by the seniors and the junior managers of an enterprise jointly identify its common goals, define each individual's major areas of responsibility in terms of the results expected... use these measures as guides for operating the unit and assessing the contribution of each of its members. In some cases, this process has been successfully carried beyond the managerial level to include hourly employees. The concept rests on a philosophy of management that emphasizes an integration between external control by managers and self-control by employees. It can apply to any manager or individual no matter what level or function, and to any organisation, regardless of size. The effective functioning of this system is an agreement between a manager and an employee about that employee's groups performance goals during a stated time period. These goals can emphasise either output variables of intervening variables or some combination of both. The important thing is that goals are jointly established and agreed upon in advance. At the end of the time period, performance is reviewed in relation to accepted goals. Both the employee and the manager participate in this review.

**Sub questions**

**Question Number : 46 Question Id : 5362284283 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In an MBO, organisation is managed through the identification of

- |                                  |                                |
|----------------------------------|--------------------------------|
| (1) competing goals              | (2) common objectives          |
| (3) its specific characteristics | (4) senior and junior managers |

**Options :**

- 53622816681. 1
- 53622816682. 2
- 53622816683. 3
- 53622816684. 4

**Question Number : 47 Question Id : 5362284284 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The requisite for management by objectives is centred on

- |                               |                                 |
|-------------------------------|---------------------------------|
| (1) the control by seniors    | (2) the guidance of juniors     |
| (3) the participatory process | (4) the organisational settings |

**Options :**

- 53622816685. 1
- 53622816686. 2
- 53622816687. 3
- 53622816688. 4

**Question Number : 48 Question Id : 5362284285 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The critical feature of the concept in this type of management is related to

- (1) the assignment of responsibility to the workers
- (2) distinguishing the operational role between managers and workers
- (3) promoting of uniformity of work environment among all types of organisation
- (4) sharing of responsibility with an eye on results

**Options :**

- 53622816689. 1
- 53622816690. 2
- 53622816691. 3
- 53622816692. 4

**Question Number : 49 Question Id : 5362284286 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In this frame of reference, how does an organisation function effectively?

- (1) By including the hourly employees in the managerial positions
- (2) By identifying and executing performance targets in a collaborative mode
- (3) By imposing a rigid philosophy of management
- (4) By providing separate work environment for both managers and workers

**Options :**

- 53622816693. 1
- 53622816694. 2
- 53622816695. 3
- 53622816696. 4

**Question Number : 50 Question Id : 5362284287 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The philosophy behind management by objectives is to

- (1) effect improvement through a joint review of achievement of performance goals within a given timeframe
- (2) integrate external and internal controls by managers
- (3) provide managers scope to review the accepted output variables
- (4) agree upon different performance goals for managers and employees

**Options :**

- 53622816697. 1
- 53622816698. 2
- 53622816699. 3
- 53622816700. 4

**Question Id : 5362284282 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group**

**Comprehension Questions : No**

**Question Numbers : (46 to 50)**

**Question Label : Comprehension**

नीचे दिए गए गद्यांश को ध्यानपूर्वक पढ़िए और उसके पश्चात्, प्रश्न सं. (46-50) का उत्तर दीजिए :

सभी प्रकार के संगठनों में चाहे औद्योगिक, शैक्षिक, सरकारी अथवा सैन्य व्यवस्था से जुड़े क्यों न हों, प्रबंधक अपने कार्य एवं प्रयासों के माध्यम से अपने-अपने संगठन को चलाने के लिए सम्प्रति ऐसी एक प्रबंधन अवधारणा का उपयोग कर रहे हैं जिसे उद्देश्य आधारित प्रबंधन की संज्ञा दी गई है। उद्देश्य द्वारा प्रबंधन करना मूलतः वह प्रक्रिया है जिसमें किसी उधम से जुड़े वरिष्ठ एवं कनिष्ठ प्रबंधक समान लक्ष्यों को मिलजुल कर निर्धारित करते हैं, प्रत्यक्ष व्यक्ति के कार्य दायित्व के अनुक्षेत्र को अपेक्षित परिणामों के आधार पर परिभाषित करते हैं तथा उन मानकों को अपनी इकाई के संसाधन में निर्देशक रूपरेखा के रूप में अनुपालन करते हैं। साथ ही, दूसरों के अवदान का भी आकलन करते हैं। किंतु यह प्रक्रिया प्रबंधकीय स्तर से हटकर दैनिक वेतनभोगी कर्मचारियों पर भी लागू की गई है। यह अवधारणा प्रबंधन के उस दर्शन पर आधारित है जिसमें पबंधक द्वारा प्रवर्तित बाह्य नियंत्रण एवं अभिकर्मियों द्वारा अनुपालित आंतरिक नियंत्रण के बीच समन्वय पर बल दिया जाता है। यह किसी भी प्रबंधन या व्यक्ति के संदर्भ में लागू हो सकती है याहे वह किसी भी स्तर या प्रकार्य से संबंधित हो तथा किसी भी संगठन चाहे छोटे या बड़े से जुड़ा हो। इस प्रणाली की प्रभावी क्रियाशीलता इस बात की अपेक्षा रखती है कि प्रबंधक एवं कर्मचारी के सम्हगत निष्पादन लक्ष्यों में सहमति हो। ये लक्ष्य आगत चरों अथवा मध्यवर्ती चरों अथवा उन चरों के किसी भी संयुक्त रूप में, कार्यशील होने पर बल दे सकते हैं। महत्वपूर्ण बात यह है कि संस्थागत लक्ष्य साझेदारी के साथ निर्धारित होते हैं तथा ये पूर्व में ही आम सहमति की परिधि में होते हैं एक निश्चित कालावधि के उपरांत साझा किए गए लक्ष्यों के संदर्भ में निष्पादन की समीक्षा की जाती है तथा प्रबंधक एवं अभिकर्मी दोनों ही इस समीक्षा में प्रतिभागी होते हैं।

#### Sub questions

**Question Number : 46 Question Id : 5362284283 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

किसी उद्देश्य आधारित प्रबंधन (एम बी ओ) में, संगठन को निम्नलिखित में से किसकी पहचान करने के माध्यम से प्रबंधित किया जाता है :

- |                               |                                   |
|-------------------------------|-----------------------------------|
| (1) प्रतिस्पर्धी लक्ष्यों की  | (2) साझा उद्देश्यों की            |
| (3) उसकी विशिष्ट विशेषताओं की | (4) वरिष्ठ और कनिष्ठ प्रबंधकों की |

#### Options :

53622816681. 1  
53622816682. 2  
53622816683. 3  
53622816684. 4

**Question Number : 47 Question Id : 5362284284 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

उद्देश्य आधारित प्रबंधन की पूर्वशर्त निम्नलिखित में से किस पर केन्द्रित है?

- |  |  |
|--|--|
| (1) वरिष्ठ अभिकर्मियों द्वारा नियंत्रण | (2) कनिष्ठ अभिकर्मियों को दिशानिर्देशन |
| (3) सहभागितापूर्ण प्रक्रिया            | (4) संगठनात्मक व्यवस्था                |

#### Options :

53622816685. 1  
53622816686. 2  
53622816687. 3  
53622816688. 4

**Question Number : 48 Question Id : 5362284285 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

इस प्रकार के प्रबंधन में संबंधित अवधारणा की महत्वपूर्ण विशेषता निम्नलिखित में से किससे संबंधित है

- (1) अभिकर्मियों को उत्तरदायित्व मौूँपना
- (2) प्रबंधकों और अभिकर्मियों के बीच उनकी कार्यगत भूमिका में अंतर करना
- (3) सभी प्रकार के संगठनों के बीच कार्य वातावरण में एकरूपता को बढ़ावा देना
- (4) परिणामों पर ध्यान रखते हुए उत्तरदायित्व को साझा करना

**Options :**

- 53622816689. 1
- 53622816690. 2
- 53622816691. 3
- 53622816692. 4

**Question Number : 49 Question Id : 5362284286 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

दिए गए संदर्भ के अनुसार, कोई संगठन किस प्रकार से प्रभावी रूप से कार्य करता है?

- (1) दैनिक अभिकर्मियों को प्रबंधकीय पदों पर शामिल करना।
- (2) साझेदारीपूर्ण प्रविधि (मोड) में निष्पादन लक्ष्यों की पहचान करना और उनको कार्यान्वित करना
- (3) प्रबंधन पर कठोर दर्शन लादना
- (4) प्रबंधकों और अभिकर्मियों दोनों के लिए अलग-अलग कार्य वातावरण मुहैया कराना।

**Options :**

- 53622816693. 1
- 53622816694. 2
- 53622816695. 3
- 53622816696. 4

**Question Number : 50 Question Id : 5362284287 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

उद्देश्य आधारित प्रबंधन में निहित दर्शन

- (1) किसी दी गई सभ्यसीमा के अंदर निष्पादन लक्ष्यों की उपलब्धि की संयुक्त समीक्षा के माध्यम से निष्पादन प्रभाव में सुधार करना।
- (2) प्रबंधकों द्वारा बाह्य और आंतरिक नियंत्रणों को समेकित करना
- (3) स्वीकार्य निर्गत चरों की समीक्षा करने हेतु प्रबंधकों को गुंजाइश मुहैया कराना
- (4) प्रबंधकों और अभिकर्मियों हेतु अलग-अलग निष्पादन लक्ष्यों पर सहमत होना।

**Options :**

- 53622816697. 1
- 53622816698. 2
- 53622816699. 3
- 53622816700. 4

## PART II Computer Science and Applications

**Section Id :** 53622858

**Section Number :** 2

**Section type :** Online

<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	92
<b>Number of Questions to be attempted :</b>	92
<b>Section Marks :</b>	200
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	536228170
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 51 Question Id : 5362284288 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The number of positive integers not exceeding 100 that are either odd or the square of an integer is \_\_\_\_\_.

- (1) 63
- (2) 59
- (3) 55**
- (4) 50

**Options :**

- 53622816701. 1
- 53622816702. 2
- 53622816703. 3
- 53622816704. 4

**Question Number : 51 Question Id : 5362284288 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The number of positive integers not exceeding 100 that are either odd or the square of an integer is \_\_\_\_\_.

- (1) 63
- (2) 59
- (3) 55**
- (4) 50

**Options :**

- 53622816701. 1
- 53622816702. 2
- 53622816703. 3
- 53622816704. 4

**Question Number : 52 Question Id : 5362284289 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How many ways are there to pack six copies of the same book into four identical boxes, where a box can contain as many as six books?

- (1) 4
- (2) 6
- (3) 7
- (4) 9**

**Options :**

- 53622816705. 1
- 53622816706. 2
- 53622816707. 3
- 53622816708. 4

**Question Number : 52 Question Id : 5362284289 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How many ways are there to pack six copies of the same book into four identical boxes, where a box can contain as many as six books?

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

**Options :**

- 53622816705. 1
- 53622816706. 2
- 53622816707. 3
- 53622816708. 4

**Question Number : 53 Question Id : 5362284290 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following pairs of propositions are not logically equivalent?

- (1)  $((p \rightarrow r) \wedge (q \rightarrow r))$  and  $((p \vee q) \rightarrow r)$
- (2)  $p \leftrightarrow q$  and  $(\neg p \leftrightarrow \neg q)$
- (3)  $((p \wedge q) \vee (\neg p \wedge \neg q))$  and  $p \leftrightarrow q$
- (4)  $((p \wedge q) \rightarrow r)$  and  $((p \rightarrow r) \wedge (q \rightarrow r))$**

**Options :**

- 53622816709. 1
- 53622816710. 2
- 53622816711. 3

53622816712. 4

**Question Number : 53 Question Id : 5362284290 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following pairs of propositions are not logically equivalent?

- (1)  $((p \rightarrow r) \wedge (q \rightarrow r))$  and  $((p \vee q) \rightarrow r)$
- (2)  $p \leftrightarrow q$  and  $(\neg p \leftrightarrow \neg q)$
- (3)  $((p \wedge q) \vee (\neg p \wedge \neg q))$  and  $p \leftrightarrow q$
- (4)  $((p \wedge q) \rightarrow r)$  and  $((p \rightarrow r) \wedge (q \rightarrow r))$

**Options :**

53622816709. 1  
53622816710. 2  
53622816711. 3  
53622816712. 4

**Question Number : 54 Question Id : 5362284291 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following linear programming (LP):

$$\text{Max. } z = 2x_1 + 3x_2$$

$$\text{Such that } 2x_1 + x_2 \leq 4$$

$$x_1 + 2x_2 \leq 5$$

$$x_1, x_2 \geq 0$$

The optimum value of the LP is

- (1) 23
- (2) 9.5
- (3) 13
- (4) 8**

**Options :**

53622816713. 1  
53622816714. 2  
53622816715. 3  
53622816716. 4

**Question Number : 54 Question Id : 5362284291 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following linear programming (LP):

$$\begin{array}{ll} \text{Max.} & z = 2x_1 + 3x_2 \\ \text{Such that} & 2x_1 + x_2 \leq 4 \\ & x_1 + 2x_2 \leq 5 \\ & x_1, x_2 \geq 0 \end{array}$$

The optimum value of the LP is

- (1) 23
- (2) 9.5
- (3) 13
- (4) 8

**Options :**

53622816713. 1  
53622816714. 2  
53622816715. 3  
53622816716. 4

**Question Number : 55 Question Id : 5362284292 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a machine with a byte addressable main memory of  $2^{16}$  bytes and block size of 8 bytes. Assume that a direct mapped cache consisting of 32 lines used with this machine. How many bits will be there in Tag, line and word field of format of main memory addresses?

- (1) 8, 5, 3
- (2) 8, 6, 2
- (3) 7, 5, 4
- (4) 7, 6, 3

**Options :**

53622816717. 1  
53622816718. 2  
53622816719. 3  
53622816720. 4

**Question Number : 55 Question Id : 5362284292 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a machine with a byte addressable main memory of  $2^{16}$  bytes and block size of 8 bytes. Assume that a direct mapped cache consisting of 32 lines used with this machine. How many bits will be there in Tag, line and word field of format of main memory addresses?

- (1) 8, 5, 3
- (2) 8, 6, 2
- (3) 7, 5, 4
- (4) 7, 6, 3

**Options :**

53622816717. 1  
53622816718. 2  
53622816719. 3  
53622816720. 4

**Question Number : 56 Question Id : 5362284293 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The following program is stored in memory unit of the basic computer. What is the content of the accumulator after the execution of program? (All location numbers listed below are in hexadecimal).

Location	Instruction
210	CLA
211	ADD 217
212	INC
213	STA 217
214	LDA 218
215	CMA
216	AND 217
217	1234H
218	9CE2H

- (1) 1002H
- (2) 2011H
- (3) 2022H
- (4) 0215H

**Options :**

53622816721. 1  
53622816722. 2  
53622816723. 3  
53622816724. 4

**Question Number : 56 Question Id : 5362284293 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The following program is stored in memory unit of the basic computer. What is the content of the accumulator after the execution of program? (All location numbers listed below are in hexadecimal).

Location	Instruction
210	CLA
211	ADD 217
212	INC
213	STA 217
214	LDA 218
215	CMA
216	AND 217
217	1234H
218	9CE2H

- (1) 1002H
- (2) 2011H
- (3) 2022H
- (4) 0215H

**Options :**

53622816721. 1  
53622816722. 2  
53622816723. 3  
53622816724. 4

**Question Number : 57 Question Id : 5362284294 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A non-pipeline system takes 50ns to process a task. The same task can be processed in six-segment pipeline with a clockcycle of 10ns. Determine approximately the speedup ratio of the pipeline for 500 tasks.

- (1) 6
- (2) 4.95
- (3) 5.7
- (4) 5.5

**Options :**

53622816725. 1  
53622816726. 2  
53622816727. 3

53622816728. 4

**Question Number : 57 Question Id : 5362284294 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A non-pipeline system takes 50ns to process a task. The same task can be processed in six-segment pipeline with a clockcycle of 10ns. Determine approximately the speedup ratio of the pipeline for 500 tasks.

- (1) 6
- (2) 4.95
- (3) 5.7
- (4) 5.5

**Options :**

53622816725. 1  
53622816726. 2  
53622816727. 3  
53622816728. 4

**Question Number : 58 Question Id : 5362284295 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the radix of the numbers if the solution to the quadratic equation  $x^2 - 10x + 26 = 0$  is  $x = 4$  and  $x = 7$  ?

- |        |        |
|--------|--------|
| (1) 8  | (2) 9  |
| (3) 10 | (4) 11 |

**Options :**

53622816729. 1  
53622816730. 2  
53622816731. 3  
53622816732. 4

**Question Number : 58 Question Id : 5362284295 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the radix of the numbers if the solution to the quadratic equation  $x^2 - 10x + 26 = 0$  is  $x = 4$  and  $x = 7$  ?

- |        |        |
|--------|--------|
| (1) 8  | (2) 9  |
| (3) 10 | (4) 11 |

**Options :**

53622816729. 1

53622816730. 2

53622816731. 3

53622816732. 4

**Question Number : 59 Question Id : 5362284296 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following pseudo-code fragment, where a and b are integer variables that have been initialized:

```
/* Pre-conditions : (a > 1 ∧ a < b) */  
/* Assume that overflow never occurs */  
  
int x = 0; int p = 1;  
  
while (p < b) {  
    p = p * a;  
    x = x + 1;  
}
```

When the while loop terminates, what will be the value of x in terms of a and b?

- (1)  $a^b$
- (2)  $b^a$
- (3)  $\lfloor \log_a^b \rfloor$  /\*  $\lfloor \quad \rfloor$  means floor \*/
- (4)  $\lceil \log_a^b \rceil$  /\*  $\lceil \quad \rceil$  means ceil \*/

**Options :**

53622816733. 1

53622816734. 2

53622816735. 3

53622816736. 4

**Question Number : 59 Question Id : 5362284296 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following pseudo-code fragment, where a and b are integer variables that have been initialized:

```
/* Pre-conditions : (a > 1 ∧ a < b) */
/* Assume that overflow never occurs */

int x = 0; int p = 1;

while (p < b) {

    p = p * a;

    x = x + 1;

}
```

When the while loop terminates, what will be the value of x in terms of a and b?

- (1)  $a^b$
- (2)  $b^a$
- (3)  $\lfloor \log_a^b \rfloor$  /\* [ ] means floor \*/
- (4)  $\lceil \log_a^b \rceil$  /\* [ ] means ceil \*/

**Options :**

- 53622816733. 1
- 53622816734. 2
- 53622816735. 3
- 53622816736. 4

**Question Number : 60 Question Id : 5362284297 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In HTML, <map> tag is used for

- (1) defining a path between two nodes in an image
- (2)** defining clickable region in an image
- (3) highlighting an area in an image
- (4) defining the site-map of a web-site

**Options :**

- 53622816737. 1
- 53622816738. 2
- 53622816739. 3
- 53622816740. 4

**Question Number : 60 Question Id : 5362284297 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In HTML, <map> tag is used for

- (1) defining a path between two nodes in an image
- (2) defining clickable region in an image
- (3) highlighting an area in an image
- (4) defining the site-map of a web-site

**Options :**

53622816737. 1  
53622816738. 2  
53622816739. 3  
53622816740. 4

**Question Number : 61 Question Id : 5362284298 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Suppose you are compiling on a machine with 1-byte chars, 2-byte shorts, 4-byte ints, and 8-byte doubles, and with alignment rules that require the address of every primitive data element to be an integer multiple of the element's size. Suppose further that the compiler is not permitted to reorder fields; padding is used to ensure alignment. How much space will be consumed by the following array?

```
struct {  
    short s;  
    char c;  
    short t;  
    char d;  
    double r;  
    int i;  
} A[10]; /*10-element array of structs*/
```

- (1) 150 bytes
- (2) 320 bytes
- (3)** 240 bytes
- (4) 200 bytes

**Options :**

53622816741. 1  
53622816742. 2  
53622816743. 3  
53622816744. 4

**Question Number : 61 Question Id : 5362284298 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Suppose you are compiling on a machine with 1-byte chars, 2-byte shorts, 4-byte ints, and 8-byte doubles, and with alignment rules that require the address of every primitive data element to be an integer multiple of the element's size. Suppose further that the compiler is not permitted to reorder fields; padding is used to ensure alignment. How much space will be consumed by the following array?

```
struct {  
    short s;  
    char c;  
    short t;  
    char d;  
    double r;  
    int i;  
} A[10]; /*10-element array of structs*/
```

- (1) 150 bytes
- (2) 320 bytes
- (3) 240 bytes
- (4) 200 bytes

**Options :**

53622816741. 1

53622816742. 2

53622816743. 3

53622816744. 4

**Question Number : 62 Question Id : 5362284299 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following recursive Java function  $f$  that takes two long arguments and returns a float value:

```
public static float f (long m, long n) {  
    float result = (float)m / (float)n;  
    if (m < 0 || n < 0) return 0.0f;  
    else result -= f(m * 2, n * 3);  
    return result;  
}
```

Which of the following real values best approximates the value of  $f(1,3)$  ?

- (1) 0.2
- (2) 0.4
- (3) 0.6
- (4) 0.8

**Options :**

53622816745. 1

53622816746. 2

53622816747. 3

53622816748. 4

**Question Number : 62 Question Id : 5362284299 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following recursive Java function  $f$  that takes two long arguments and returns a float value:

```
public static float f (long m, long n) {  
    float result = (float)m / (float)n;  
    if (m < 0 || n < 0) return 0.0f;  
    else result -= f(m * 2, n * 3);  
    return result;  
}
```

Which of the following real values best approximates the value of  $f(1,3)$  ?

- (1) 0.2
- (2) 0.4
- (3) 0.6
- (4) 0.8

**Options :**

53622816745. 1  
53622816746. 2  
53622816747. 3  
53622816748. 4

**Question Number : 63 Question Id : 5362284300 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The data node and name node in HADOOP are

- (1)** Worker Node and Master Node respectively
- (2) Master Node and Worker Node respectively
- (3) Both Worker Nodes
- (4) Both Master Nodes

**Options :**

53622816749. 1  
53622816750. 2  
53622816751. 3  
53622816752. 4

**Question Number : 63 Question Id : 5362284300 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The data node and name node in HADOOP are

- (1) Worker Node and Master Node respectively
- (2) Master Node and Worker Node respectively
- (3) Both Worker Nodes
- (4) Both Master Nodes

**Options :**

- 53622816749. 1
- 53622816750. 2
- 53622816751. 3
- 53622816752. 4

**Question Number : 64 Question Id : 5362284301 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a relational schema  $S = (U, V, W, X, Y, Z)$  on which the following functional dependencies hold:

$$\{U \rightarrow V, VW \rightarrow X, Y \rightarrow W, X \rightarrow U\}$$

Which are the candidate keys among following options?

- (1) UY, VY
- (2) UY, VY, XY
- (3) UYZ, VYZ, VWZ
- (4) UYZ, VYZ, XYZ

**Options :**

- 53622816753. 1
- 53622816754. 2
- 53622816755. 3
- 53622816756. 4

**Question Number : 64 Question Id : 5362284301 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a relational schema  $S = (U, V, W, X, Y, Z)$  on which the following functional dependencies hold:

$$\{U \rightarrow V, VW \rightarrow X, Y \rightarrow W, X \rightarrow U\}$$

Which are the candidate keys among following options?

- (1) UY, VY
- (2) UY, VY, XY
- (3) UYZ, VYZ, VWZ
- (4) UYZ, VYZ, XYZ

**Options :**

53622816753. 1

53622816754. 2

53622816755. 3

53622816756. 4

**Question Number : 65 Question Id : 5362284302 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a hypothetical machine with 3 pages of physical memory, 5 pages of virtual memory, and  $\langle A, B, C, D, A, B, E, A, B, C, D, E, B, A, B \rangle$  as the stream of page references by an application. If P and Q are the number of page faults that the application would incur with FIFO and LRU page replacement algorithms respectively, then  $(P, Q) = \underline{\hspace{2cm}}$ . (Assuming enough space for storing 3 page frames)

- (1) (11, 10)
- (2) (12, 11)
- (3) (10, 11)
- (4) (11, 12)**

**Options :**

53622816757. 1

53622816758. 2

53622816759. 3

53622816760. 4

**Question Number : 65 Question Id : 5362284302 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a hypothetical machine with 3 pages of physical memory, 5 pages of virtual memory, and  $\langle A, B, C, D, A, B, E, A, B, C, D, E, B, A, B \rangle$  as the stream of page references by an application. If P and Q are the number of page faults that the application would incur with FIFO and LRU page replacement algorithms respectively, then  $(P, Q) = \underline{\hspace{2cm}}$ . (Assuming enough space for storing 3 page frames)

- (1) (11, 10)
- (2) (12, 11)
- (3) (10, 11)
- (4) (11, 12)**

**Options :**

53622816757. 1

53622816758. 2

53622816759. 3

53622816760. 4

**Question Number : 66 Question Id : 5362284303 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a disk system having 60 cylinders. Disk requests are received by a disk drive for cylinders 10, 22, 20, 2, 40, 6 and 38, in that order. Assuming the disk head is currently at cylinder 20, what is the time taken to satisfy all the requests if it takes 2 milliseconds to move from one cylinder to adjacent one and Shortest Seek Time First (SSTF) algorithm is used?

- (1) 240 milliseconds
- (2) 96 milliseconds
- (3)** 120 milliseconds
- (4) 112 milliseconds

**Options :**

53622816761. 1  
53622816762. 2  
53622816763. 3  
53622816764. 4

**Question Number : 66 Question Id : 5362284303 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a disk system having 60 cylinders. Disk requests are received by a disk drive for cylinders 10, 22, 20, 2, 40, 6 and 38, in that order. Assuming the disk head is currently at cylinder 20, what is the time taken to satisfy all the requests if it takes 2 milliseconds to move from one cylinder to adjacent one and Shortest Seek Time First (SSTF) algorithm is used?

- (1) 240 milliseconds
- (2) 96 milliseconds
- (3) 120 milliseconds
- (4) 112 milliseconds

**Options :**

53622816761. 1  
53622816762. 2  
53622816763. 3  
53622816764. 4

**Question Number : 67 Question Id : 5362284304 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Suppose you have a Linux file system where the block size is 2K bytes, a disk address is 32 bits, and an i-node contains the disk addresses of the first 12 direct blocks of file, a single indirect block, and a double indirect block. Approximately, what is the largest file that can be represented by an i-node?

- |                |                |
|----------------|----------------|
| (1) 513 Kbytes | (2) 513 MBytes |
| (3) 537 Mbytes | (4) 537 KBytes |

**Options :**

- 53622816765. 1
- 53622816766. 2
- 53622816767. 3
- 53622816768. 4

**Question Number : 67 Question Id : 5362284304 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Suppose you have a Linux file system where the block size is 2K bytes, a disk address is 32 bits, and an i-node contains the disk addresses of the first 12 direct blocks of file, a single indirect block, and a double indirect block. Approximately, what is the largest file that can be represented by an i-node?

- |                |                |
|----------------|----------------|
| (1) 513 Kbytes | (2) 513 MBytes |
| (3) 537 Mbytes | (4) 537 KBytes |

**Options :**

- 53622816765. 1
- 53622816766. 2
- 53622816767. 3
- 53622816768. 4

**Question Number : 68 Question Id : 5362284305 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a single-level page table system, with the page table stored in the memory. If the hit rate to TLB is 80%, and it takes 15 nanoseconds to search the TLB, and 150 nanoseconds to access the main memory, then what is the effective memory access time, in nanoseconds?

- |         |         |
|---------|---------|
| (1) 185 | (2) 195 |
| (3) 205 | (4) 175 |

**Options :**

- 53622816769. 1
- 53622816770. 2
- 53622816771. 3
- 53622816772. 4

**Question Number : 68 Question Id : 5362284305 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a single-level page table system, with the page table stored in the memory. If the hit rate to TLB is 80%, and it takes 15 nanoseconds to search the TLB, and 150 nanoseconds to access the main memory, then what is the effective memory access time, in nanoseconds?

- |         |         |
|---------|---------|
| (1) 185 | (2) 195 |
| (3) 205 | (4) 175 |

**Options :**

53622816769. 1  
53622816770. 2  
53622816771. 3  
53622816772. 4

**Question Number : 69 Question Id : 5362284306 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following UML diagrams has a static view?

- |                           |                             |
|---------------------------|-----------------------------|
| (1) Collaboration diagram | (2) <b>Use-Case diagram</b> |
| (3) State chart diagram   | (4) Activity diagram        |

**Options :**

53622816773. 1  
53622816774. 2  
53622816775. 3  
53622816776. 4

**Question Number : 69 Question Id : 5362284306 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following UML diagrams has a static view?

- |                           |                      |
|---------------------------|----------------------|
| (1) Collaboration diagram | (2) Use-Case diagram |
| (3) State chart diagram   | (4) Activity diagram |

**Options :**

53622816773. 1  
53622816774. 2  
53622816775. 3  
53622816776. 4

**Question Number : 70 Question Id : 5362284307 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Modifying the software by restructuring is called

- |                            |                            |
|----------------------------|----------------------------|
| (1) Adaptive maintenance   | (2) Corrective maintenance |
| (3) Perfective maintenance | (4) Preventive maintenance |

**Options :**

53622816777. 1  
53622816778. 2  
53622816779. 3  
53622816780. 4

**Question Number : 70 Question Id : 5362284307 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Modifying the software by restructuring is called

- |                            |                            |
|----------------------------|----------------------------|
| (1) Adaptive maintenance   | (2) Corrective maintenance |
| (3) Perfective maintenance | (4) Preventive maintenance |

**Options :**

53622816777. 1  
53622816778. 2  
53622816779. 3  
53622816780. 4

**Question Number : 71 Question Id : 5362284308 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A Company has a choice of two languages  $L_1$  and  $L_2$  to develop a software for their client. Number of LOC required to develop an application in  $L_2$  is thrice the LOC in language  $L_1$ . Also, software has to be maintained for next 10 years. Various parameters for two languages are given below to decide which language should be preferred for development.

PARAMETER	$L_1$	$L_2$
Man-year needed for development	LOC/1000	LOC/1000
Development cost	Rs.70,000	Rs.90,000
Cost of Maintenance per year	Rs.1,00,000	Rs.40,000

Total cost of project include cost of development and maintenance. What is the LOC for  $L_1$  for which cost of developing the software with both languages must be same?

- |          |          |
|----------|----------|
| (1) 2000 | (2) 6000 |
| (3) 3000 | (4) 5000 |

**Options :**

53622816781. 1  
53622816782. 2  
53622816783. 3  
53622816784. 4

**Question Number : 71 Question Id : 5362284308 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A Company has a choice of two languages  $L_1$  and  $L_2$  to develop a software for their client. Number of LOC required to develop an application in  $L_2$  is thrice the LOC in language  $L_1$ . Also, software has to be maintained for next 10 years. Various parameters for two languages are given below to decide which language should be preferred for development.

PARAMETER	$L_1$	$L_2$
Man-year needed for development	LOC/1000	LOC/1000
Development cost	Rs.70,000	Rs.90,000
Cost of Maintenance per year	Rs.1,00,000	Rs.40,000

Total cost of project include cost of development and maintenance. What is the LOC for  $L_1$  for which cost of developing the software with both languages must be same?

- (1) 2000                          (2) 6000  
(3) 3000                          (4) 5000

**Options :**

53622816781. 1  
53622816782. 2  
53622816783. 3  
53622816784. 4

**Question Number : 72 Question Id : 5362284309 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A Software project was estimated at 864 Function Points. A six person team will be assigned to project consisting of a requirement gathering person, one designer, two programmers and two testers. The salary of the designer is ₹70,000 per month, requirement gatherer is ₹50,000 per month, programmer is ₹60,000 per month and a tester is ₹60,000 per month. Average productivity for the team is 12 FP per person month. Which of the following represents the projected cost of the project?

- (1) ₹33,20,000                          (2) ₹43,20,000  
(3) ₹33,10,000                          (4) ₹22,10,000

**Options :**

53622816785. 1  
53622816786. 2  
53622816787. 3  
53622816788. 4

**Question Number : 72 Question Id : 5362284309 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A Software project was estimated at 864 Function Points. A six person team will be assigned to project consisting of a requirement gathering person, one designer, two programmers and two testers. The salary of the designer is ₹70,000 per month, requirement gatherer is ₹50,000 per month, programmer is ₹60,000 per month and a tester is ₹60,000 per month. Average productivity for the team is 12 FP per person month. Which of the following represents the projected cost of the project?

- |                |                |
|----------------|----------------|
| (1) ₹33,20,000 | (2) ₹43,20,000 |
| (3) ₹33,10,000 | (4) ₹22,10,000 |

**Options :**

53622816785. 1  
53622816786. 2  
53622816787. 3  
53622816788. 4

**Question Number : 73 Question Id : 5362284310 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A complete n-ary tree is a tree in which each node has n children or no children. Let I be the number of internal nodes and L be the number of leaves in a complete n-ary tree. If L=41, and I=10, What is the value of n?

- |              |       |
|--------------|-------|
| (1) 3        | (2) 4 |
| <b>(3) 5</b> | (4) 6 |

**Options :**

53622816789. 1  
53622816790. 2  
53622816791. 3  
53622816792. 4

**Question Number : 73 Question Id : 5362284310 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A complete n-ary tree is a tree in which each node has n children or no children. Let I be the number of internal nodes and L be the number of leaves in a complete n-ary tree. If L=41, and I=10, What is the value of n?

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

**Options :**

53622816789. 1  
53622816790. 2  
53622816791. 3  
53622816792. 4

**Question Number : 74 Question Id : 5362284311 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In a binary max heap containing n numbers, the smallest element can be found in \_\_\_\_\_ time.

- (1) O(n)  
(3) O(1)

- (2) O( $\log_2 n$ )  
(4) O( $\log_2 \log_2 n$ )

**Options :**

53622816793. 1  
53622816794. 2  
53622816795. 3  
53622816796. 4

**Question Number : 74 Question Id : 5362284311 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In a binary max heap containing n numbers, the smallest element can be found in \_\_\_\_\_ time.

- (1) O(n)  
(3) O(1)

- (2) O( $\log_2 n$ )  
(4) O( $\log_2 \log_2 n$ )

**Options :**

53622816793. 1  
53622816794. 2  
53622816795. 3  
53622816796. 4

**Question Number : 75 Question Id : 5362284312 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If algorithm A and another algorithm B take  $\log_2(n)$  and  $\sqrt{n}$  microseconds, respectively, to solve a problem, then the largest size n of a problem these algorithms can solve, respectively, in one second are \_\_\_\_\_ and \_\_\_\_\_.

- (1)  $2^{10^6}$  and  $10^6$   
(3)  $2^{10^6}$  and  $6.10^6$
- (2)  $2^{10^6}$  and  $10^{12}$   
(4)  $2^{10^6}$  and  $6.10^{12}$

**Options :**

53622816797. 1  
53622816798. 2  
53622816799. 3  
53622816800. 4

**Question Number : 75 Question Id : 5362284312 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If algorithm A and another algorithm B take  $\log_2(n)$  and  $\sqrt{n}$  microseconds, respectively, to solve a problem, then the largest size n of a problem these algorithms can solve, respectively, in one second are \_\_\_\_\_ and \_\_\_\_\_.

- (1)  $2^{10^6}$  and  $10^6$       (2)  $2^{10^6}$  and  $10^{12}$   
(3)  $2^{10^6}$  and  $6 \cdot 10^6$       (4)  $2^{10^6}$  and  $6 \cdot 10^{12}$

**Options :**

53622816797. 1  
53622816798. 2  
53622816799. 3  
53622816800. 4

**Question Number : 76 Question Id : 5362284313 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let G be a directed graph whose vertex set is the set of numbers from 1 to 100. There is an edge from a vertex  $i$  to a vertex  $j$  if and only if either  $j = i + 1$  or  $j = 3i$ . The minimum number of edges in a path in G from vertex 1 to vertex 100 is \_\_\_\_\_.

- (1) 23      (2) 99  
(3) 4      (4) 7

**Options :**

53622816801. 1  
53622816802. 2  
53622816803. 3  
53622816804. 4

**Question Number : 76 Question Id : 5362284313 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let G be a directed graph whose vertex set is the set of numbers from 1 to 100. There is an edge from a vertex  $i$  to a vertex  $j$  if and only if either  $j = i + 1$  or  $j = 3i$ . The minimum number of edges in a path in G from vertex 1 to vertex 100 is \_\_\_\_\_.

- (1) 23      (2) 99  
(3) 4      (4) 7

**Options :**

53622816801. 1  
53622816802. 2  
53622816803. 3  
53622816804. 4

**Question Number : 77 Question Id : 5362284314 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider  $L = L_1 \cap L_2$

Where  $L_1 = \{0^m 1^m 20^n 1^n \mid m, n \geq 0\}$

$$L_2 = \{0^m 1^n 2^k \mid m, n, k \geq 0\}$$

Then, the language L is

- (1) Recursively enumerable but not context free
- (2) Regular
- (3)** Context free but not regular
- (4) Not recursive

**Options :**

53622816805. 1

53622816806. 2

53622816807. 3

53622816808. 4

**Question Number : 77 Question Id : 5362284314 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider  $L = L_1 \cap L_2$

Where  $L_1 = \{0^m 1^m 20^n 1^n \mid m, n \geq 0\}$

$$L_2 = \{0^m 1^n 2^k \mid m, n, k \geq 0\}$$

Then, the language L is

- (1) Recursively enumerable but not context free
- (2) Regular
- (3)** Context free but not regular
- (4) Not recursive

**Options :**

53622816805. 1

53622816806. 2

53622816807. 3

53622816808. 4

**Question Number : 78 Question Id : 5362284315 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $L_1$  and  $L_2$  be languages over  $\Sigma = \{a, b\}$  represented by the regular expressions  $(a^* + b)^*$  and  $(a + b)^*$  respectively.

Which of the following is true with respect to the two languages?

- (1)  $L_1 \subset L_2$       (2)  $L_2 \subset L_1$   
**(3)**  $L_1 = L_2$       (4)  $L_1 \cap L_2 = \phi$

**Options :**

53622816809. 1  
53622816810. 2  
53622816811. 3  
53622816812. 4

**Question Number : 78 Question Id : 5362284315 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $L_1$  and  $L_2$  be languages over  $\Sigma = \{a, b\}$  represented by the regular expressions  $(a^* + b)^*$  and  $(a + b)^*$  respectively.

Which of the following is true with respect to the two languages?

- (1)  $L_1 \subset L_2$       (2)  $L_2 \subset L_1$   
**(3)**  $L_1 = L_2$       (4)  $L_1 \cap L_2 = \phi$

**Options :**

53622816809. 1  
53622816810. 2  
53622816811. 3  
53622816812. 4

**Question Number : 79 Question Id : 5362284316 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements is true?

- (1)** The union of two context free languages is context free.  
(2) The intersection of two context free languages is context free.  
(3) The complement of a context free language is context free.  
(4) If a language is context free, it can always be accepted by a deterministic pushdown automaton.

**Options :**

53622816813. 1  
53622816814. 2  
53622816815. 3  
53622816816. 4

**Question Number : 79 Question Id : 5362284316 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements is true?

- (1) The union of two context free languages is context free.
- (2) The intersection of two context free languages is context free.
- (3) The complement of a context free language is context free.
- (4) If a language is context free, it can always be accepted by a deterministic pushdown automaton.

**Options :**

53622816813. 1  
53622816814. 2  
53622816815. 3  
53622816816. 4

**Question Number : 80 Question Id : 5362284317 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is not an intermediate code form?

- |                  |                         |
|------------------|-------------------------|
| (1) Syntax trees | (2) Three address codes |
| (3) Quadruples   | (4) Post fix Notation.  |

**Options :**

53622816817. 1  
53622816818. 2  
53622816819. 3  
53622816820. 4

**Question Number : 80 Question Id : 5362284317 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is not an intermediate code form?

- |                  |                         |
|------------------|-------------------------|
| (1) Syntax trees | (2) Three address codes |
| (3) Quadruples   | (4) Post fix Notation.  |

**Options :**

53622816817. 1  
53622816818. 2  
53622816819. 3  
53622816820. 4

**Question Number : 81 Question Id : 5362284318 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a code with only four valid code words: 0000000000, 0000011111, 1111100000, and 1111111111. This code has distance 5. If the code word arrived is 0000000111 then the original code word must be \_\_\_\_\_.

- (1) 0000011111                          (2) 0000000000  
(3) 1111100000                          (4) 1111111111

**Options :**

53622816821. 1  
53622816822. 2  
53622816823. 3  
53622816824. 4

**Question Number : 81 Question Id : 5362284318 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider a code with only four valid code words: 0000000000, 0000011111, 1111100000, and 1111111111. This code has distance 5. If the code word arrived is 0000000111 then the original code word must be \_\_\_\_\_.

- (1) 0000011111                          (2) 0000000000  
(3) 1111100000                          (4) 1111111111

**Options :**

53622816821. 1  
53622816822. 2  
53622816823. 3  
53622816824. 4

**Question Number : 82 Question Id : 5362284319 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Using 'RSA' public key cryptosystem, if  $P = 3$ ,  $q = 11$  and  $d = 7$ , find the value of  $e$  and encrypt the number '19'.

- (1) 20, 19                                  (2) 33, 11  
**(3)** 3, 28                                  (4) 77, 28

**Options :**

53622816825. 1  
53622816826. 2  
53622816827. 3  
53622816828. 4

**Question Number : 82 Question Id : 5362284319 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Using 'RSA' public key cryptosystem, if  $P = 3$ ,  $q = 11$  and  $d = 7$ , find the value of  $e$  and encrypt the number '19'.

- |            |            |
|------------|------------|
| (1) 20, 19 | (2) 33, 11 |
| (3) 3, 28  | (4) 77, 28 |

**Options :**

53622816825. 1  
53622816826. 2  
53622816827. 3  
53622816828. 4

**Question Number : 83 Question Id : 5362284320 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Protocols in which the sender sends one frame and then waits for an acknowledgement before proceeding for next frame are called as \_\_\_\_\_.

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| (1) Simplex protocols               | (2) Unrestricted simplex protocols |
| (3) Simplex stop and wait protocols | (4) Restricted simplex protocols.  |

**Options :**

53622816829. 1  
53622816830. 2  
53622816831. 3  
53622816832. 4

**Question Number : 83 Question Id : 5362284320 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Protocols in which the sender sends one frame and then waits for an acknowledgement before proceeding for next frame are called as \_\_\_\_\_.

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| (1) Simplex protocols               | (2) Unrestricted simplex protocols |
| (3) Simplex stop and wait protocols | (4) Restricted simplex protocols.  |

**Options :**

53622816829. 1  
53622816830. 2  
53622816831. 3  
53622816832. 4

**Question Number : 84 Question Id : 5362284321 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The period of a signal is 100ms. Then the frequency of this signal in kilohertz is \_\_\_\_.

- |                                 |               |
|---------------------------------|---------------|
| (1) 10                          | (2) $10^{-1}$ |
| <b>(3) <math>10^{-2}</math></b> | (4) $10^{-3}$ |

**Options :**

- 53622816833. 1
- 53622816834. 2
- 53622816835. 3
- 53622816836. 4

**Question Number : 84 Question Id : 5362284321 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The period of a signal is 100ms. Then the frequency of this signal in kilohertz is \_\_\_\_.

- |                                 |               |
|---------------------------------|---------------|
| (1) 10                          | (2) $10^{-1}$ |
| <b>(3) <math>10^{-2}</math></b> | (4) $10^{-3}$ |

**Options :**

- 53622816833. 1
- 53622816834. 2
- 53622816835. 3
- 53622816836. 4

**Question Number : 85 Question Id : 5362284322 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The process of removing details from a given state representation is called \_\_\_\_.

- |                      |                        |
|----------------------|------------------------|
| (1) Extraction       | (2) Mining             |
| <b>(3) Selection</b> | <b>(4) Abstraction</b> |

**Options :**

- 53622816837. 1
- 53622816838. 2
- 53622816839. 3
- 53622816840. 4

**Question Number : 85 Question Id : 5362284322 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The process of removing details from a given state representation is called \_\_\_\_\_.

- |                |                 |
|----------------|-----------------|
| (1) Extraction | (2) Mining      |
| (3) Selection  | (4) Abstraction |

**Options :**

- 53622816837. 1
- 53622816838. 2
- 53622816839. 3
- 53622816840. 4

**Question Number : 86 Question Id : 5362284323 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is NOT true in problem solving in artificial intelligence?

- (1) Implements heuristic search techniques
- (2) Solution steps are not explicit
- (3) Knowledge is imprecise
- (4) It works on or implements repetition mechanism**

**Options :**

- 53622816841. 1
- 53622816842. 2
- 53622816843. 3
- 53622816844. 4

**Question Number : 86 Question Id : 5362284323 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is NOT true in problem solving in artificial intelligence?

- (1) Implements heuristic search techniques
- (2) Solution steps are not explicit
- (3) Knowledge is imprecise
- (4) It works on or implements repetition mechanism**

**Options :**

- 53622816841. 1
- 53622816842. 2
- 53622816843. 3
- 53622816844. 4

**Question Number : 87 Question Id : 5362284324 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If  $f(x) = x$  is my friend, and  $p(x) = x$  is perfect, then correct logical translation of the statement “some of my friends are not perfect” is \_\_\_\_\_.

- (1)  $\forall_x (f(x) \wedge \neg p(x))$       (2)  $\exists_x (f(x) \wedge \neg p(x))$   
(3)  $\neg (f(x) \wedge \neg p(x))$       (4)  $\exists_x (\neg f(x) \wedge \neg p(x))$

**Options :**

53622816845. 1  
53622816846. 2  
53622816847. 3  
53622816848. 4

**Question Number : 87 Question Id : 5362284324 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If  $f(x) = x$  is my friend, and  $p(x) = x$  is perfect, then correct logical translation of the statement “some of my friends are not perfect” is \_\_\_\_\_.

- (1)  $\forall_x (f(x) \wedge \neg p(x))$       (2)  $\exists_x (f(x) \wedge \neg p(x))$   
(3)  $\neg (f(x) \wedge \neg p(x))$       (4)  $\exists_x (\neg f(x) \wedge \neg p(x))$

**Options :**

53622816845. 1  
53622816846. 2  
53622816847. 3  
53622816848. 4

**Question Number : 88 Question Id : 5362284325 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What kind of clauses are available in conjunctive normal form?

- (1) Disjunction of literals  
(2) Disjunction of variables  
(3) Conjunction of literals  
(4) Conjunction of variables.

**Options :**

53622816849. 1  
53622816850. 2  
53622816851. 3  
53622816852. 4

**Question Number : 88 Question Id : 5362284325 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What kind of clauses are available in conjunctive normal form?

- (1) Disjunction of literals
- (2) Disjunction of variables
- (3) Conjunction of literals
- (4) Conjunction of variables.

**Options :**

53622816849. 1  
53622816850. 2  
53622816851. 3  
53622816852. 4

**Question Number : 89 Question Id : 5362284326 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following properties:

- A. Reflexive
- B. Antisymmetric
- C. Symmetric

Let  $A = \{a, b, c, d, e, f, g\}$  and  $R = \{(a, a), (b, b), (c, d), (c, g), (d, g), (e, e), (f, f), (g, g)\}$  be a relation on A. Which of the following property (properties) is (are) satisfied by the relation R?

- (1) Only A
- (2) Only C
- (3) Both A and B
- (4) B and not A

**Options :**

53622816853. 1  
53622816854. 2  
53622816855. 3  
53622816856. 4

**Question Number : 89 Question Id : 5362284326 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following properties:

- A. Reflexive
- B. Antisymmetric
- C. Symmetric

Let  $A = \{a, b, c, d, e, f, g\}$  and  $R = \{(a, a), (b, b), (c, d), (c, g), (d, g), (e, e), (f, f), (g, g)\}$  be a relation on A. Which of the following property (properties) is (are) satisfied by the relation R?

- (1) Only A
- (2) Only C
- (3) Both A and B
- (4) B and not A

**Options :**

53622816853. 1

53622816854. 2

53622816855. 3

53622816856. 4

**Question Number : 90 Question Id : 5362284327 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following argument with premise  $\forall_x(P(x) \vee Q(x))$  and conclusion  $(\forall_x P(x)) \wedge (\forall_x Q(x))$

(A) $\forall_x(P(x) \vee Q(x))$	Premise
(B) $P(c) \vee Q(c)$	Universal instantiation from (A)
(C) $P(c)$	Simplification from (B)
(D) $\forall_x P(x)$	Universal Generalization of (C)
(E) $Q(c)$	Simplification from (B)
(F) $\forall_x Q(x)$	Universal Generalization of (E)
(G) $(\forall_x P(x)) \wedge (\forall_x Q(x))$	Conjunction of (D) and (F)

- (1) This is a valid argument.
- (2) Steps (C) and (E) are not correct inferences
- (3) Steps (D) and (F) are not correct inferences
- (4) Step (G) is not a correct inference

**Options :**

53622816857. 1

53622816858. 2

53622816859. 3

53622816860. 4

Question Number : 90 Question Id : 5362284327 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 2 Wrong Marks : 0

Consider the following argument with premise  $\forall_x(P(x) \vee Q(x))$  and conclusion  $(\forall_x P(x)) \wedge (\forall_x Q(x))$

(A) $\forall_x(P(x) \vee Q(x))$	Premise
(B) $P(c) \vee Q(c)$	Universal instantiation from (A)
(C) $P(c)$	Simplification from (B)
(D) $\forall_x P(x)$	Universal Generalization of (C)
(E) $Q(c)$	Simplification from (B)
(F) $\forall_x Q(x)$	Universal Generalization of (E)
(G) $(\forall_x P(x)) \wedge (\forall_x Q(x))$	Conjunction of (D) and (F)

- (1) This is a valid argument.
- (2) Steps (C) and (E) are not correct inferences
- (3) Steps (D) and (F) are not correct inferences
- (4) Step (G) is not a correct inference

Options :

53622816857. 1  
53622816858. 2  
53622816859. 3  
53622816860. 4

Question Number : 91 Question Id : 5362284328 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 2 Wrong Marks : 0

Which of the following are applications of symbol table?

- (A) Storage allocation
- (B) Checking type compatibility
- (C) Suppressing duplicate error messages

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A), (B) and (C)

Options :

53622816861. 1  
53622816862. 2

53622816863. 3

53622816864. 4

**Question Number : 91 Question Id : 5362284328 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following are applications of symbol table?

- (A) Storage allocation
- (B) Checking type compatibility
- (C) Suppressing duplicate error messages

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) and (B) only | (2) (A) and (C) only |
| (3) (B) and (C) only | (4) (A), (B) and (C) |

**Options :**

53622816861. 1

53622816862. 2

53622816863. 3

53622816864. 4

**Question Number : 92 Question Id : 5362284329 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Simplified expression/s for following Boolean function

$$F(A, B, C, D) = \sum(0, 1, 2, 3, 6, 12, 13, 14, 15) \text{ is/are}$$

- (A)  $A'B' + AB + A'C'D'$
- (B)  $A'B' + AB + A'CD'$
- (C)  $A'B' + AB + BC'D'$
- (D)  $A'B' + AB + BCD'$

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) only         | (2) (B) only         |
| (3) (A) and (B) only | (4) (B) and (D) only |

**Options :**

53622816865. 1

53622816866. 2

53622816867. 3

53622816868. 4

**Question Number : 92 Question Id : 5362284329 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Simplified expression/s for following Boolean function

$F(A, B, C, D) = \Sigma(0, 1, 2, 3, 6, 12, 13, 14, 15)$  is/are

- (A)  $A'B' + AB + A'C'D'$
- (B)  $A'B' + AB + A'CD'$
- (C)  $A'B' + AB + BC'D'$
- (D)  $A'B' + AB + BCD'$

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) only
- (3) (A) and (B) only
- (4) (B) and (D) only

**Options :**

53622816865. 1

53622816866. 2

53622816867. 3

53622816868. 4

**Question Number : 93 Question Id : 5362284330 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements with respect to K-segment pipelining are true?

- (A) Maximum speedup that a pipeline can provide is  $k$  theoretically.
- (B) It is impossible to achieve maximum speedup  $k$  in  $k$ -segment pipeline.
- (C) All segments in pipeline take same time in computation.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (A) and (C) only
- (4) (A), (B) and (C)

**Options :**

53622816869. 1

53622816870. 2

53622816871. 3

53622816872. 4

**Question Number : 93 Question Id : 5362284330 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements with respect to K-segment pipelining are true?

- (A) Maximum speedup that a pipeline can provide is  $k$  theoretically.
- (B) It is impossible to achieve maximum speedup  $k$  in k-segment pipeline.
- (C) All segments in pipeline take same time in computation.

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) and (B) only | (2) (B) and (C) only |
| (3) (A) and (C) only | (4) (A), (B) and (C) |

**Options :**

53622816869. 1  
53622816870. 2  
53622816871. 3  
53622816872. 4

**Question Number : 94 Question Id : 5362284331 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements with respect to multiprocessor system are true?

- (A) Multiprocessor system is controlled by one operating system.
- (B) In Multiprocessor system, multiple computers are connected by the means of communication lines.
- (C) Multiprocessor system is classified as multiple instruction stream and multiple data stream system.

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) only         | (2) (A) and (B) only |
| (3) (A) and (C) only | (4) (B) and (C) only |

**Options :**

53622816873. 1  
53622816874. 2  
53622816875. 3  
53622816876. 4

**Question Number : 94 Question Id : 5362284331 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements with respect to multiprocessor system are true?

- (A) Multiprocessor system is controlled by one operating system.
- (B) In Multiprocessor system, multiple computers are connected by the means of communication lines.
- (C) Multiprocessor system is classified as multiple instruction stream and multiple data stream system.

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (A) and (B) only
- (3) (A) and (C) only
- (4) (B) and (C) only

**Options :**

53622816873. 1  
53622816874. 2  
53622816875. 3  
53622816876. 4

**Question Number : 95 Question Id : 5362284332 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements regarding XML is/are True?

- (A) XML is a set of tags designed to tell browsers how to display text and images in a web page.
- (B) XML defines a syntax for representing data, but the meaning of data varies from application to application.
- (C) <Letter>, <LETTER> and <letter> are three different tags in XML.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only**
- (4) (A), (B) and (C)

**Options :**

53622816877. 1  
53622816878. 2  
53622816879. 3  
53622816880. 4

**Question Number : 95 Question Id : 5362284332 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements regarding XML is/are True?

- (A) XML is a set of tags designed to tell browsers how to display text and images in a web page.
- (B) XML defines a syntax for representing data, but the meaning of data varies from application to application.
- (C)  $< Letter >$ ,  $< LETTER >$  and  $< letter >$  are three different tags in XML.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A), (B) and (C)

**Options :**

53622816877. 1  
53622816878. 2  
53622816879. 3  
53622816880. 4

**Question Number : 96 Question Id : 5362284333 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In the context of 3D Computer graphics, which of the following statements is/are correct?

- (A) Under perspective projection, each set of parallel lines in the object do not stay parallel in the image (except those that are parallel to the viewplane to start with).
- (B) Applying a perspective transformation in the graphics pipeline to a vertex involves dividing by its 'z' coordinate.
- (C) Perspective transformation is a linear transformation.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A), (B) and (C)

**Options :**

53622816881. 1  
53622816882. 2  
53622816883. 3  
53622816884. 4

**Question Number : 96 Question Id : 5362284333 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In the context of 3D Computer graphics, which of the following statements is/are correct?

- (A) Under perspective projection, each set of parallel lines in the object do not stay parallel in the image (except those that are parallel to the viewplane to start with).
- (B) Applying a perspective transformation in the graphics pipeline to a vertex involves dividing by its 'z' coordinate.
- (C) Perspective transformation is a linear transformation.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A), (B) and (C)

**Options :**

- 53622816881. 1
- 53622816882. 2
- 53622816883. 3
- 53622816884. 4

**Question Number : 97 Question Id : 5362284334 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Concerning phong shading and Gouraud shading in a 3D scene, which of the following statements are true?

- (A) Gouraud shading requires more computation than phong shading.
- (B) Gouraud shading linearly interpolates the color of an interior pixel from the color at the vertices.
- (C) Phong shading interpolates over the normal vectors specified at the vertices.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only**
- (4) (A), (B) and (C)

**Options :**

- 53622816885. 1
- 53622816886. 2
- 53622816887. 3
- 53622816888. 4

**Question Number : 97 Question Id : 5362284334 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Concerning phong shading and Gouraud shading in a 3D scene, which of the following statements are true?

- (A) Gouraud shading requires more computation than phong shading.
- (B) Gouraud shading linearly interpolates the color of an interior pixel from the color at the vertices.
- (C) Phong shading interpolates over the normal vectors specified at the vertices.

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) and (B) only | (2) (A) and (C) only |
| (3) (B) and (C) only | (4) (A), (B) and (C) |

**Options :**

- 53622816885. 1
- 53622816886. 2
- 53622816887. 3
- 53622816888. 4

**Question Number : 98 Question Id : 5362284335 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In the context of concurrency control, a given pair of operations in a schedule is called conflict schedule if

- (A) At least one of the operations is write operation.
- (B) Both the operations are performed on the same data item.
- (C) Both the operations are performed by different transactions.
- (D) Both the operations are performed on different data items.

Choose the correct answer from the options given below:

- |                           |                           |
|---------------------------|---------------------------|
| (1) (A) and (B) only      | (2) (A), (B) and (C) only |
| (3) (A), (C) and (D) only | (4) (C) and (D) only      |

**Options :**

- 53622816889. 1
- 53622816890. 2
- 53622816891. 3
- 53622816892. 4

**Question Number : 98 Question Id : 5362284335 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In the context of concurrency control, a given pair of operations in a schedule is called conflict schedule if

- (A) At least one of the operations is write operation.
- (B) Both the operations are performed on the same data item.
- (C) Both the operations are performed by different transactions.
- (D) Both the operations are performed on different data items.

Choose the correct answer from the options given below:

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

**Options :**

53622816889. 1  
53622816890. 2  
53622816891. 3  
53622816892. 4

**Question Number : 99 Question Id : 5362284336 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Software reliability is described with respect to

- (A) Execution Time
- (B) Calendar Time
- (C) Clock Time

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (A), (B) and (C)
- (4) (A) and (C) only

**Options :**

53622816893. 1  
53622816894. 2  
53622816895. 3  
53622816896. 4

**Question Number : 99 Question Id : 5362284336 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Software reliability is described with respect to

- (A) Execution Time
- (B) Calendar Time
- (C) Clock Time

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (A), (B) and (C)
- (4) (A) and (C) only

**Options :**

- 53622816893. 1
- 53622816894. 2
- 53622816895. 3
- 53622816896. 4

**Question Number : 100 Question Id : 5362284337 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

To create an object-behavioral model, the analyst performs the following steps:

- (A) Evaluates all use-cases
- (B) Builds state transition diagram for the system.
- (C) Reviews the object behaviour model to verify accuracy and consistency
- (D) Identifies events that do not derive the interaction sequence.

Choose the correct answer from the options given below:

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

**Options :**

- 53622816897. 1
- 53622816898. 2
- 53622816899. 3
- 53622816900. 4

**Question Number : 100 Question Id : 5362284337 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

To create an object-behavioral model, the analyst performs the following steps:

- (A) Evaluates all use-cases
- (B) Builds state transition diagram for the system.
- (C) Reviews the object behaviour model to verify accuracy and consistency
- (D) Identifies events that do not derive the interaction sequence.

Choose the correct answer from the options given below:

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

**Options :**

53622816897. 1  
53622816898. 2  
53622816899. 3  
53622816900. 4

**Question Number : 101 Question Id : 5362284338 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is/are behavioral testing technique(s)?

- (A) Equivalence Partitioning
- (B) Graph-Based Testing Method
- (C) Boundary Value Analysis
- (D) Data flow Testing
- (E) Loop Testing

Choose the correct answer from the options given below:

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

**Options :**

53622816901. 1  
53622816902. 2  
53622816903. 3  
53622816904. 4

**Question Number : 101 Question Id : 5362284338 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is/are behavioral testing technique(s)?

- (A) Equivalence Partitioning
- (B) Graph-Based Testing Method
- (C) Boundary Value Analysis
- (D) Data flow Testing
- (E) Loop Testing

Choose the correct answer from the options given below:

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

**Options :**

- 53622816901. 1
- 53622816902. 2
- 53622816903. 3
- 53622816904. 4

**Question Number : 102 Question Id : 5362284339 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The running time of an algorithm is  $O(g(n))$  if and only if

- (A) its worst-case running time is  $O(g(n))$  and its best-case running time is  $\Omega(g(n))$ . ( $O = \text{big } O$ )
- (B) its worst-case running time is  $\Omega(g(n))$  and its best-case running time is  $O(g(n))$ . ( $O = \text{big } O$ )
- (C)  $O(g(n)) = \Omega(g(n))$  ( $O = \text{big } O$ )
- (D)  $O(g(n)) \cap \omega(g(n))$  is non-empty set. ( $o = \text{small } o$ )

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) only
- (3) (C) only
- (4) (D) only

**Options :**

- 53622816905. 1
- 53622816906. 2
- 53622816907. 3
- 53622816908. 4

**Question Number : 102 Question Id : 5362284339 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The running time of an algorithm is  $O(g(n))$  if and only if

- (A) its worst-case running time is  $O(g(n))$  and its best-case running time is  $\Omega(g(n))$ . ( $O = \text{big } O$ )
- (B) its worst-case running time is  $\Omega(g(n))$  and its best-case running time is  $O(g(n))$ . ( $O = \text{big } O$ )
- (C)  $O(g(n)) = \Omega(g(n))$  ( $O = \text{big } O$ )
- (D)  $O(g(n)) \cap \omega(g(n))$  is non-empty set. ( $\omega = \text{small } o$ )

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) only
- (3) (C) only
- (4) (D) only

**Options :**

53622816905. 1

53622816906. 2

53622816907. 3

53622816908. 4

**Question Number : 103 Question Id : 5362284340 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following statements:

- (A) Any tree is 2-colorable
- (B) A graph G has no cycles of even length if it is bipartite.
- (C) A graph G is 2-colorable if is bipartite
- (D) A graph G can be colored with  $d+1$  colors if d is the maximum degree of any vertex in the graph G.
- (E) A graph G can be colored with  $O(\log|v|)$  colors if it has  $O(|v|)$  edges.

Choose the correct answer from the options given below:

- (1) (C) and (E) are incorrect
- (2) (B) and (C) are incorrect
- (3) (B) and (E) are incorrect
- (4) (A) and (D) are incorrect

**Options :**

53622816909. 1

53622816910. 2

53622816911. 3

53622816912. 4

**Question Number : 103 Question Id : 5362284340 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following statements:

- (A) Any tree is 2-colorable
- (B) A graph G has no cycles of even length if it is bipartite.
- (C) A graph G is 2-colorable if is bipartite
- (D) A graph G can be colored with  $d+1$  colors if d is the maximum degree of any vertex in the graph G.
- (E) A graph G can be colored with  $O(\log|v|)$  colors if it has  $O(|v|)$  edges.

Choose the correct answer from the options given below:

- (1) (C) and (E) are incorrect
- (2) (B) and (C) are incorrect
- (3) (B) and (E) are incorrect
- (4) (A) and (D) are incorrect

**Options :**

53622816909. 1  
53622816910. 2  
53622816911. 3  
53622816912. 4

**Question Number : 104 Question Id : 5362284341 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which among the following statement(s) is (are) true?

- (A) A hash function takes a message of arbitrary length and generates a fixed length code.
- (B) A hash function takes a message of fixed length and generates a code of variable length.
- (C) A hash function may give same hash value for distinct messages.

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) and (C) only
- (3) (A) and (C) only
- (4) (B) only

**Options :**

53622816913. 1  
53622816914. 2  
53622816915. 3  
53622816916. 4

**Question Number : 104 Question Id : 5362284341 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which among the following statement(s) is (are) true?

- (A) A hash function takes a message of arbitrary length and generates a fixed length code.
- (B) A hash function takes a message of fixed length and generates a code of variable length.
- (C) A hash function may give same hash value for distinct messages.

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) and (C) only
- (3) (A) and (C) only
- (4) (B) only

**Options :**

53622816913. 1  
53622816914. 2  
53622816915. 3  
53622816916. 4

**Question Number : 105 Question Id : 5362284342 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $G_1$  and  $G_2$  be arbitrary context free languages and R an arbitrary regular language.  
Consider the following problems:

- (A) Is  $L(G_1) = L(G_2)$ ?
- (B) Is  $L(G_2) \leq L(G_1)$ ?
- (C) Is  $L(G_1) = R$ ?

Which of the problems are undecidable?

Choose the correct answer from the options given below:

- (1) (A) only
- (2) (B) only
- (3) (A) and (B) only
- (4) (A), (B) and (C)

**Options :**

53622816917. 1  
53622816918. 2  
53622816919. 3  
53622816920. 4

**Question Number : 105 Question Id : 5362284342 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $G_1$  and  $G_2$  be arbitrary context free languages and R an arbitrary regular language. Consider the following problems:

- (A) Is  $L(G_1) = L(G_2)$ ?
- (B) Is  $L(G_2) \leq L(G_1)$ ?
- (C) Is  $L(G_1) = R$ ?

Which of the problems are undecidable?

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) only         | (2) (B) only         |
| (3) (A) and (B) only | (4) (A), (B) and (C) |

**Options :**

- 53622816917. 1
- 53622816918. 2
- 53622816919. 3
- 53622816920. 4

**Question Number : 106 Question Id : 5362284343 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following languages:

$$L_1 = \{a^{\hat{z}^x} \mid \hat{z} \text{ is an integer}\}$$

$$L_2 = \{a^{z\hat{z}} \mid \hat{z} \geq 0\}$$

$$L_3 = \{\omega\omega \mid \omega \in \{a,b\}^*\}$$

Which of the languages is (are) regular?

Choose the correct answer from the options given below:

- |                          |                          |
|--------------------------|--------------------------|
| (1) $L_1$ and $L_2$ only | (2) $L_1$ and $L_3$ only |
| (3) $L_1$ only           | (4) $L_2$ only           |

**Options :**

- 53622816921. 1
- 53622816922. 2
- 53622816923. 3
- 53622816924. 4

**Question Number : 106 Question Id : 5362284343 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following languages:

$$L_1 = \{a^{z^2} \mid z \text{ is an integer}\}$$

$$L_2 = \{a^{zz} \mid z \geq 0\}$$

$$L_3 = \{\omega\omega \mid \omega \in \{a,b\}^*\}$$

Which of the languages is (are) regular?

Choose the correct answer from the options given below:

- |                          |                          |
|--------------------------|--------------------------|
| (1) $L_1$ and $L_2$ only | (2) $L_1$ and $L_3$ only |
| (3) $L_1$ only           | (4) $L_2$ only           |

**Options :**

53622816921. 1  
53622816922. 2  
53622816923. 3  
53622816924. 4

**Question Number : 107 Question Id : 5362284344 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following grammars is (are) ambiguous?

- (A)  $s \rightarrow ss \mid asb \mid bsa \mid \lambda$   
(B)  $s \rightarrow asbs \mid bsas \mid \lambda$   
(C)  $s \rightarrow aAB$

$$A \rightarrow bBb$$

$$B \rightarrow A|\lambda \text{ where } \lambda \text{ denotes empty string}$$

Choose the correct answer from the options given below:

- |                      |                      |
|----------------------|----------------------|
| (1) (A) and (C) only | (2) (B) only         |
| (3) (B) and (C) only | (4) (A) and (B) only |

**Options :**

53622816925. 1  
53622816926. 2  
53622816927. 3  
53622816928. 4

**Question Number : 107 Question Id : 5362284344 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following grammars is (are) ambiguous?

(A)  $s \rightarrow ss \mid asb \mid bsa \mid \lambda$

(B)  $s \rightarrow asbs \mid bsas \mid \lambda$

(C)  $s \rightarrow aAB$

$A \rightarrow bBb$

$B \rightarrow A \mid \lambda$  where  $\lambda$  denotes empty string

Choose the correct answer from the options given below:

(1) (A) and (C) only

(2) (B) only

(3) (B) and (C) only

(4) (A) and (B) only

**Options :**

53622816925. 1

53622816926. 2

53622816927. 3

53622816928. 4

**Question Number : 108 Question Id : 5362284345 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following cloud concept/s is/are related to pooling and sharing of resources?

(A) Virtual Memory

(B) Service

(C) Virtualization

Choose the correct answer from the options given below:

(1) (C) only

(2) (A) and (B) only

(3) (A) only

(4) (B) only

**Options :**

53622816929. 1

53622816930. 2

53622816931. 3

53622816932. 4

**Question Number : 108 Question Id : 5362284345 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following cloud concept/s is/are related to pooling and sharing of resources?

- (A) Virtual Memory
- (B) Service
- (C) Virtualization

Choose the correct answer from the options given below:

- |              |                      |
|--------------|----------------------|
| (1) (C) only | (2) (A) and (B) only |
| (3) (A) only | (4) (B) only         |

**Options :**

53622816929. 1  
53622816930. 2  
53622816931. 3  
53622816932. 4

**Question Number : 109 Question Id : 5362284346 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Post office protocol (POP) is a message access protocol which is used to extract message for client. In this regard, which of the following are true?

- (A) POP has two modes, Delete mode and keep
- (B) In Delete mode, mail is deleted from mail box after each retrieval
- (C) In Delete mode, mail is deleted from mail box before each retrieval
- (D) In keep mode, mail is deleted before retrieval
- (E) In keep mode, mail remains in mail box after retrieval

Choose the correct answer from the options given below:

- |                                |                           |
|--------------------------------|---------------------------|
| (1) (A) and (B) only           | (2) (A), (D) and (E) only |
| (3) (A), (B), (C) and (D) only | (4) (A), (B) and (E) only |

**Options :**

53622816933. 1  
53622816934. 2  
53622816935. 3  
53622816936. 4

**Question Number : 109 Question Id : 5362284346 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Post office protocol (POP) is a message access protocol which is used to extract message for client. In this regard, which of the following are true?

- (A) POP has two modes, Delete mode and keep
- (B) In Delete mode, mail is deleted from mail box after each retrieval
- (C) In Delete mode, mail is deleted from mail box before each retrieval
- (D) In keep mode, mail is deleted before retrieval
- (E) In keep mode, mail remains in mail box after retrieval

Choose the correct answer from the options given below:

- |                                |                           |
|--------------------------------|---------------------------|
| (1) (A) and (B) only           | (2) (A), (D) and (E) only |
| (3) (A), (B), (C) and (D) only | (4) (A), (B) and (E) only |

**Options :**

53622816933. 1  
53622816934. 2  
53622816935. 3  
53622816936. 4

**Question Number : 110 Question Id : 5362284347 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Firewall is a device that filters access to the protected network from the outside network. Firewalls can filter the packets on the basis of

- (A) Source IP Address
- (B) Destination IP Address
- (C) TCP Source Port
- (D) UDP Source Port
- (E) TCP Destination Port

Choose the correct answer from the options given below:

- |                           |                                     |
|---------------------------|-------------------------------------|
| (1) (A), (B) and (C) only | (2) (B) and (E) only                |
| (3) (C) and (D) only      | (4) (A), (B), (C), (D) and (E) only |

**Options :**

53622816937. 1  
53622816938. 2  
53622816939. 3  
53622816940. 4

**Question Number : 110 Question Id : 5362284347 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Firewall is a device that filters access to the protected network from the outside network. Firewalls can filter the packets on the basis of

- (A) Source IP Address
- (B) Destination IP Address
- (C) TCP Source Port
- (D) UDP Source Port
- (E) TCP Destination Port

Choose the correct answer from the options given below:

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

**Options :**

- 53622816937. 1
- 53622816938. 2
- 53622816939. 3
- 53622816940. 4

**Question Number : 111 Question Id : 5362284348 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the statement below.

A person who is radical (R) is electable (E) if he/she is conservative (C), but otherwise is not electable.

Few probable logical assertions of the above sentence are given below.

- (A)  $(R \wedge E) \Leftrightarrow C$
- (B)  $R \Rightarrow (E \Leftrightarrow C)$
- (C)  $R \Rightarrow ((C \Rightarrow E) \vee \neg E)$
- (D)  $(\neg R \vee \neg E \vee C) \wedge (\neg R \vee \neg C \vee E)$

Which of the above logical assertions are true?

Choose the correct answer from the options given below:

- (1) (B) only
- (2) (C) only
- (3) (A) and (C) only
- (4) (B) and (D) only

**Options :**

- 53622816941. 1
- 53622816942. 2
- 53622816943. 3
- 53622816944. 4

**Question Number : 111 Question Id : 5362284348 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the statement below.

A person who is radical (R) is electable (E) if he/she is conservative (C), but otherwise is not electable.

Few probable logical assertions of the above sentence are given below.

- (A)  $(R \wedge E) \Leftrightarrow C$
- (B)  $R \Rightarrow (E \Leftrightarrow C)$
- (C)  $R \Rightarrow ((C \Rightarrow E) \vee \neg E)$
- (D)  $(\neg R \vee \neg E \vee C) \wedge (\neg R \vee \neg C \vee E)$

Which of the above logical assertions are true?

Choose the correct answer from the options given below:

- (1) (B) only
- (2) (C) only
- (3) (A) and (C) only
- (4) (B) and (D) only

**Options :**

53622816941. 1  
53622816942. 2  
53622816943. 3  
53622816944. 4

**Question Number : 112 Question Id : 5362284349 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements are true?

- (A) A sentence  $\alpha$  entails another sentence  $\beta$  if  $\beta$  is true in few worlds where  $\alpha$  is true.
- (B) Forward chaining and backward chaining are very natural reasoning algorithms for knowledge bases in Horn form.
- (C) Sound inference algorithms derive all sentences that are entailed.
- (D) Propositional logic does not scale to environments of unbounded size.

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (C) and (D) only
- (4) (B) and (D) only

**Options :**

53622816945. 1  
53622816946. 2  
53622816947. 3  
53622816948. 4

**Question Number : 112 Question Id : 5362284349 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements are true?

- (A) A sentence  $\alpha$  entails another sentence  $\beta$  if  $\beta$  is true in few worlds where  $\alpha$  is true.
- (B) Forward chaining and backward chaining are very natural reasoning algorithms for knowledge bases in Horn form.
- (C) Sound inference algorithms derive all sentences that are entailed.
- (D) Propositional logic does not scale to environments of unbounded size.

Choose the correct answer from the options given below:

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

**Options :**

53622816945. 1

53622816946. 2

53622816947. 3

53622816948. 4

**Question Number : 113 Question Id : 5362284350 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements are true?

- (A) Minimax search is breadth-first; it processes all the nodes at a level before moving to a node in next level.
- (B) The effectiveness of the alpha-beta pruning is highly dependent on the order in which the states are examined.
- (C) The alpha-beta search algorithm computes the same optimal moves as minimax algorithm.
- (D) Optimal play in games of imperfect information does not require reasoning about the current and future belief states of each player.

Choose the correct answer from the options given below:

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

**Options :**

53622816949. 1

53622816950. 2

53622816951. 3

53622816952. 4

**Question Number : 113 Question Id : 5362284350 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following statements are true?

- (A) Minimax search is breadth-first; it processes all the nodes at a level before moving to a node in next level.
- (B) The effectiveness of the alpha-beta pruning is highly dependent on the order in which the states are examined.
- (C) The alpha-beta search algorithm computes the same optimal moves as minimax algorithm.
- (D) Optimal play in games of imperfect information does not require reasoning about the current and future belief states of each player.

Choose the correct answer from the options given below:

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

**Options :**

53622816949. 1

53622816950. 2

53622816951. 3

53622816952. 4

**Question Number : 114 Question Id : 5362284351 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

Let  $R_1 = \{(1,1), (2,2), (3,3)\}$  and  $R_2 = \{(1,1), (1,2), (1,3), (1,4)\}$

List I	List II
--------	---------

- |                    |  |
|--------------------|--|
| (A) $R_1 \cup R_2$ | (I) $\{(1,1), (1,2), (1,3), (1,4), (2,2), (3,3)\}$ |
| (B) $R_1 - R_2$    | (II) $\{(1,1)\}$                                   |
| (C) $R_1 \cap R_2$ | (III) $\{(1,2), (1,3), (1,4)\}$                    |
| (D) $R_2 - R_1$    | (IV) $\{(2,2), (3,3)\}$                            |

Choose the correct answer from the options given below:

- |                            |                            |
|----------------------------|----------------------------|
| (1) A-I, B-II, C-IV, D-III | (2) A-I, B-IV, C-III, D-II |
| (3) A-I, B-III, C-II, D-IV | (4) A-I, B-IV, C-II, D-III |

**Options :**

53622816953. 1

53622816954. 2

53622816955. 3

53622816956. 4

**Question Number : 114 Question Id : 5362284351 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

Let  $R_1 = \{(1,1), (2,2), (3,3)\}$  and  $R_2 = \{(1,1), (1,2), (1,3), (1,4)\}$

List I	List II
(A) $R_1 \cup R_2$	(I) $\{(1,1), (1,2), (1,3), (1,4), (2,2), (3,3)\}$
(B) $R_1 - R_2$	(II) $\{(1,1)\}$
(C) $R_1 \cap R_2$	(III) $\{(1,2), (1,3), (1,4)\}$
(D) $R_2 - R_1$	(IV) $\{(2,2), (3,3)\}$

Choose the correct answer from the options given below:

- |                            |                            |
|----------------------------|----------------------------|
| (1) A-I, B-II, C-IV, D-III | (2) A-I, B-IV, C-III, D-II |
| (3) A-I, B-III, C-II, D-IV | (4) A-I, B-IV, C-II, D-III |

**Options :**

53622816953. 1  
53622816954. 2  
53622816955. 3  
53622816956. 4

**Question Number : 115 Question Id : 5362284352 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

List I	List II
(A) Handshaking	(I) I/O interface informs the CPU that device is ready for transfer
(B) Programmed I/O	(II) requires two control signals working in opposite directions
(C) Interrupt-initiated I/O	(III) has local memory & control large set of I/O devices.
(D) I/O processor	(IV) require CPU to check the I/O flag & perform transfer

Choose the correct answer from the options given below:

- |                                   |                            |
|-----------------------------------|----------------------------|
| (1) A-I, B-II, C-III, D-IV        | (2) A-II, B-IV, C-III, D-I |
| <b>(3)</b> A-II, B-IV, C-I, D-III | (4) A-IV, B-III, C-II, D-I |

**Options :**

53622816957. 1  
53622816958. 2  
53622816959. 3  
53622816960. 4

**Question Number : 115 Question Id : 5362284352 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

List I	List II
(A) Handshaking	(I) I/O interface informs the CPU that device is ready for transfer
(B) Programmed I/O	(II) requires two control signals working in opposite directions
(C) Interrupt-initiated I/O	(III) has local memory & control large set of I/O devices.
(D) I/O processor	(IV) require CPU to check the I/O flag & perform transfer

Choose the correct answer from the options given below:

- |                            |                            |
|----------------------------|----------------------------|
| (1) A-I, B-II, C-III, D-IV | (2) A-II, B-IV, C-III, D-I |
| (3) A-II, B-IV, C-I, D-III | (4) A-IV, B-III, C-II, D-I |

**Options :**

53622816957. 1

53622816958. 2

53622816959. 3

53622816960. 4

**Question Number : 116 Question Id : 5362284353 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List-I with List-II. List I gives 3x3 matrices representing 2D transformations and List-II shows the corresponding transformation diagrams.

List I (Matrix)

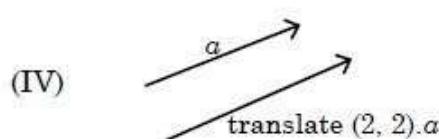
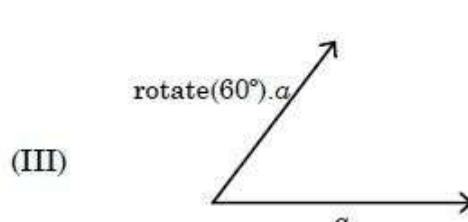
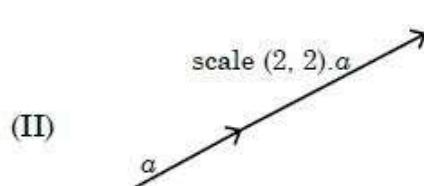
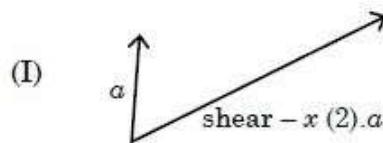
(A)  $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(B)  $\begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$

(C)  $\begin{bmatrix} 0.5 & -0.866 & 0 \\ 0.866 & 0.5 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(D)  $\begin{bmatrix} 1 & 2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

List II (Transformation Diagram)



Choose the correct answer from the options given below:

(1) A-IV, B-II, C-III, D-I

(3) A-III, B-II, C-IV, D-I

(2) A-IV, B-III, C-II, D-I

(4) A-II, B-IV, C-III, D-I

**Options :**

53622816961. 1

53622816962. 2

53622816963. 3

53622816964. 4

**Question Number : 116 Question Id : 5362284353 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List-I with List-II. List I gives 3x3 matrices representing 2D transformations and List-II shows the corresponding transformation diagrams.

List I (Matrix)

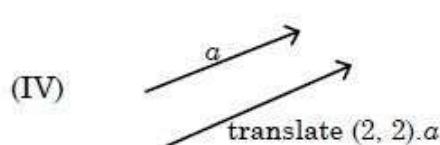
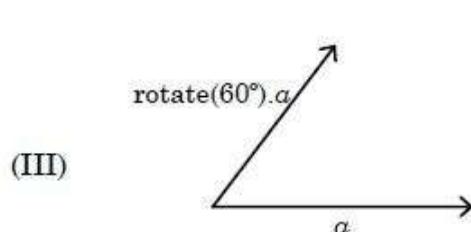
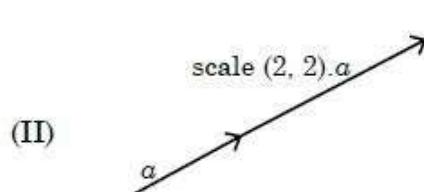
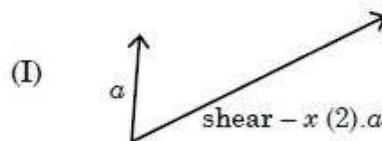
(A)  $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(B)  $\begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$

(C)  $\begin{bmatrix} 0.5 & -0.866 & 0 \\ 0.866 & 0.5 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(D)  $\begin{bmatrix} 1 & 2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

List II (Transformation Diagram)



Choose the correct answer from the options given below:

(1) A-IV, B-II, C-III, D-I

(2) A-IV, B-III, C-II, D-I

(3) A-III, B-II, C-IV, D-I

(4) A-II, B-IV, C-III, D-I

**Options :**

53622816961. 1

53622816962. 2

53622816963. 3

53622816964. 4

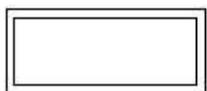
**Question Number : 117 Question Id : 5362284354 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II.

List I (E-R symbols)

(A)



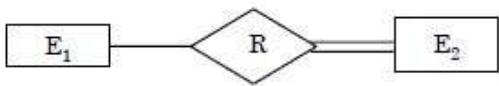
(B)



(C)



(D)



List II (Description)

(I) Key Attribute Type

(II) Weak Entity Type

(III) Total Participation of Entity in a relation

(IV) Multivalue Attribute type

Choose the correct answer from the options given below:

- (1) A-II, B-IV, C-III, D-I
- (2) A-IV, B-I, C-II, D-III
- (3)** A-II, B-I, C-IV, D-III
- (4) A-III, B-IV, C-I, D-II

Options :

53622816965. 1

53622816966. 2

53622816967. 3

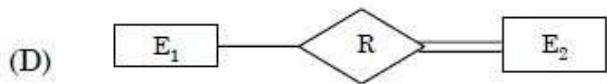
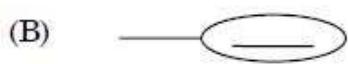
53622816968. 4

Question Number : 117 Question Id : 5362284354 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 2 Wrong Marks : 0

Match List I with List II.

List I (E-R symbols)



List II (Description)

(I) Key Attribute Type

(II) Weak Entity Type

(III) Total Participation of Entity in a relation

(IV) Multivalue Attribute type

Choose the correct answer from the options given below:

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

Options :

53622816965. 1

53622816966. 2

53622816967. 3

53622816968. 4

Question Number : 118 Question Id : 5362284355 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 2 Wrong Marks : 0

**Match List I with List II**

With reference to CMM developed by Software Engineering Institute (SEI)

List I	List II
(A) INITIAL	(I) Process measurement
(B) REPEATABLE	(II) Process definition
(C) DEFINED	(III) Project management
(D) MANAGED	(IV) ADHOC

Choose the correct answer from the options given below:

- (1) A-III, B-IV, C-II, D-I
- (2) A-IV, B-III, C-I, D-II
- (3)** A-IV, B-III, C-II, D-I
- (4) A-III, B-IV, C-I, D-II

**Options :**

- 53622816969. 1
- 53622816970. 2
- 53622816971. 3
- 53622816972. 4

**Question Number : 118 Question Id : 5362284355 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

With reference to CMM developed by Software Engineering Institute (SEI)

List I	List II
(A) INITIAL	(I) Process measurement
(B) REPEATABLE	(II) Process definition
(C) DEFINED	(III) Project management
(D) MANAGED	(IV) ADHOC

Choose the correct answer from the options given below:

- (1) A-III, B-IV, C-II, D-I
- (2) A-IV, B-III, C-I, D-II
- (3)** A-IV, B-III, C-II, D-I
- (4) A-III, B-IV, C-I, D-II

**Options :**

- 53622816969. 1
- 53622816970. 2
- 53622816971. 3

53622816972. 4

**Question Number : 119 Question Id : 5362284356 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Branch-and-bound	(I) Keeps track of all partial paths which can be candidate for further exploration.
(B) Steepest-ascent hill climbing	(II) Detects difference between current state and goal state
(C) Constraint satisfaction	(III) Discovers problem state(s) that satisfy a set of constraints.
(D) Means-end-analysis	(IV) Considers all moves from current state and selects best move

Choose the correct answer from the options given below:

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

**Options :**

53622816973. 1

53622816974. 2

53622816975. 3

53622816976. 4

**Question Number : 119 Question Id : 5362284356 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Branch-and-bound	(I) Keeps track of all partial paths which can be candidate for further exploration.
(B) Steepest-ascent hill climbing	(II) Detects difference between current state and goal state
(C) Constraint satisfaction	(III) Discovers problem state(s) that satisfy a set of constraints.
(D) Means-end-analysis	(IV) Considers all moves from current state and selects best move

Choose the correct answer from the options given below:

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

**Options :**

- 53622816973. 1
- 53622816974. 2
- 53622816975. 3
- 53622816976. 4

**Question Number : 120 Question Id : 5362284357 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Topological sort of DAG	(I) $O(V + E)$
(B) Kruskal's MST algorithm	(II) $O(VE)$
(C) Bellman-Ford's single-source shortest path algorithm	(III) $\theta(V + E)$
(D) Floyd-Warshall's all-pair shortest path algorithm	(IV) $\theta(V^3)$

Choose the correct answer from the options given below:

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

**Options :**

53622816977. 1  
53622816978. 2  
53622816979. 3  
53622816980. 4

**Question Number : 120 Question Id : 5362284357 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Topological sort of DAG	(I) $O(V + E)$
(B) Kruskal's MST algorithm	(II) $O(VE)$
(C) Bellman-Ford's single-source shortest path algorithm	(III) $\theta(V + E)$
(D) Floyd-Warshall's all-pair shortest path algorithm	(IV) $\theta(V^3)$

Choose the correct answer from the options given below:

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

**Options :**

53622816977. 1

53622816978. 2

53622816979. 3

53622816980. 4

**Question Number : 121 Question Id : 5362284358 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II:

$L_R$ : Regular language, LCF: Context free language

$L_{REC}$ : Recursive language,  $L_{RE}$ : Recursively enumerable language.

List I

List II

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| (A) Recursively Enumerable language | (I) $\overline{L_{REC}} \cup L_{RE}$  |
| (B) Recursive language              | (II) $\overline{L_{CF}} \cup L_{REC}$ |
| (C) Context Free language           | (III) $L_R^* \cap L_{CF}$             |

Choose the correct answer from the options given below:

- |                             |                      |
|-----------------------------|----------------------|
| (1) A-II, B-III, C-I        | (2) A-III, B-I, C-II |
| <b>(3)</b> A-I, B-II, C-III | (4) A-II, B-I, C-III |

**Options :**

53622816981. 1

53622816982. 2

53622816983. 3

53622816984. 4

**Question Number : 121 Question Id : 5362284358 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II:

$L_R$ : Regular language, LCF: Context free language

$L_{REC}$ : Recursive language,  $L_{RE}$ : Recursively enumerable language.

List I

List II

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| (A) Recursively Enumerable language | (I) $\overline{L_{REC}} \cup L_{RE}$  |
| (B) Recursive language              | (II) $\overline{L_{CF}} \cup L_{REC}$ |
| (C) Context Free language           | (III) $L_R^* \cap L_{CF}$             |

Choose the correct answer from the options given below:

- |                             |                      |
|-----------------------------|----------------------|
| (1) A-II, B-III, C-I        | (2) A-III, B-I, C-II |
| <b>(3)</b> A-I, B-II, C-III | (4) A-II, B-I, C-III |

**Options :**

53622816981. 1

53622816982. 2

53622816983. 3

53622816984. 4

**Question Number : 122 Question Id : 5362284359 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Serial Line IP (SLIP)	(I) Application layer
(B) Border Gateway Protocol (BGP)	(II) Transport layer
(C) User Data Protocol (UDP)	(III) Data Link layer
(D) Simple Network Management Protocol	(IV) Network layer

Choose the correct answer from the options given below:

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

**Options :**

53622816985. 1

53622816986. 2

53622816987. 3

53622816988. 4

**Question Number : 122 Question Id : 5362284359 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Match List I with List II

List I	List II
(A) Serial Line IP (SLIP)	(I) Application layer
(B) Border Gateway Protocol (BGP)	(II) Transport layer
(C) User Data Protocol (UDP)	(III) Data Link layer
(D) Simple Network Management Protocol	(IV) Network layer

Choose the correct answer from the options given below:

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

**Options :**

53622816985. 1

53622816986. 2

53622816987. 3

53622816988. 4

**Question Number : 123 Question Id : 5362284360 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

List I	List II
(A) Greedy Best-First Search	(I) Space complexity is $O(d)$ where $d=$ depth of the deepest optimal solution
(B) A*	(II) Incomplete even if the search space is finite.
(C) Recursive Best-First Search	(III) Optimal if optimal solution is reachable; otherwise, returns the best reachable optimal solution.
(D) SMA*	(IV) Computation and space complexity is too high.

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

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

**Options :**

53622816989. 1  
53622816990. 2  
53622816991. 3  
53622816992. 4

**Question Number : 123 Question Id : 5362284360 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

**Match List I with List II**

List I	List II
(A) Greedy Best-First Search	(I) Space complexity is $O(d)$ where $d=$ depth of the deepest optimal solution
(B) A*	(II) Incomplete even if the search space is finite.
(C) Recursive Best-First Search	(III) Optimal if optimal solution is reachable; otherwise, returns the best reachable optimal solution.
(D) SMA*	(IV) Computation and space complexity is too high.

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

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

**Options :**

53622816989. 1

53622816990. 2

53622816991. 3

53622816992. 4

**Question Number : 124 Question Id : 5362284361 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Find the lexicographic ordering of the bit strings given below based on the ordering  $0 < 1$ .

- (A) 001
- (B) 010
- (C) 011
- (D) 0001
- (E) 0101

Choose the correct answer from the options given below:

- (1)  $001 < 010 < 011 < 0001 < 0101$
- (2)  $0001 < 001 < 010 < 0101 < 011$
- (3)  $0001 < 0101 < 001 < 010 < 011$
- (4)  $001 < 010 < 0001 < 0101 < 011$

**Options :**

53622816993. 1

53622816994. 2

53622816995. 3

53622816996. 4

**Question Number : 124 Question Id : 5362284361 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Find the lexicographic ordering of the bit strings given below based on the ordering  $0 < 1$ .

- (A) 001
- (B) 010
- (C) 011
- (D) 0001
- (E) 0101

Choose the correct answer from the options given below:

- (1)  $001 < 010 < 011 < 0001 < 0101$
- (2)  $0001 < 001 < 010 < 0101 < 011$
- (3)  $0001 < 0101 < 001 < 010 < 011$
- (4)  $001 < 010 < 0001 < 0101 < 011$

**Options :**

53622816993. 1

53622816994. 2

53622816995. 3

53622816996. 4

**Question Number : 125 Question Id : 5362284362 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Arrange the following types of machine in descending order of complexity.

- (A) SISD
- (B) MIMD
- (C) SIMD

Choose the correct answer from the options given below:

- |                    |             |
|--------------------|-------------|
| (1) A, B, C        | (2) C, B, A |
| <b>(3) B, C, A</b> | (4) C, A, B |

**Options :**

53622816997. 1  
53622816998. 2  
53622816999. 3  
53622817000. 4

**Question Number : 125 Question Id : 5362284362 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Arrange the following types of machine in descending order of complexity.

- (A) SISD
- (B) MIMD
- (C) SIMD

Choose the correct answer from the options given below:

- |                    |             |
|--------------------|-------------|
| (1) A, B, C        | (2) C, B, A |
| <b>(3) B, C, A</b> | (4) C, A, B |

**Options :**

53622816997. 1  
53622816998. 2  
53622816999. 3  
53622817000. 4

**Question Number : 126 Question Id : 5362284363 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are different properties of 3D projections from A-D. Identify the correct order on the basis of property true of (i) a perspective projection only, (ii) an orthographic projection only, (iii) both orthographic and projective transformations and (iv) neither orthographic nor projective transformation, respectively.

- (A) Straight lines are mapped to straight lines.
- (B) Distances and angles are (in general) preserved.
- (C) Far away objects appear the same size as closer ones.
- (D) Requires homogeneous coordinates in order for it to be encoded into a linear transformation.

Choose the correct answer from the options given below:

- (1) D, C, B, A
- (2) B, C, D, A
- (3) D, C, A, B**
- (4) C, D, B, A

**Options :**

53622817001. 1

53622817002. 2

53622817003. 3

53622817004. 4

**Question Number : 126 Question Id : 5362284363 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are different properties of 3D projections from A-D. Identify the correct order on the basis of property true of (i) a perspective projection only, (ii) an orthographic projection only, (iii) both orthographic and projective transformations and (iv) neither orthographic nor projective transformation, respectively.

- (A) Straight lines are mapped to straight lines.
- (B) Distances and angles are (in general) preserved.
- (C) Far away objects appear the same size as closer ones.
- (D) Requires homogeneous coordinates in order for it to be encoded into a linear transformation.

Choose the correct answer from the options given below:

- (1) D, C, B, A
- (2) B, C, D, A
- (3) D, C, A, B**
- (4) C, D, B, A

**Options :**

53622817001. 1

53622817002. 2

53622817003. 3

53622817004. 4

**Question Number : 127 Question Id : 5362284364 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Arrange the following types of Cohesion from best to worst type.

- (A) Logical Cohesion
- (B) Sequential Cohesion
- (C) Communication Cohesion
- (D) Temporal Cohesion
- (E) Procedural Cohesion

Choose the correct answer from the options given below:

- (1)  $A \rightarrow D \rightarrow E \rightarrow C \rightarrow B$
- (2)  $A \rightarrow E \rightarrow D \rightarrow C \rightarrow B$
- (3)  $B \rightarrow E \rightarrow C \rightarrow D \rightarrow A$
- (4)  $B \rightarrow C \rightarrow E \rightarrow D \rightarrow A$

**Options :**

- 53622817005. 1
- 53622817006. 2
- 53622817007. 3
- 53622817008. 4

**Question Number : 127 Question Id : 5362284364 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Arrange the following types of Cohesion from best to worst type.

- (A) Logical Cohesion
- (B) Sequential Cohesion
- (C) Communication Cohesion
- (D) Temporal Cohesion
- (E) Procedural Cohesion

Choose the correct answer from the options given below:

- (1)  $A \rightarrow D \rightarrow E \rightarrow C \rightarrow B$
- (2)  $A \rightarrow E \rightarrow D \rightarrow C \rightarrow B$
- (3)  $B \rightarrow E \rightarrow C \rightarrow D \rightarrow A$
- (4)  $B \rightarrow C \rightarrow E \rightarrow D \rightarrow A$

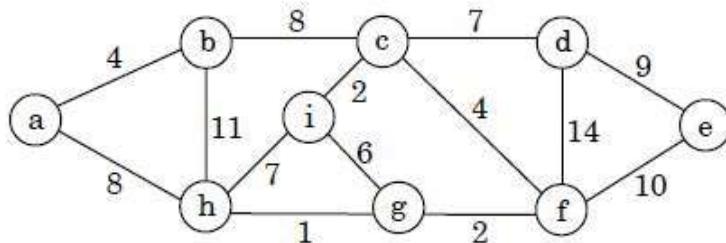
**Options :**

- 53622817005. 1
- 53622817006. 2
- 53622817007. 3
- 53622817008. 4

**Question Number : 128 Question Id : 5362284365 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the undirected graph below:



Using Prim's algorithm to construct a minimum spanning tree starting with node a, which one of the following sequences of edges represents a possible order in which the edges would be added to construct the minimum spanning tree?

- (1) (a,b), (a,h), (g,h), (f,g), (c,f), (c,i), (c,d), (d,e)
- (2) (a,b), (b,h), (g,h), (g,i), (c,i), (c,f), (c,d), (d,e)
- (3) (a,b), (b,c), (c,i), (c,f), (f,g), (g,h), (c,d), (d,e)
- (4) (a,b), (g,h), (g,f), (c,f), (c,i), (f,e), (b,c), (d,e)

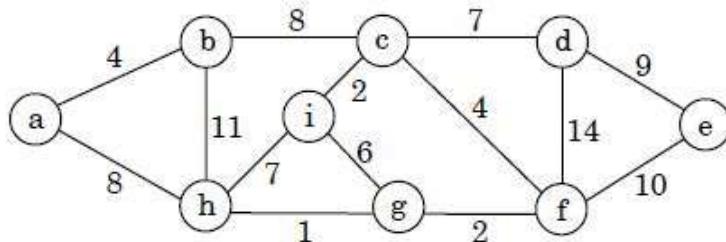
**Options :**

53622817009. 1  
53622817010. 2  
53622817011. 3  
53622817012. 4

**Question Number : 128 Question Id : 5362284365 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the undirected graph below:



Using Prim's algorithm to construct a minimum spanning tree starting with node a, which one of the following sequences of edges represents a possible order in which the edges would be added to construct the minimum spanning tree?

- (1) (a,b), (a,h), (g,h), (f,g), (c,f), (c,i), (c,d), (d,e)
- (2) (a,b), (b,h), (g,h), (g,i), (c,i), (c,f), (c,d), (d,e)
- (3) (a,b), (b,c), (c,i), (c,f), (f,g), (g,h), (c,d), (d,e)
- (4) (a,b), (g,h), (g,f), (c,f), (c,i), (f,e), (b,c), (d,e)

**Options :**

53622817009. 1  
53622817010. 2

53622817011. 3

53622817012. 4

**Question Number : 129 Question Id : 5362284366 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following regular expressions:

- (a)  $r = a(b + a)^*$
- (b)  $s = a(a + b)^+$
- (c)  $t = aa^*b$

Choose the correct answer from the options given below based on the relation between the languages generated by the regular expressions above:

- (1)  $L(r) \subseteq L(s) \subseteq L(t)$
- (2)  $L(r) \supseteq L(s) \supseteq L(t)$
- (3)  $L(r) \supseteq L(t) \supseteq L(s)$
- (4)  $L(s) \supseteq L(t) \supseteq L(r)$

**Options :**

53622817013. 1

53622817014. 2

53622817015. 3

53622817016. 4

**Question Number : 129 Question Id : 5362284366 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Consider the following regular expressions:

- (a)  $r = a(b + a)^*$
- (b)  $s = a(a + b)^+$
- (c)  $t = aa^*b$

Choose the correct answer from the options given below based on the relation between the languages generated by the regular expressions above:

- (1)  $L(r) \subseteq L(s) \subseteq L(t)$
- (2)  $L(r) \supseteq L(s) \supseteq L(t)$
- (3)  $L(r) \supseteq L(t) \supseteq L(s)$
- (4)  $L(s) \supseteq L(t) \supseteq L(r)$

**Options :**

53622817013. 1

53622817014. 2

53622817015. 3

53622817016. 4

**Question Number : 130 Question Id : 5362284367 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : 5 divides  $n^5 - n$  whenever  $n$  is a nonnegative integer.

Statement II : 6 divides  $n^3 - n$  whenever  $n$  is a nonnegative integer.

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

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

53622817017. 1

53622817018. 2

53622817019. 3

53622817020. 4

**Question Number : 130 Question Id : 5362284367 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : 5 divides  $n^5 - n$  whenever  $n$  is a nonnegative integer.

Statement II : 6 divides  $n^3 - n$  whenever  $n$  is a nonnegative integer.

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

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Options :**

53622817017. 1

53622817018. 2

53622817019. 3

53622817020. 4

**Question Number : 131 Question Id : 5362284368 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Hardwired control unit can be optimized to produce fast mode of operation.

Statement II : Indirect addressing mode needs two memory reference to fetch the operand.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

- 53622817021. 1
- 53622817022. 2
- 53622817023. 3
- 53622817024. 4

**Question Number : 131 Question Id : 5362284368 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Hardwired control unit can be optimized to produce fast mode of operation.

Statement II : Indirect addressing mode needs two memory reference to fetch the operand.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

- 53622817021. 1
- 53622817022. 2
- 53622817023. 3
- 53622817024. 4

**Question Number : 132 Question Id : 5362284369 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Bezier curves are curves that interpolate all of their control points.

Statement II : A cubic bezier curve has four control points.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4)** Statement I is incorrect but Statement II is true.

**Options :**

- 53622817025. 1
- 53622817026. 2
- 53622817027. 3
- 53622817028. 4

**Question Number : 132 Question Id : 5362284369 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Bezier curves are curves that interpolate all of their control points.

Statement II : A cubic bezier curve has four control points.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4)** Statement I is incorrect but Statement II is true.

**Options :**

- 53622817025. 1
- 53622817026. 2
- 53622817027. 3
- 53622817028. 4

**Question Number : 133 Question Id : 5362284370 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

If two variables  $V_1$  and  $V_2$  are used for clustering, then consider the following statements for  $k$  means clustering with  $k = 3$ :

Statement I : If  $V_1$  and  $V_2$  have correlation of 1 the cluster centroid will be in straight line.

Statement II : If  $V_1$  and  $V_2$  have correlation of 0 the cluster centroid will be in straight line.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3)** Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817029. 1

53622817030. 2

53622817031. 3

53622817032. 4

**Question Number : 133 Question Id : 5362284370 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

If two variables  $V_1$  and  $V_2$  are used for clustering, then consider the following statements for  $k$  means clustering with  $k = 3$ :

Statement I : If  $V_1$  and  $V_2$  have correlation of 1 the cluster centroid will be in straight line.

Statement II : If  $V_1$  and  $V_2$  have correlation of 0 the cluster centroid will be in straight line.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3)** Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817029. 1

53622817030. 2

53622817031. 3

53622817032. 4

**Question Number : 134 Question Id : 5362284371 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Assuming that the system call fork () never fails, consider the following C programs P1 and P2 executed on a UNIX / Linux system:

```
/* P1 */
int main () {
    fork ();
    fork ();
    fork ();
    printf("Happy\n");
}
```

```
/* P2 */
int main () {
    fork ();
    printf("Happy\n");
    fork();
    printf("Happy\n");
    fork();
    printf("Happy\n");
}
```

Statement I : P1 displays "Happy" 8 times.

Statement II : P2 displays "Happy" 12 times.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3)** Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817033. 1

53622817034. 2

53622817035. 3

53622817036. 4

**Question Number : 134 Question Id : 5362284371 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Assuming that the system call fork ( ) never fails, consider the following C programs P1 and P2 executed on a UNIX / Linux system:

<pre>/* P1 */ int main () {     fork ();     fork ();     fork ();     printf("Happy\n"); }</pre>	<pre>/* P2 */ int main () {     fork ();     printf("Happy\n");     fork();     printf("Happy\n");     fork();     printf("Happy\n"); }</pre>
---	---

Statement I : P1 displays "Happy" 8 times.

Statement II : P2 displays "Happy" 12 times.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817033. 1

53622817034. 2

53622817035. 3

53622817036. 4

**Question Number : 135 Question Id : 5362284372 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Quality control involves the series of inspections, reviews and tests used throughout the software process, to ensure each work product meets the requirements placed upon it.

Statement II : Quality assurance consists of auditing and reporting functions of management.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817037. 1

53622817038. 2

53622817039. 3

53622817040. 4

**Question Number : 135 Question Id : 5362284372 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : Quality control involves the series of inspections, reviews and tests used throughout the software process, to ensure each work product meets the requirements placed upon it.

Statement II : Quality assurance consists of auditing and reporting functions of management.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817037. 1

53622817038. 2

53622817039. 3

53622817040. 4

**Question Number : 136 Question Id : 5362284373 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $G$  be a simple undirected graph,  $T_D$  be a DFS tree on  $G$ , and  $T_B$  be the BFS tree on  $G$ . Consider the following statements.

Statement I : No edge of  $G$  is a cross with respect to  $T_D$

Statement II : For every edge  $(u, v)$  of  $G$ , if  $u$  is at depth  $i$  and  $v$  is at depth  $j$  in  $T_B$  then  $|i - j| = 1$ .

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3)** Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

- 53622817041. 1
- 53622817042. 2
- 53622817043. 3
- 53622817044. 4

**Question Number : 136 Question Id : 5362284373 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Let  $G$  be a simple undirected graph,  $T_D$  be a DFS tree on  $G$ , and  $T_B$  be the BFS tree on  $G$ . Consider the following statements.

Statement I : No edge of  $G$  is a cross with respect to  $T_D$

Statement II : For every edge  $(u, v)$  of  $G$ , if  $u$  is at depth  $i$  and  $v$  is at depth  $j$  in  $T_B$  then  $|i - j| = 1$ .

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

- 53622817041. 1
- 53622817042. 2
- 53622817043. 3
- 53622817044. 4

**Question Number : 137 Question Id : 5362284374 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : The problem "Is  $L_1 \wedge L_2 = \phi$ ? " is undecidable for context sensitive languages  $L_1$  and  $L_2$ .

Statement II : The problem "Is  $W \in L$ ?" is decidable for context sensitive language L, (where W is a string).

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817045. 1

53622817046. 2

53622817047. 3

53622817048. 4

**Question Number : 137 Question Id : 5362284374 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : The problem "Is  $L_1 \wedge L_2 = \phi$ ? " is undecidable for context sensitive languages  $L_1$  and  $L_2$ .

Statement II : The problem "Is  $W \in L$ ?" is decidable for context sensitive language L, (where W is a string).

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

**Options :**

53622817045. 1

53622817046. 2

53622817047. 3

53622817048. 4

**Question Number : 138 Question Id : 5362284375 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : The laws of nature put two fundamental limits on data rate of a channel. The H.Nyquist limit restricts the number of independent samples per second to twice the band-width in a Noiseless channel.

Statement II : Shannon's major result about noised channel is that maximum data rate of a channel whose band width is H Hz, and whose signal-to-noise ratio is S/N is given by:

$$\text{Maximum number of bits/sec} = H \log_2(1 + \frac{S}{N})$$

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

Options :

- 53622817049. 1
- 53622817050. 2
- 53622817051. 3
- 53622817052. 4

**Question Number : 138 Question Id : 5362284375 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : The laws of nature put two fundamental limits on data rate of a channel. The H.Nyquist limit restricts the number of independent samples per second to twice the band-width in a Noiseless channel.

Statement II : Shannon's major result about noised channel is that maximum data rate of a channel whose band width is H Hz, and whose signal-to-noise ratio is S/N is given by:

$$\text{Maximum number of bits/sec} = H \log_2(1 + \frac{S}{N})$$

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true.

Options :

- 53622817049. 1
- 53622817050. 2
- 53622817051. 3
- 53622817052. 4

**Question Number : 139 Question Id : 5362284376 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : In Ceasar Cipher each letter of Plain text is replaced by another letter for encryption.

Statement II : Diffie-Hellman algorithm is used for exchange of secret key.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817053. 1

53622817054. 2

53622817055. 3

53622817056. 4

**Question Number : 139 Question Id : 5362284376 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : In Ceasar Cipher each letter of Plain text is replaced by another letter for encryption.

Statement II : Diffie-Hellman algorithm is used for exchange of secret key.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817053. 1

53622817054. 2

53622817055. 3

53622817056. 4

**Question Number : 140 Question Id : 5362284377 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : A genetic algorithm is a stochastic hill-climbing search in which a large population of states is maintained.

Statement II : In nondeterministic environments, agents can apply AND-OR search to generate contingent plans that reach the goal regardless of which outcomes occur during execution.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817057. 1

53622817058. 2

53622817059. 3

53622817060. 4

**Question Number : 140 Question Id : 5362284377 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I : A genetic algorithm is a stochastic hill-climbing search in which a large population of states is maintained.

Statement II : In nondeterministic environments, agents can apply AND-OR search to generate contingent plans that reach the goal regardless of which outcomes occur during execution.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817057. 1

53622817058. 2

53622817059. 3

53622817060. 4

**Sub-Section Number :**

2

**Sub-Section Id :**

536228171

**Question Shuffling Allowed :**

Yes

**Question Id : 5362284378 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group  
Comprehension Questions : No**

**Question Numbers : (141 to 145)**

Question Label : Comprehension

Questions 91-95 concern a disk with a sector size of 512 bytes, 2000 tracks per surface, 50 sectors per track, five double-sided platters, and average seek time of 10 milliseconds.

**Sub questions**

**Question Number : 141 Question Id : 5362284379 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If T is the capacity of a track in bytes, and S is the capacity of each surface in bytes, then  $(T, S) = \underline{\hspace{2cm}}$ .

- |                            |                     |
|----------------------------|---------------------|
| (1) (50 K, 50000 K)        | (2) (25 K, 25000 K) |
| <b>(3) (25 K, 50000 K)</b> | (4) (40 K, 36000 K) |

**Options :**

53622817061. 1  
53622817062. 2  
53622817063. 3  
53622817064. 4

**Question Number : 142 Question Id : 5362284380 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the capacity of the disk, in bytes?

- |               |                      |
|---------------|----------------------|
| (1) 25,000 K  | <b>(2) 500,000 K</b> |
| (3) 250,000 K | (4) 50,000 K         |

**Options :**

53622817065. 1  
53622817066. 2  
53622817067. 3  
53622817068. 4

**Question Number : 143 Question Id : 5362284381 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I: The disk has a total number of 2000 cylinders.

Statement II: 51200 bytes is not a valid block size for the disk.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817069. 1  
53622817070. 2  
53622817071. 3  
53622817072. 4

**Question Number : 144 Question Id : 5362284382 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If the disk platters rotate at 5400 rpm (revolutions per minute), then approximately what is the maximum rotational delay?

- (1) 0.011 seconds
- (2) 0.11 seconds
- (3) 0.0011 seconds
- (4) 1.1 seconds

**Options :**

53622817073. 1  
53622817074. 2  
53622817075. 3  
53622817076. 4

**Question Number : 145 Question Id : 5362284383 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If one track of data can be transferred per revolution, then what is the data transfer rate?

- (1) 2,850 KBytes/second
- (2) 4,500 KBytes/second
- (3) 5,700 KBytes/second
- (4) 2,250 KBytes/second

**Options :**

53622817077. 1  
53622817078. 2  
53622817079. 3  
53622817080. 4

**Question Id : 5362284378 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No**

**Question Numbers : (141 to 145)**

Question Label : Comprehension

Questions 91-95 concern a disk with a sector size of 512 bytes, 2000 tracks per surface, 50 sectors per track, five double-sided platters, and average seek time of 10 milliseconds.

**Sub questions**

**Question Number : 141 Question Id : 5362284379 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If T is the capacity of a track in bytes, and S is the capacity of each surface in bytes, then  $(T, S) = \underline{\hspace{2cm}}$ .

- |                            |                     |
|----------------------------|---------------------|
| (1) (50 K, 50000 K)        | (2) (25 K, 25000 K) |
| <b>(3) (25 K, 50000 K)</b> | (4) (40 K, 36000 K) |

**Options :**

53622817061. 1

53622817062. 2

53622817063. 3

53622817064. 4

**Question Number : 142 Question Id : 5362284380 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the capacity of the disk, in bytes?

- |               |                      |
|---------------|----------------------|
| (1) 25,000 K  | <b>(2) 500,000 K</b> |
| (3) 250,000 K | (4) 50,000 K         |

**Options :**

53622817065. 1

53622817066. 2

53622817067. 3

53622817068. 4

**Question Number : 143 Question Id : 5362284381 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements:

Statement I: The disk has a total number of 2000 cylinders.

Statement II: 51200 bytes is not a valid block size for the disk.

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

- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is correct but Statement II is false
- (4) Statement I is incorrect but Statement II is true

**Options :**

53622817069. 1  
53622817070. 2  
53622817071. 3  
53622817072. 4

**Question Number : 144 Question Id : 5362284382 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If the disk platters rotate at 5400 rpm (revolutions per minute), then approximately what is the maximum rotational delay?

- (1) 0.011 seconds
- (2) 0.11 seconds
- (3) 0.0011 seconds
- (4) 1.1 seconds

**Options :**

53622817073. 1  
53622817074. 2  
53622817075. 3  
53622817076. 4

**Question Number : 145 Question Id : 5362284383 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If one track of data can be transferred per revolution, then what is the data transfer rate?

- (1) 2,850 KBytes/second
- (2) 4,500 KBytes/second
- (3) 5,700 KBytes/second
- (4) 2,250 KBytes/second

**Options :**

53622817077. 1  
53622817078. 2  
53622817079. 3  
53622817080. 4

**Sub-Section Number :**

3

**Sub-Section Id :**

536228172

**Question Shuffling Allowed :**

Yes

**Question Id : 5362284384 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group**

**Comprehension Questions : No**

**Question Numbers : (146 to 150)**

**Question Label : Comprehension**

Consider the following table structures related to a university for Q96 to Q100:-

**EMPLOYEE**

NAME	VARCHAR (30)	NOT NULL,
EID	VARCHAR (10)	NOT NULL,
DEPTNO	INT (5)	NOT NULL,
HODEID	VARCHAR (10),	
SALARY	INT (10),	

**PRIMARY KEY (EID),**

**FOREIGN KEY (HODEID) REFERENCES EMPLOYEE (EID),**

**FOREIGN KEY (DEPTNO) REFERENCES DEPARTMENT (DID);**

**DEPARTMENT**

DID	INT (5)	NOT NULL,
DNAME	VARCHAR (30)	NOT NULL,
HODID	VARCHAR (10)	NOT NULL,
HODNAME	VARCHAR (30),	

**PRIMARY KEY (DID),**

**UNIQUE (DNAME),**

**FOREIGN KEY (HODID) REFERENCES EMPLOYEE (EID);**

**PROJECT WORK:**

EMPID	VARCHAR (10)	NOT NULL,
PROJNO	INT (5)	NOT NULL,
PROJECTLOC	VARCHAR (30)	NOT NULL,

**PRIMARY KEY (EMPID, PROJNO),**

**FOREIGN KEY (EMPID) REFERENCES EMPLOYEE (EID),**

**Sub questions**

**Question Number : 146 Question Id : 5362284385 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

On the basis of above given table structures, retrieve the distinct employee ID (EMPID) of all employees of university who are working on project No.20, 30 and 40.

- (1)    SELECT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO=(20,30,40);
- (2)    SELECT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO IN (20,30,40);
- (3)    SELECT DISTINCT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO IN (20,30,40);
- (4)    SELECT DISTINCT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO=20,30,40;

**Options :**

- 53622817081. 1
- 53622817082. 2
- 53622817083. 3
- 53622817084. 4

**Question Number : 147 Question Id : 5362284386 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements to find the sum of salaries of all employees of the English department as well as the maximum, minimum and average salary in English department.

**STATEMENT I :**    SELECT SUM (SALARY), MAX (SALARY), MIN (SALARY),  
                          AVG (SALARY) FROM EMPLOYEE, DEPARTMENT  
                          WHERE DEPTNO=DID  
                          AND DNAME='ENGLISH';

**STATEMENT II :**    SELECT SUM (SALARY), MAX (SALARY), MIN (SALARY),  
                          AVG (SALARY) FROM EMPLOYEE, DEPARTMENT  
                          WHERE DNAME='ENGLISH';

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

- (1)    Both Statement I and Statement II are true
- (2)    Both Statement I and Statement II are false
- (3)    Statement I is correct but Statement II is false
- (4)    Statement I is incorrect but Statement II is true

**Options :**

- 53622817085. 1
- 53622817086. 2
- 53622817087. 3
- 53622817088. 4

**Question Number : 148 Question Id : 5362284387 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following query/queries return the employee ID and name of employees whose salary is greater than the salary of all employees in department number 20 of university. Order result by employee ID (refer table structures given above).

- (A)    SELECT EID, NAME  
        FROM EMPLOYEE  
        WHERE SALARY>(SELECT SALARY FROM EMPLOYEE WHERE DEPTNO=20)  
        ORDER BY EID;
- (B)    SELECT EID, NAME  
        FROM EMPLOYEE WHERE SALARY>(SELECT SALARY FROM EMPLOYEE  
        WHERE DEPTNO=20);
- (C)    SELECT EID, NAME  
        FROM EMPLOYEE  
        WHERE SALARY>ALL(SELECT SALARY FROM EMPLOYEE WHERE  
        DEPTNO=20)  
        ORDER BY EID

Choose the correct answer from the options given below:

- (1)    (A) and (B) only  
(2)    (A) and (C) only  
(3)    (B) only  
**(4)    (C) only**

**Options :**

53622817089. 1  
53622817090. 2  
53622817091. 3  
53622817092. 4

**Question Number : 149 Question Id : 5362284388 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In reference to the above given table structures, which of the following query/queries will drop the 'SALARY' column from 'EMPLOYEE' table?

- (A) ALTER TABLE EMPLOYEE DROP SALARY CASCADE;
- (B) ALTER TABLE EMPLOYEE DROP SALARY RESTRICT;
- (C) ALTER EMPLOYEE DROP SALARY;

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A) only

**Options :**

53622817093. 1

53622817094. 2

53622817095. 3

53622817096. 4

**Question Number : 150 Question Id : 5362284389 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Refer table, structures given above. University decided to give all employees in the 'SCIENCE' department a 20% rise in salary. Which of the following query / queries will compute the above results?

- (A) UPDATE EMPLOYEE  
SET SALARY = SALARY\*1.20  
WHERE DEPT NO. IN (SELECT DID FROM DEPARTMENT WHERE DNAME='SCIENCE');
- (B) UPDATE TABLE EMPLOYEE  
SET SALARY = SALARY\*1.20  
WHERE DNAME='SCIENCE';
- (C) ALTER TABLE EMPLOYEE  
SET SALARY=SALARY\*1.20  
WHERE DEPTNO. IN (SELECT DNAME FROM DEPARTMENT WHERE DNAME ='SCIENCE')

Choose the correct answer from the options given below:

- (1) (A) and (B) only  
**(2)** (A) only  
(3) (B) and (C) only  
(4) (C) only

---

**Options :**

53622817097. 1

53622817098. 2

53622817099. 3

53622817100. 4

**Question Id : 5362284384 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No**

**Question Numbers : (146 to 150)**

Question Label : Comprehension

Consider the following table structures related to a university for Q96 to Q100:-

**EMPLOYEE**

NAME	VARCHAR (30)	NOT NULL,
EID	VARCHAR (10)	NOT NULL,
DEPTNO	INT (5)	NOT NULL,
HODEID	VARCHAR (10),	
SALARY	INT (10),	

PRIMARY KEY (EID),

FOREIGN KEY (HODEID) REFERENCES EMPLOYEE (EID),

FOREIGN KEY (DEPTNO) REFERENCES DEPARTMENT (DID);

**DEPARTMENT**

DID	INT (5)	NOT NULL,
DNAME	VARCHAR (30)	NOT NULL,
HODID	VARCHAR (10)	NOT NULL,
HODNAME	VARCHAR (30),	

PRIMARY KEY (DID),

UNIQUE (DNAME),

FOREIGN KEY (HODID) REFERENCES EMPLOYEE (EID);

**PROJECT WORK:**

EMPID	VARCHAR (10)	NOT NULL,
PROJNO	INT (5)	NOT NULL,
PROJECTLOC	VARCHAR (30)	NOT NULL,

PRIMARY KEY (EMPID, PROJNO),

FOREIGN KEY (EMPID) REFERENCES EMPLOYEE (EID),

**Sub questions**

**Question Number : 146 Question Id : 5362284385 Question Type : MCQ Option Shuffling : No Is Question**

**Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

On the basis of above given table structures, retrieve the distinct employee ID (EMPID) of all employees of university who are working on project No.20, 30 and 40.

- (1)    SELECT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO=(20,30,40);
- (2)    SELECT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO IN (20,30,40);
- (3)    **SELECT DISTINCT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO IN (20,30,40);**
- (4)    SELECT DISTINCT EMPID  
        FROM PROJECTWORK  
        WHERE PROJNO=20,30,40;

**Options :**

- 53622817081. 1
- 53622817082. 2
- 53622817083. 3
- 53622817084. 4

**Question Number : 147 Question Id : 5362284386 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Given below are two statements to find the sum of salaries of all employees of the English department as well as the maximum, minimum and average salary in English department.

**STATEMENT I :**    SELECT SUM (SALARY), MAX (SALARY), MIN (SALARY),  
                          AVG (SALARY) FROM EMPLOYEE, DEPARTMENT  
                          WHERE DEPTNO=DID  
                          AND DNAME='ENGLISH';

**STATEMENT II :**    SELECT SUM (SALARY), MAX (SALARY), MIN (SALARY),  
                          AVG (SALARY) FROM EMPLOYEE, DEPARTMENT  
                          WHERE DNAME='ENGLISH';

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

- (1)    Both Statement I and Statement II are true
- (2)    Both Statement I and Statement II are false
- (3)    **Statement I is correct but Statement II is false**
- (4)    Statement I is incorrect but Statement II is true

**Options :**

- 53622817085. 1
- 53622817086. 2
- 53622817087. 3
- 53622817088. 4

**Question Number : 148 Question Id : 5362284387 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following query/queries return the employee ID and name of employees whose salary is greater than the salary of all employees in department number 20 of university. Order result by employee ID (refer table structures given above).

- (A)    SELECT EID, NAME  
        FROM EMPLOYEE  
        WHERE SALARY>(SELECT SALARY FROM EMPLOYEE WHERE DEPTNO=20)  
        ORDER BY EID;
- (B)    SELECT EID, NAME  
        FROM EMPLOYEE WHERE SALARY>(SELECT SALARY FROM EMPLOYEE  
        WHERE DEPTNO=20);
- (C)    SELECT EID, NAME  
        FROM EMPLOYEE  
        WHERE SALARY>ALL(SELECT SALARY FROM EMPLOYEE WHERE  
        DEPTNO=20)  
        ORDER BY EID

Choose the correct answer from the options given below:

- (1)    (A) and (B) only
- (2)    (A) and (C) only
- (3)    (B) only
- (4)    (C) only**

**Options :**

53622817089. 1  
53622817090. 2  
53622817091. 3  
53622817092. 4

**Question Number : 149 Question Id : 5362284388 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In reference to the above given table structures, which of the following query/queries will drop the 'SALARY' column from 'EMPLOYEE' table?

- (A) ALTER TABLE EMPLOYEE DROP SALARY CASCADE;
- (B) ALTER TABLE EMPLOYEE DROP SALARY RESTRICT;
- (C) ALTER EMPLOYEE DROP SALARY;

Choose the correct answer from the options given below:

- (1) (A) and (B) only
- (2) (A) and (C) only
- (3) (B) and (C) only
- (4) (A) only

**Options :**

53622817093. 1

53622817094. 2

53622817095. 3

53622817096. 4

**Question Number : 150 Question Id : 5362284389 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Refer table, structures given above. University decided to give all employees in the 'SCIENCE' department a 20% rise in salary. Which of the following query / queries will compute the above results?

- (A) UPDATE EMPLOYEE  
SET SALARY = SALARY\*1.20  
WHERE DEPT NO. IN (SELECT DID FROM DEPARTMENT WHERE DNAME='SCIENCE');
- (B) UPDATE TABLE EMPLOYEE  
SET SALARY = SALARY\*1.20  
WHERE DNAME='SCIENCE';
- (C) ALTER TABLE EMPLOYEE  
SET SALARY=SALARY\*1.20  
WHERE DEPTNO. IN (SELECT DNAME FROM DEPARTMENT WHERE DNAME ='SCIENCE')

Choose the correct answer from the options given below:

- (1) (A) and (B) only  
**(2)** (A) only  
(3) (B) and (C) only  
(4) (C) only
- 

**Options :**

53622817097. 1

53622817098. 2

53622817099. 3

53622817100. 4