## Computer Based Examination System

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| Title * | Question Paper Answer Key |
| OES Exam * | GPSC01202410 / Assistant Professors in Government College in Computer Science/ Completed / 2024-04-21 |


| Question Description | ```int fun() { static int num = 16; return num--; } int main() { for(fun(); fun(); fun()) printf(\"%d\", fun()); return 0; }``` <br> What is the output of the above program? <br> a. Infinite loop <br> b. 10741 <br> c. 1512852 <br> d. 11852 |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |
| E | None of the above |
| Correct Answer | D |
| Marks | 1 |


|  | $(p \rightarrow q) \wedge(p \rightarrow r)$ is logically equivalent to <br> a. $\quad \mathrm{p} \rightarrow(\mathrm{q} \wedge \mathrm{r})$ <br> b. $\quad \mathrm{p} \rightarrow(\mathrm{q} \vee \mathrm{r})$ <br> c. $p \wedge(q \vee r)$ <br> d. $\quad \mathrm{p} \vee(\mathrm{q} \wedge \mathrm{r})$ |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |
| E | None of the above |
| Correct Answer | A |
| Marks | 1 |

Consider a pipelined processor operating at 2 GHZ with 5 stages, Instruction fetch (IF), Instruction decode (ID), Execute (EX), Memory access (MEM), and write back (WB). Each stage of the pipeline, except the EX-stage, takes one cycle. The EX takes one cycle for ADD and SUB, three cycles for MUL, and two cycles for DIV Instruction. Consider the following instructions: Find, the number of true data dependences in the above code and the execution time using operand forwarding technique respectively is $\qquad$
$\qquad$
$2,5.5 \mathrm{~ns}$
$5,5.0 \mathrm{~ns}$

3, 4.2 ns
$2,3.0 \mathrm{~ns}$

None of the above

Correct Answer A

## Marks

A

## Correct Answer

Marks

IEEE 802.11

IEEE 802.16

IEEE 802.15

IEEE 802.3

None of the above

A

1



Data hazards occur when $\qquad$

A
greater performance loss
pipeline changes the order of read/write access to operands
some functional unit is not fully pipelined
machine size is limited

None of the above

Correct Answer
B

## Marks

1

## 10 Question Description

A

B

C

D

E

## Correct Answer <br> Marks <br> C

Company X shipped 5 computer chips, 1 of which was defective. And company Y shipped 4 computer chips, 2 of which were defective. One computer chip is to be chosen uniformly at random from the 9 chips shipped by the companies. If the chosen chip is found to be defective, what is the probability that the chip came from company Y?2/94/92/3$1 / 2$

None of the above

1

Marks

Consider the set of integers $\{1,2,3,4,6,8,12,24\}$ together with the two binary operations LCM (lowest common multiple) and GCD (greatest common divisor). Which of the following algebraic structures does this represent?
group
ring
field
lattice

None of the above

D

1

| Question Description | In an 8-bit ripple carry adder using identical full adders, each full adder takes 34 ns for computing sum. If the time taken for 8-bit <br> addition is 90 ns , find time taken by each full adder to find carry. |
| :--- | :--- |
| A | 6 ns |
| B | 7 ns |
| D | 8 ns |
| E | 10 ns |
| Correct Answer | None of the above |
| Marks | C |

A

Correct Answer
Marks
$\qquad$ is data-link layer vulnerability where stations are forced to make direct communication with another station by evading logical controls.

VLAN attack

VLAN Circumvention

VLAN compromisation method

Data-link evading

None of the above

B
1

|  | The following circuit compares two 2-bit binary numbers X and Y represented by $\mathrm{X} 1, \mathrm{X} 0$, and Y1, Y0 respectively (X0 and Y0 represent the Least Significant Bits). Under what conditions Z will be 1 ? <br> a. $X>Y$ <br> b. $X<Y$ <br> c. $X=Y$ <br> d. $\mathrm{X}!=\mathrm{Y}$ |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |
| E | None of the above |
| Correct Answer | A |
| Marks | 1 |

Correct Answer ..... D
Marks ..... 1

Correct Answer Marks

A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 60000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.8 for the software development on embedded systems, while the exponentiation factor is given as 1.20 . What is the estimated effort in person-months?
201.60
432.50
381.01
342.40

None of the above

C
1

## 17 Question Description

A

B

C

D

## E

Correct Answer
Marks

18 Question Description

A

B

C

D

E

## Correct Answer

Marks

Which is not one of the three phases of electronic commerce?

## Reinvention

Preservation

Consolidation

Innovation

None of the above

B
1

Let $T=\{p, q, r, s, t\}$. The number of strings in $S^{*}$ of length 4 such that no symbols can be repeated.

120

625

360

36

None of the above

B

1

## Correct Answer

Marks

| warehousing. |
| :--- |
| Buffer Related |
| Virtual memory File Organization and Indexing MCQ Introduction and ER Model |
| Staging area |
| Inter-storage area |
| None of the above |
| C |
| 1 |

Only I and II

Only I and III

Only I, II and III

Only I, III and IV

None of the above

Correct Answer
D
Marks 1

| 21 | Question Description | Which of the following is not a property of public key cryptography? |
| :---: | :---: | :---: |
|  | A | Uses different keys |
|  | B | Every user has a unique private key |
|  | C | Public key can be same for number of users |
|  | D | Cannot deduce private key from public key |
|  | E | None of the above |
|  | Correct Answer | C |
|  | Marks | 1 |
| 22 | Question Description | What does a foreign key combined with a primary key create? |
|  | A | Network model between the tables that connect them |
|  | B | The parent-Child relationship between the tables that connects them |
|  | C | One to many relationships between the tables that connect them |
|  | D | All of the mentioned |
|  | E | None of the above |
|  | Correct Answer | A |
|  | Marks | 1 |

$\qquad$ meaning that you get high availability and disaster recovery.

A

Correct Answer
Marks

24 Question Description

## Correct Answer <br> C

Marks

Processing

Scalability

Replication

All of the options

None of the above

C

1

Method Name, Return Type, and Number of Arguments

Access Modifier, Method Name, and Types of Arguments

Method Name, Number of Arguments, Types of Arguments, and Order of Arguments

Return Type, Access Modifier, and Order of Arguments

None of the above

1
$\qquad$ .

A

## Correct Answer

Marks
cost
time delay
semantic gap
all of the above

None of the above

C
1

## 6 Question Description

|  | ```Output? #include < stdio.h> int main() { int c = 5, no = 10; do { no /= c; } while(c--); printf("%d\n", no); return 0; }``` <br> a. 1 <br> b. Runtime Error <br> c. 0 <br> d. Compiler Error |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |
| E | None of the above |
| Correct Answer | B |
| Marks | 1 |

The user IDs can be added or removed using which of the following fixed roles?
db_sysadmin
db_accessadmin
db_securityadmin
db_setupadmin

None of the above

B
1

## 8 Question Description

A

B

C

## D

E

Correct Answer
Marks

If the input to the T-flipflop is a 200 Hz signal, the final output of the three T- T-flipflops in cascade is

25 Hz

20 Hz

50 Hz
12.5 Hz

None of the above

A
1

## Correct Answer <br> B

A

## Correct Answer

Marks

Marks

## 30 Question Description

tput cup
tput smso
tput rmso
tput blink

None of the above

C
1

Mostly $\qquad$ is used in wireless LAN.
time division multiplexing
orthogonal frequency division multiplexing
space division multiplexing
channel division multiplexing

None of the above

1

| 31 | Question Description | In IEEE floating point representation, the hexadecimal number $0 \times \mathrm{xC0000000}$ corresponds to |
| :---: | :---: | :---: |
|  | A | $-3.0$ |
|  | B | $-1.0$ |
|  | C | -4.0 |
|  | D | -2.0 |
|  | E | None of the above |
|  | Correct Answer | D |
|  | Marks | 1 |
| 32 | Question Description | Inspections and testing are what kinds of Quality Costs? |
|  | A | Prevention |
|  | B | Internal Failure |
|  | C | External Failure |
|  | D | Appraisal |
|  | E | None of the above |
|  | Correct Answer | D |
|  | Marks | 1 |

Consider a 32-bit processor which supports 70 instructions. Each instruction is 32 -bit long and has 4 fields namely opcode, two register identifiers, and an immediate operand of unsigned integer type. The maximum value of the immediate operand that can be supported by the processor is 8191 . How many registers the processor has?

32

None of the above

Correct Answer
B

Marks

1. To free user programs from the need to carry out storage allocation and to permit efficient sharing of the available memory space among different users.
2. To make the program independent of the configuration and capacity of the physical memory for their execution.
3. To achieve higher CPU performance.
4. To achieve the very low access time and cost per bit that is possible with a memory hierarchy.

Which of the above is correct?

1,2 and 3

2, 3 and 4

1, 3 and 4

1,2 and 4

None of the above

Correct Answer
Marks
D

1

According to an IBM research, " $31 \%$ of projects are abandoned before they are completed, $53 \%$ exceed their cost projections by an average of 189 percent, and 94 projects are restarted for every 100 projects." What is the significance of these figures?

Lack of software ethics and understanding

Management issues in the company

Lack of adequate training

All of the mentioned

None of the above

C
1

Correct Answer
Marks

$$
\begin{aligned}
& \text { A } \\
& 1
\end{aligned}
$$

## 37 Question Description

Correct Answer B
Marks

None of the above
If a program P calls two subprograms P 1 and P 2 and P 1 can fail $30 \%$ of the time and P 2 can fail $70 \%$ of the time, what is the failure rate of the program P ?

21\%
$79 \%$

67\%

55\%

1

| Question Description | In functional dependency, Armstrong inference rules refer to |
| :--- | :--- |
| A | Reflexive, Augmentation, and Decomposition |
| B | Transitive, Augmentation and Reflexive |
| D | Augmentation, Transitive, Reflexive and Decomposition |
| E | Reflexive, Transitive and Decomposition |
| Correct Answer | None of the above |
| Marks | B |

Correct Answer

B
1

Consider the following dependencies and the BOOK table in a relational database design. Determine the normal form of the given relation.
ISBN -> Title
ISBN -> Publisher
Publisher -> Address

First Normal Form

## Second Normal Form

Third Normal Form

BCNF

None of the above

41 Question Description

A

Correct Answer
Marks

Let $G$ be a connected planar graph with 10 vertices. If the number of edges on each face is three, then the number of edges in $G$ is $\qquad$ —.

24

12
$\square$21

None of the above

A
1

|  | "It |
| :--- | :--- |
|  | po |
| A | C |
| B | M |
| C | D |
| D | Hyp |
| E | N |
| Correct Answer | C |
| Marks | 1 |

Marks

44 Question Description

## Correct Answer

Marks
_ is a transmission method used in MIMO wireless communications to transmit encoded data signals independently.

MU-MIMO

STTD

SM

Collaborative Uplink MIMO

None of the above

C
1

## Question Description

A

B

C

D

E

Correct Answer
Marks

Correct Answer
Marks

## 46 Question Description

B

Cleanroom software development process complies with the operational analysis principles by using a method called known as referential transparency
degenerative error correction
box structure specification
none of the mentioned

None of the above

C
1
$\qquad$ denotes the largest timestamp of any transaction that executed write $(Q)$ successfully.

W-timestamp(Q)

R-timestamp(Q)

RW-timestamp(Q)

WR-timestamp(Q)

None of the above

A
1

| Question Description | Inspections and testing are what kinds of Quality Costs? |
| :--- | :--- |
| A | Internal Failure |
| C | External Failure |
| D | Appraisal |
| E | None of the above |
| Marrect Answer | D |
| Question Description | fseek() should be preferred over rewind() mainly because |
| A | rewind() doesn't work for empty files |
| B | rewind() may fail for large files |
| C | In rewind, there is no way to check if the operations were completed successfully |
| Marks | All of the above |

A

B

## E

## Correct Answer

Marks

Consider the following statements.
I. The complement of every Turing decidable language is Turing decidable
II. There exists some language which is in NP but is not Turing decidable
III. If L is a language in $\mathrm{NP}, \mathrm{L}$ is Turing decidable

Which of the above statements is/are true?

Only II

Only III

Only I and II

Only I and III

None of the above

D
1

| Question Description | What is the probability that in a randomly chosen group of $r$ people, at least three people have the same birthday? <br> a. $\quad 1-\frac{365-364 \cdots(365-r-1)}{365^{r}}$ <br> b. $\frac{365 \cdot 364 \ldots \ldots .(365-r+1)}{365^{r}}+r_{C_{1}} 365 \frac{364 \cdot 363 \ldots \ldots(364-(r-2)+1)}{365^{r+2}}$ <br> c. $1-\frac{365 \cdot 364 \ldots \ldots(365-r+1)}{365^{r}}-r_{C_{1}} 365 \frac{364 \cdot 363 \ldots \ldots(364-(r-2)+1)}{365^{r-2}}$ <br> d. $\frac{365 \cdot 364 \cdots \cdots(365-r+1)}{365^{r}}$ |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |
| E | None of the above |
| Correct Answer | C |
| Marks | 1 |


| Comprehension | Read the following Passage and answer the questions below: <br> With the disappearance of a language, it is not only a human creation that dies, but also a form of expressing a relationship with nature, an oral tradition, poetry and ultimately a culture, thereby contributing to global impoverishment of humanity. It is for these reasons that states, regions, society and civil as well as cultural organizations are seeking to adopt measures conducive to the preservation of languages. These languages constitute a priceless heritage, playing a central role in the preservation of the identity of numerous communities threatened on some continents, as well as being indispensable factors in ensuring cultural diversity. A number of warnings by linguists and other social scientists as well as international organizations have come to underline with growing intensity the crucial factor of languages and mother tongues in the development of human creativity, of the capacity to communicate, and above all, its primary role in evolving cultural identities. |
| :---: | :---: |
| Question Description | Identify from the options given below, the synonym of the phrase "global impoverishment" |
| A | universal depletion |
| B | poverty of the earth |
| C | local enrichment |
| D | poverty in the world |
| E | None of the above |
| Correct Answer | A |
| Marks | 1 |


| Comprehension | Read the following Passage and answer the questions below: <br> With the disappearance of a language, it is not only a human creation that dies, but also a form of expressing a relationship with nature, an oral tradition, poetry and ultimately a culture, thereby contributing to global impoverishment of humanity. It is for these reasons that states, regions, society and civil as well as cultural organizations are seeking to adopt measures conducive to the preservation of languages. These languages constitute a priceless heritage, playing a central role in the preservation of the identity of numerous communities threatened on some continents, as well as being indispensable factors in ensuring cultural diversity. A number of warnings by linguists and other social scientists as well as international organizations have come to underline with growing intensity the crucial factor of languages and mother tongues in the development of human creativity, of the capacity to communicate, and above all, its primary role in evolving cultural identities. |
| :---: | :---: |
| Question Description | From the options provided below, select the one that is closest in meaning to the phrase "with growing intensity the crucial factor" as implied in the passage. |
| A | with increasing vigour the pivotal part |
| B | with increasing anxiety the unique part |
| C | with intense worry the significant role |
| D | with excessive concern the important role |
| E | None of the above |
| Correct Answer | C |
| Marks | 1 |




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| :---: | :---: |
| Question Description | The human society gets culturally impoverished when |
| A | the relationship with nature is hindered |
| B | human creation is undermined |
| C | oral tradition is lost |
| D | when a language disappears |
| E | None of the above |
| Correct Answer | D |
| Marks | 1 |


| 56 | Question Description | Where did PM lay the foundation stone of three semiconductor facilities worth 1.25 Lakh Crore? |
| :---: | :---: | :---: |
|  | A | Gujarat and Assam |
|  | B | Maharashtra and Kerala |
|  | C | Gujarat and Uttar Pradesh |
|  | D | Karnataka and Rajasthan |
|  | E | None of the above |
|  | Correct Answer | A |
|  | Marks | 1 |
| 57 | Question Description | What is the primary purpose of the 'Agray' and 'Akshay' ships launched by the Indian Navy? |
|  | A | Anti-Submarine Warfare |
|  | B | Amphibious Assault |
|  | C | Maritime Surveillance |
|  | D | Naval Logistics |
|  | E | None of the above |
|  | Correct Answer | A |
|  | Marks | 1 |



| 60 | Question Description | Which Indian state has become the first to have a Uniform Civil Code (UCC) Act? |
| :---: | :---: | :---: |
|  | A | Rajasthan |
|  | B | Gujarat |
|  | C | Uttarakhand |
|  | D | Maharashtra |
|  | E | None of the above |
|  | Correct Answer | C |
|  | Marks | 1 |
| 61 | Question Description | In which state has Adani Group's world's largest single-location copper manufacturing plant begun operations? |
|  | A | Maharashtra |
|  | B | Gujarat |
|  | C | Rajasthan |
|  | D | Karnataka |
|  | E | None of the above |
|  | Correct Answer | B |
|  | Marks | 1 ( |


| 62 | Question Description | How many traditional products from across India were granted the GI Tag? |
| :---: | :---: | :---: |
|  | A | 50 |
|  | B | 60 |
|  | C | 70 |
|  | D | 80 |
|  | E | None of the above |
|  | Correct Answer | B |
|  | Marks | 1 |
| 63 | Question Description | In which Indian state was the Sela Tunnel project virtually inaugurated? |
|  | A | Assam |
|  | B | Manipur |
|  | C | Arunachal Pradesh |
|  | D | Nagaland |
|  | E | None of the above |
|  | Correct Answer | C |
|  | Marks | 1 |


| 64 | Question Description | How many phases will the Lok Sabha Elections 2024 be held in? |
| :---: | :---: | :---: |
|  | A | 5 Phases |
|  | B | 6 Phases |
|  | C | 7 Phases |
|  | D | 8 Phases |
|  | E | None of the above |
|  | Correct Answer | C |
|  | Marks | 1 |
| 65 | Question Description | When does India celebrate National Maritime Week? |
|  | A | April 1 to April 7 |
|  | B | March 29 to April 5 |
|  | C | May 15 to May 22 |
|  | D | June 5 to June 12 |
|  | E | None of the above |
|  | Correct Answer | B |
|  | Marks | 1 |

A
Which of the following is the third letter of the meaningful English word which can be formed using (each letter once) first, third, fourth, sixth, eighth and ninth letters of "ASTRONAUT"?

## T

U

R

D

Correct Answer
Marks
None of the above

B
1

|  |  |
| :---: | :---: |
|  | $\stackrel{A}{\rightleftharpoons}$ |
|  | B |
|  |  |
|  | $\stackrel{\mathrm{D}}{\rightleftharpoons}$ |
| A | A |
| B | B |
| C | C |
| D | D |
| E | None of the above |
| Correct Answer | C |
| Marks | 1 |

68 Question Description

A

B

C

D

## Correct Answer

Marks

## Chug : Train : : Bang : ?

## House

Animal

Door

Man

None of the above

C

1

|  | Find missing number |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 15 | 5 | 7 | 10 |
|  | 64 | 4 | 5 | ? |
|  | 91 | ? | 9 | 22 |
| A | 21,7 |  |  |  |
| B | 12,4 |  |  |  |
| C | 24,8 |  |  |  |
| D | 35,5 |  |  |  |
| E | None of the above |  |  |  |
| Correct Answer | A |  |  |  |
| Marks | 1 |  |  |  |

Is the average age of the students of a school less than 17 years?

Statement I : The strength of the class VIII is less than $25 \%$ of the strength of the school.

Statement II : The average age of the students of class VIII of the school is 18 years and that of the remaining classes is 16 years.

Correct Answer
If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

If the data either in statement I alone or in statement II alone is sufficient to answer the question

If the data in both statements I and II together are necessary to answer the question

None of the above

Marks 1

| 71 Question Description | Complete the series: |
| :--- | :--- | :--- |
| A | $7,13,25,45,75, ?$ |
| B | 117 |
| C | 153 |
| D | 209 |
| E | 123 |
| Correct Answer | None of the above |
| Marks | 1 |

Find the mirror image


## Correct Answer

Marks
1


A
A

B
B

C

D

## Correct Answer

Marks

The ratio of the speeds of the train and the man is $6: 1$. The length of the train is 650 m and crosses a pole in 1 minute 5 seconds. In how much time will the man cross the 240 m long platform?

1 minute 24 seconds

2 minutes 30 seconds

2 minutes

2 minutes 24 seconds

None of the above

Correct Answer
D
Marks

Amit, Anil and Ajit ride from home to their common office with speeds in the ratio $5: 4: 3$. If in total they take 94 minutes (sum of the individual time taken) to cover the individual distance(which is same for all), then find the time taken by 'Anil' to cover his distance.

| A | 30 min |
| :--- | :--- |
| B | 48 min |
| C | 24 min |
| D | 40 min |
| E | None of the above |
| Correct Answer | A |
| Marks | 1 |

