National Testing Agency

Question Paper Name:	COMPUTER AND SYSTEM SCIENCES 27th May 2019 Shift 2 SET 1
Subject Name:	COMPUTER & SYSTEM SCIENCES
Creation Date:	2019-05-27 18:58:43
Duration:	180
Total Marks:	100
Display Marks:	Yes
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

COMPUTER & SYSTEM SCIENCES

Group Number :	1
Group Id :	12820619
Group Maximum Duration :	0
Group Minimum Duration :	180
Revisit allowed for view? :	No
Revisit allowed for edit? :	No
Break time:	0
Group Marks:	100

PART A

Section Id :	12820634
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	75
Number of Questions to be attempted:	75
Section Marks:	100
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	12820646
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 128206949 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the OSI layer does synchronization and dialog control?

a) Data link layer

b) Network layer

c) Session layer

d) Transport layer

Options :

1282063761. A

1282063762. B

1282063763. C

1282063764. D

Question Number : 2 Question Id : 128206950 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The sampling rate for an analog signal with frequencies 1000 to 8000Hz.

a) 4000 samples per second

b) 8000 sample per second

c) 12000 sample per second

d) 16000 sample per second

Options :

1282063765. A

1282063766. B

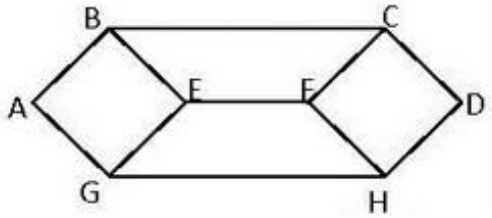
1282063767. C

1282063768. D

Question Number : 3 Question Id : 128206951 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the network as shown in figure. Suppose that it uses flooding as the routing algorithm. If a packet sent by A to H has a maximum hop count of 2. The number of packets that are generated are, assume, no duplicate is discarded.



a) 2

b) 4

c) 6

d) 8

Options :

1282063769. A

1282063770. B

1282063771. C

1282063772. D

Question Number : 4 Question Id : 128206952 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A network on the Internet has a subnet mask 255.255.240.0. What is the maximum number of hosts it can handle?

a) 1

b) 4

c) 8

d) 16

Options :

1282063773. A

1282063774. B

1282063775. C

1282063776. D

Question Number : 5 Question Id : 128206953 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is non-adaptive routing?

a) Flooding routing

b) Distance vector routing

c) Hierarchical routing

d) Link state routing

Options :

1282063777. A

1282063778. B

1282063779. C

1282063780. D

Question Number : 6 Question Id : 128206954 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The bridge operates at the layer

a) Application layer

b) Transport Layer

c) Network Layer

d) Data link layer

Options :

1282063781. A

1282063782. B

1282063783. C

1282063784. D

Question Number : 7 Question Id : 128206955 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the bit rate of 16-QAM signal that have the baud rate 8 baud per second

a) 8 bits per second

b) 16 bits per second

c) 24 bits per second

d) 32 bits per second

Options :

1282063785. A

1282063786. B

1282063787. C

1282063788. D

Question Number : 8 Question Id : 128206956 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which statement is true for Nyquist Theorem ?

a) The sampling rate must be equal to the highest frequency
b) The sampling rate must be equal the lowest frequency
c) The sampling rate must be at least two times the lowest frequency
d) The sampling rate must be at least two times the highest frequency

Options :

1282063789. A

1282063790. B

1282063791. C

1282063792. D

Question Number : 9 Question Id : 128206957 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In frequency modulation, the frequency of the carrier signal is modulated to follow the changing in

a) Amplitude of the modulating signal
b) Frequency of the modulating signal
c) Phase of the modulation signal
d Amplitude and phase for the modulation signal

Options :

1282063793. A

1282063794. B

1282063795. C

1282063796. D

Question Number : 10 Question Id : 128206958 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What causes Thrashing in the memory management scheme?

(a) High computing activity
(b) High I/O activity
(c) Low I/O activity
(d) None

Options :

1282063797. A

1282063798. B

1282063799. C

1282063800. D

Question Number : 11 Question Id : 128206959 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the property of the reentrant code?

(a) it can modify itself
(b) it cannot modify itself
(c) it cannot be shared
(d) None of the above

Options :

1282063801. A

1282063802. B

1282063803. C

1282063804. D

Question Number : 12 Question Id : 128206960 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The function of the ALU in the CPU is
(a) It transfers data to primary memory
(b) It decodes the instructions of the program
(c) It performs logical operations
(d) It stores intermediate data

Options :

1282063805. A

1282063806. B

1282063807. C

1282063808. D

Question Number : 13 Question Id : 128206961 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of entries required in FAT table of a disk with capacity of 30MB, given block size as 512b and block per cluster as 4, is

(a) $30x2^9$
(b) $30x2^{11}$
(c) $30x2^{15}$
(d) $30x2^7$

Options :

1282063809. A

1282063810. B

1282063811. C

1282063812. D

Question Number : 14 Question Id : 128206962 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In which of the memory allocation, the algorithm First Fit, Best Fit and Worst Fit are used?

(a) Contiguous allocation
(b) Linked allocation
(c) Indexed allocation
(d) All of the above

Options :

1282063813. A

1282063814. B

1282063815. C

1282063816. D

Question Number : 15 Question Id : 128206963 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What will happen to average turnaround time in a Round Robin CPU scheduling, if the time quantum is increased?

(a) It will decrease
(b) It will increase
(c) It will remain constant
(d) It will vary irregularly

Options :

1282063817. A

1282063818. B

1282063819. C

1282063820. D

Question Number : 16 Question Id : 128206964 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the use of Dirty bit in memory management?

(a) To keep track of the wrong page
(b) To keep track of the corrupt data in page
(c) To keep track of least frequently used page
(d) To keep track of the modified page

Options :

1282063821. A

1282063822. B

1282063823. C

1282063824. D

Question Number : 17 Question Id : 128206965 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The correct syntax of copy constructor for a given class X in C++is

(a) X(X& object)
(b) X(X object)
(c) X(X* object)
(d) X(&X object)

Options :

1282063825. A

1282063826. B

1282063827. C

1282063828. D

Question Number : 18 Question Id : 128206966 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is meant by pure virtual function?

(a) Function which does not have definition of its own
(b) Function which does have definition of its own
(c) Function which does not have any return type
(d) None of the mentioned

Options :

1282063829. A

1282063830. B

1282063831. C

1282063832. D

Question Number : 19 Question Id : 128206967 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following statement is not true for static member function

(a) Static member functions do not have this pointer.
(b) Static member function cannot be virtual
(c) Static member function can not be declared const, volatile, or const volatile.
(d) Static member functions can be called using object name.

Options :

1282063833. A

1282063834. B

1282063835. C

1282063836. D

Question Number : 20 Question Id : 128206968 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What does the following statement mean?

```
int (*fp)(char*)
```

(a) pointer to a pointer
(b) pointer to an array of chars
(c) pointer to function taking a char* argument and returns an int
(d) function taking a char* argument and returning a pointer to int

Options :

1282063837. A

1282063838. B

1282063839. C

1282063840. D

Question Number : 21 Question Id : 128206969 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is true about continue statement?

(a) It terminates the loop
(b) It terminates the current iteration of the loop
(c) It can be used or as a switch body
(d) None of these

Options :

1282063841. A

1282063842. B

1282063843. C

1282063844. D

Question Number : 22 Question Id : 128206970 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a correct way to declare two integer pointers a and b?

(a) int* a,b
(b) int *a, int *b;
(c) int *a,*b
(d) None of these

Options :

1282063845. A

1282063846. B

1282063847. C

1282063848. D

Question Number : 23 Question Id : 128206971 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The method used to pass an array to a function is:

(a) Value
(b) Reference
(c) Cannot be passed to functions
(d) None of these

Options :

1282063849. A

1282063850. B

1282063851. C

1282063852. D

Question Number : 24 Question Id : 128206972 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The size occupied by a string literal constant in the memory is:
(a) One more than the number of characters in the string
(b) Same as the number of characters in the string
(c) One less than the number of characters in the string
(d) None of these

Options :

1282063853. A

1282063854. B

1282063855. C

1282063856. D

Question Number : 25 Question Id : 128206973 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following is a set of one or more attributes taken collectively to uniquely identify a record?
(a) Candidate key
(b) Sub key
(c) Super key
(d) Foreign key

Options :

1282063857. A

1282063858. B

1282063859. C

1282063860. D

Question Number : 26 Question Id : 128206974 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Every table with two single valued atomic attributes is in

a) 1NF, 2NF, 3NF
b) 1NF, 2NF but not in 3NF
c) Only in 1NF
d) Only in 2NF

Options :

1282063861. A

1282063862. B

1282063863. C

1282063864. D

Question Number : 27 Question Id : 128206975 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which normal form simplifies and ensures that there is minimal data aggregates and repetitive group?:

(a) 1NF
(b) 2NF
(c) 3NF
(d) All of the mentioned

Options :

1282063865. A

1282063866. B

1282063867. C

1282063868. D

Question Number : 28 Question Id : 128206976 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

From following, which is not considered to be a computer peripheral device

a) disk drive
b) keyboard
c) CPU
d) monitor

Options :

1282063869. A

1282063870. B

1282063871. C

1282063872. D

Question Number : 29 Question Id : 128206977 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

_____ is used to store data in registers.

a) JK flip flop
b) RS flip flop
c) D flip flop
d) None of the mentioned

Options :

1282063873. A

1282063874. B

1282063875. C

1282063876. D

Question Number : 30 Question Id : 128206978 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is an approach of control unit design :

(a) Parallel programming
(b) Micro programming
(c) Java programming
(d) None of above

Options :

1282063877. A

1282063878. B

1282063879. C

1282063880. D

Question Number : 31 Question Id : 128206979 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a stack, if a user tries to remove an element from empty stack it is called

a) Underflow
b) Empty collection
c) Overflow
d) Garbage Collection

Options :

1282063881. A

1282063882. B

1282063883. C

1282063884. D

Question Number : 32 Question Id : 128206980 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A queue is a

a) FIFO (First In First Out) list
b) LIFO (Last In First Out) list
c) Ordered array
d) Linear tree

Options :

1282063885. A

1282063886. B

1282063887. C

1282063888. D

Question Number : 33 Question Id : 128206981 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the time complexity of inserting a node in a doubly linked list?

a) O(nlogn)

b) O(logn)

c) O(n)

d) O(1)

Options :

1282063889. A

1282063890. B

1282063891. C

1282063892. D

Question Number : 34 Question Id : 128206982 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a binary search tree, which of the following traversal would print the numbers in the ascending order?

a) Level-order traversal

b) Pre-order traversal

c) Post-order traversal

d) In-order traversal

Options :

1282063893. A

1282063894. B

1282063895. C

1282063896. D

Question Number : 35 Question Id : 128206983 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

We need a binary tree which is height balanced because

a) to avoid formation of skew trees

b) to save memory

c) to attain faster memory access

d) to simplify storing

Options :

1282063897. A

1282063898. B

1282063899. C

1282063900. D

Question Number : 36 Question Id : 128206984 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

QuickSort can be categorized into the class
a) Brute Force technique
b) Divide and conquer
c) Greedy algorithm
d) Dynamic programming

Options :

1282063901. A

1282063902. B

1282063903. C

1282063904. D

Question Number : 37 Question Id : 128206985 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a given Moore Machine and Input='101010', the output would be of length:
a) |Input|+1
b) |Input|
c) |Input-1|
d) Cannot be predicted

Options :

1282063905. A

1282063906. B

1282063907. C

1282063908. D

Question Number : 38 Question Id : 128206986 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A Language for which no DFA exists is a
a) Regular Language
b) Non-Regular Language
c) May be Regular
d) Cannot be said

Options :

1282063909. A

1282063910. B

1282063911. C

1282063912. D

Question Number : 39 Question Id : 128206987 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Concatenation of R with Φ outputs
a) R
b) Φ
c) R.Φ
d) None of the mentioned

Options :

1282063913. A

1282063914. B

1282063915. C

1282063916. D

Question Number : 40 Question Id : 128206988 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Given Grammar: S->A, A->aA, A->e, B->bA. which among the following productions are Useless productions?

a) S->A

b) A->aA

c) A->e

d) B->bA

Options :

1282063917. A

1282063918. B

1282063919. C

1282063920. D

Question Number : 41 Question Id : 128206989 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Every grammar in Chomsky Normal Form is:

a) regular

b) context sensitive

c) context free

d) all of the mentioned

Options :

1282063921. A

1282063922. B

1282063923. C

1282063924. D

Question Number : 42 Question Id : 128206990 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of n if Turing machine is defined using n-tuples:

a) 6

b) 7

c) 8

d) 5

Options :

1282063925. A

1282063926. B

1282063927. C

1282063928. D

Question Number : 43 Question Id : 128206991 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$(A \vee \neg A) \vee (q \vee T)$ is a

a) Tautology

b) Contradiction

c) Contingency

d) None of the mentioned

Options :

1282063929. A

1282063930. B

1282063931. C

1282063932. D

Question Number : 44 Question Id : 128206992 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The set of positive integers is

a) Infinite

b) Finite

c) Subset

d) Empty

Options :

1282063933. A

1282063934. B

1282063935. C

1282063936. D

Question Number : 45 Question Id : 128206993 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let C and D be two sets. then C – D is equivalent to

a) $C' \cap D$

b) $C' \cap D'$

c) $C \cap D'$

d) None of the mentioned

Options :

1282063937. A

1282063938. B

1282063939. C

1282063940. D

Question Number : 46 Question Id : 128206994 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let the sequence be 1, 3, 5, 7, 9…… then this sequence is

a) An arithmetic progression

b) A geometric progression

c) A harmonic progression

d) None of the mentioned

Options :

1282063941. A

1282063942. B

1282063943. C

1282063944. D

Question Number : 47 Question Id : 128206995 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A matrix having one row and many columns is known as

a) Row matrix

b) Column matrix

c) Diagonal matrix

d) None of the mentioned

Options :

1282063945. A

1282063946. B

1282063947. C

1282063948. D

Question Number : 48 Question Id : 128206996 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of 155 mod 9 is

a) 0

b) 1

c) 2

d) 3

Options :

1282063949. A

1282063950. B

1282063951. C

1282063952. D

Question Number : 49 Question Id : 128206997 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A function is said to be _____ if and only if f(a) = f(b) implies that a = b for all a and b in the domain of f.

a) One-to-many

b) One-to-one

c) Many-to-many

d) Many-to-one

Options :

1282063953. A

1282063954. B

1282063955. C

1282063956. D

Question Number : 50 Question Id : 128206998 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Integration of $(\text{Sin}(x) + \text{Cos}(x))e^x$ is

a)- e^x Cos(x)

b) e^x Sin(x)

c) -e^x Tan(x)

d) e^x (Sin(x)+Cos(x))

Options :

1282063957. A

1282063958. B

1282063959. C

1282063960. D

Sub-Section Number:	2
Sub-Section Id:	12820647
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 128206999 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

$\int \sqrt{1 + \sin 2x}\text{dx}$ is

a) $\sin x - \cos x + c$

b) $\sin 2x - \cos x + c$

c) $\sin x + \cos 2x + c$

d) $\sin x + \cos x + c$

Options :

1282063961. A

1282063962. B

1282063963. C

1282063964. D

Question Number : 52 Question Id : 1282061000 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

$\int_\alpha^\beta \sqrt{(x-\alpha)(\beta-x)}\,dx, \beta > \alpha$ is

a) $\frac{\pi}{2}(\beta-\alpha)^2$

b) $\frac{\pi}{4}(\beta-\alpha)^2$

c) $\frac{\pi}{8}(\beta-\alpha)^2$

d) $\frac{\pi}{16}(\beta-\alpha)^2$

Options :

1282063965. A

1282063966. B

1282063967. C

1282063968. D

Question Number : 53 Question Id : 1282061001 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

$\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}} dx$ is

a) $\frac{\pi}{2}$

b) $\frac{\pi}{4}$

c) $\frac{\pi}{8}$

d) $\frac{\pi}{16}$

Options :

1282063969. A

1282063970. B

1282063971. C

1282063972. D

Question Number : 54 Question Id : 1282061002 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

$\int_0^3 \int_1^1 xy(1+x+y)dx\,dy$ is

a) $30\frac{3}{4}$

b) $20\frac{2}{5}$

c) $30\frac{5}{4}$

d) $20\frac{3}{4}$

Options :

1282063973. A

1282063974. B

1282063975. C

1282063976. D

Question Number : 55 Question Id : 1282061003 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The value of $\triangle \log f(x)$ is

a) $\log\left(1+\frac{\triangle f(x)}{f(x)}\right) f(x)$

b) $\log\left(1+\frac{\triangle f(x)}{f(x)}\right) \triangle f(x)$

c) $\log\left(1+\frac{\triangle f(x)}{\triangle f(x)}\right) f(x)$

d) $\log\left(1+\frac{\triangle f(x)}{f(x)}\right)$

Options :

1282063977. A

1282063978. B

1282063979. C

1282063980. D

Question Number : 56 Question Id : 1282061004 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The quotient if $f(x) = x^4 - 4x^3 + 6x^2 - 4x + 1$ is divided by $3x - 2$ is

a) $\frac{1}{3}x^3 - \frac{10}{9}x^2 + \frac{34}{27}x + \frac{40}{81}$

b) $\frac{1}{3}x^3 - \frac{10}{9}x^2 + \frac{34}{27}x - \frac{40}{81}$

c) $\frac{1}{3}x^3 + \frac{10}{9}x^2 + \frac{34}{27}x - \frac{40}{81}$

d) $\frac{1}{3}x^3 - \frac{10}{9}x^2 - \frac{34}{27}x - \frac{40}{81}$

Options :

1282063981. A

1282063982. B

1282063983. C

1282063984. D

Question Number : 57 Question Id : 1282061005 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In the Gauss elimination method for solving a system of linear algebraic equations, triangularzation leads to

a) Diagonal matrix

b) Lower triangular matrix

c) Upper triangular matrix

d) Singular matrix

Options :

1282063985. A

1282063986. B

1282063987. C

1282063988. D

Question Number : 58 Question Id : 1282061006 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Order of convergence of Regula-Falsi method is

a) 1.321

b) 1.618

c) 2.231

d) 2.312

Options :

1282063989. A

1282063990. B

1282063991. C

1282063992. D

Question Number : 59 Question Id : 1282061007 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The system of linear equations

$$(4d - 1)x + y + z = 0$$
$$-y + z = 0$$
$$(4d - 1)z = 0$$

has a non-trivial solution, if d equals

a) 1/2

b) 1/4

c) 3/4

d) 1

Options :

1282063993. A

1282063994. B

1282063995. C

1282063996. D

Question Number : 60 Question Id : 1282061008 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The Eigen values of the matri:

$$\begin{bmatrix} 5 & -6 & -6 \\ -1 & 4 & 2 \\ 3 & -6 & -4 \end{bmatrix} \text{ are}$$

a) 1, 2, 2

b) 1,1-,2

c) 2,1,2

d) -2, 1, -1

Options :

1282063997. A

1282063998. B

1282063999. C

1282064000. D

Question Number : 61 Question Id : 1282061009 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The Eigen values of a skew-symmetric matrix are

a) negative
b) real
c) absolute value of 1
d) purely imaginary or zero

Options :

1282064001. A

1282064002. B

1282064003. C

1282064004. D

Question Number : 62 Question Id : 1282061010 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What are the coordinates of the vector (-1, 3, 1) of V_3 relative to the ordered basis B={(2, 1, 0), (2, 1, 1), (2, 2, 1)}

a) $-\frac{3}{2}, -\frac{5}{2}, \frac{7}{2}$
b) $-\frac{3}{2}, \frac{5}{2}, \frac{7}{2}$
c) $\frac{3}{2}, -\frac{5}{2}, \frac{7}{2}$
d) $-\frac{3}{2}, -\frac{5}{2}, -\frac{7}{2}$

Options :

1282064005. A

1282064006. B

1282064007. C

1282064008. D

Question Number : 63 Question Id : 1282061011 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The range of the linear transformation $T: V_2 \rightarrow V_3$ defined by $T(x_1, x_2) = (x_1, x_1 + x_2,\ x_2)$ is

a) [(0,1,0), (0,1,1)]; 2
b) [(1,1,0), (0,1,0)]; 2
c) [(1,1,0), (0,1,1)]; 2
d) [(0,1,0), (1,1,0)]; 2

Options :

1282064009. A

1282064010. B

1282064011. C

1282064012. D

Question Number : 64 Question Id : 1282061012 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Using the formula : $\lim_{x\to 0}\frac{a^x-1}{x} = \log a$, the value of $\lim_{x\to 0}\frac{2^x-1}{(1+x)^{1/2}-1}$ is

a) 3log 2
b) -3log 3
c) 2log 2
d) 3log 3

Options :

1282064013. A

1282064014. B

1282064015. C

1282064016. D

Question Number : 65 Question Id : 1282061013 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If $y = \frac{ax+d}{cx+d}$, then y_n.

a) $\frac{(-1)^n\, n!\,(bc+ad)c^{n-1}}{(cx+d)^{n+1}}$
b) $\frac{(-1)^n\, n!\,(bc-ad)c^{n-1}}{(cx+d)^{n-1}}$
c) $\frac{(-1)^n\, n!\,(bc-ad)c^{n+1}}{(cx+d)^{n+1}}$
d) $\frac{(-1)^n\, n!\,(bc-ad)c^{n-1}}{(cx+d)^{n+1}}$

Options :

1282064017. A

1282064018. B

1282064019. C

1282064020. D

Question Number : 66 Question Id : 1282061014 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If $f(x) = f(0) + xf'(0) + \frac{x^2}{2!}f''(\theta x)$, then the value of θ as $x \to 1$, given $f(x) = (1-x)^{5/2}$, is

a) $\frac{9}{25}$
b) $\frac{-9}{25}$
c) $\frac{9}{28}$
d) $\frac{3}{25}$

Options :

1282064021. A

1282064022. B

1282064023. C

1282064024. D

Question Number : 67 Question Id : 1282061015 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a group (G, o), the equations
$a_0 x = b, \quad y_o a = b$, where a, b $\in$ G have

(a) Unique solutions in G
(b) Infinity solutions in G
(c) No solution in G
(d) None of above

Options :

1282064025. A

1282064026. B

1282064027. C

1282064028. D

Question Number : 68 Question Id : 1282061016 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If (G, .) is a group such that $a^2 = e, \forall a \in G$, then G is

(a) Semi group
(b) Abelian group
(c) Non-abelian group
(d) None of above

Options :

1282064029. A

1282064030. B

1282064031. C

1282064032. D

Question Number : 69 Question Id : 1282061017 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The set of all real numbers under the usual multiplication operation is not a group since

(a) multiplication is not a binary operation
(b) multiplication is not associative
(c) identity element does not exist
(d) zero has no inverse

Options :

1282064033. A

1282064034. B

1282064035. C

1282064036. D

Question Number : 70 Question Id : 1282061018 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In the group G = {2, 4, 6, 8) under multiplication modulo 10, the identity element is

(a) 2
(b) 4
(c) 6
(d) 8

Options :

1282064037. A

1282064038. B

1282064039. C

1282064040. D

Question Number : 71 Question Id : 1282061019 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If R = {(1, 2),(2, 3),(3, 3)} be a relation defined on A= {1, 2, 3}, then R.R (= R^2) is

(a) R itself
(b) {(1, 2),(1, 3),(3, 3)}
(c) {(1, 3),(2, 3),(3, 3)}
(d) {(2, 1),(1, 3),(2, 3)}

Options :

1282064041. A

1282064042. B

1282064043. C

1282064044. D

Question Number : 72 Question Id : 1282061020 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The binary relation S = Φ (empty set) on set A = {1, 2,3} is

(a) neither reflexive nor symmetric
(b) symmetric and reflexive
(c) transitive and reflexive
(d) transitive and symmetric

Options :

1282064045. A

1282064046. B

1282064047. C

1282064048. D

Question Number : 73 Question Id : 1282061021 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following sets are null sets ?

(a) {0}
(b) ø
(c) { }
(d) Both (b) & (c)

Options :

1282064049. A

1282064050. B

1282064051. C

1282064052. D

Question Number : 74 Question Id : 1282061022 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The set of all Equivalence classes of a set A of cardinality C

(a) has the same cardinality as A
(b) forms a partition of A
(c) is of cardinality 2*C
(d) is of cardinality C^2

Options :

1282064053. A

1282064054. B

1282064055. C

1282064056. D

Question Number : 75 Question Id : 1282061023 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The set of all nth roots of unity under multiplicat
form a/an

(a) semi group with identity
(b) commutative semigroups with identity
(c) group
(d) abelian group

Options :

1282064057. A

1282064058. B

1282064059. C

1282064060. D