

Section 1 - Section 1

Question No.1

4.00

Bookmark

The probability that a teacher will give an unannounced test during any class meeting is $1/5$. If a student is absent twice, then what is the probability that the student will miss at least one test?

- $7/25$
- $4/5$
- $2/5$
- $9/25$

Question No.2

4.00

Bookmark

Which of the following are the constituents of ideal gas equation?

- (i) Pressure
 - (ii) Temperature
 - (iii) Volume
 - (iv) ratio of specific heats
 - (v) number of moles of gas molecules
- (i), (ii), (iii), (iv) and (v)
 - (i), (ii) and (iii)
 - (i) and (ii) and (v)
 - (i), (ii), (iii) and (v)

Question No.3

4.00

Bookmark

For a simple enzymatic reaction, what is the value of the initial velocity when $(S) = 2K_m$?

- $2V_{max}$
- $\frac{1}{2} V_{max}$
- $\frac{2}{3} V_{max}$
- V_{max}

Question No.4

4.00

Bookmark

Firewalls are used to protect a communication network system against

- Data-driven attacks
- Unauthorized attacks
- Virus attacks
- Fire-attacks

Question No.5

4.00

Bookmark

Due to _____, the subways were closed all morning.

- flood
- are flooded
- floods
- its flooding

Question No.6

4.00

Bookmark

A die is thrown 7 times, what is the chance that an odd number turns up at least 4 times?

- $1/3$
- $1/7$
- $1/4$
- $1/2$

Question No.7

4.00

Bookmark

Organelle found in plant seeds that oxidise stored lipids as source of carbon and energy for growth are

- lysosomes
- chloroplasts

- glyoxysomes
- peroxisomes

Question No.8

4.00

Bookmark

Based on the information given, answer the below question.

1. A,B,C,D,E and F are travelling in a bus.
2. There are two reporters, two mechanics, one photographer and one writer in the group.
3. Photographer A is married to D who is a reporter.
4. The writer is married to B who is of the same profession as that of F.
5. A,B,C,D are two married couples and no one in this belong to the same profession.
6. F is the brother of C.

Which of the following is the pair of reporters?

- AE
- DF
- Cannot be determined
- DE

Question No.9

4.00

Bookmark

X is twice as good a workman as Y and together they finish a piece of work in 18 days. In how many days will X alone finish the work?

- 25
- 26
- 28
- 27

Question No.10

4.00

Bookmark

The minimum number of temporary variables needed to swap the contents of two variables is

- 0
- 3
- 1
- 2

Question No.11

4.00

Bookmark

An example of a co-dominant marker is

- AFLP marker
- RAPD marker
- SSR marker
- ISSR marker

Question No.12

4.00

Bookmark

Match the items from Group A to Group B and choose the right option given below.

Group A

- (i) zeroth law of thermodynamics
- (ii) first law of thermodynamics
- (iii) second law of thermodynamics

Group B

- (1) conservation of mass
- (2) thermal equilibrium
- (3) conservation of energy
- (4) entropy

- (i) – (1); (ii) – (2); (iii) – (3)
- (i) – (3); (ii) – (1); (iii) – (4)
- (i) – (4); (ii) – (3); (iii) – (2)
- (i) – (2); (ii) – (3); (iii) – (4)

Question No.13

4.00

Bookmark

Genes that are located at identical loci of homologous chromosomes are called

- pseudogenes
- alleles
- polygenes
- homozygous

Question No.14

4.00

Bookmark

If $X = \begin{bmatrix} a & 0 \\ 1 & 1 \end{bmatrix}$ and $Y = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$ then what is the value of 'a' for which $X^2 = Y$?

- 4
- 1
- no real values
- 1

Question No.15

4.00

Bookmark

The acetyl group required for Cytoplasmic fatty acid biosynthesis generated due to activity of

- citrate synthase
- isocitrate dehydrogenase
- isocitratelase
- citrate lyase

Question No.16

4.00

Bookmark

What is the value of $\int_0^{2\pi} \sin^{100} x \cos^{99} x dx$?

- 0
- 1
- 10
- 9

Question No.17

4.00

Bookmark

C was primarily developed as a

- systems programming language
- data processing language
- general purpose language
- simulation language

Question No.18

4.00

Bookmark

Integer division results in

- overflow
- truncation
- rounding
- modulation

Question No.19

4.00

Bookmark

Which one of the following can serve as precursor of NAD⁺ in humans

- Tryptophan
- Panthothenate

- Riboflavin
- Tyrosine

Question No.20

4.00

Bookmark

A function $f : \mathbb{R} \rightarrow \mathbb{R}$ satisfies $\sin x \cos y (f(2x+2y) - f(2x-2y)) = \cos x \sin y (f(2x+2y) - f(2x-2y))$ If $f'(0) = 1/2$ then which of the statement is true?

- $f''(x) = f(x) = 0$
- $4f''(x) - f(x) = 0$
- $f''(x) + f(x) = 0$
- $4f''(x) + f(x) = 0$

Question No.21

4.00

Bookmark

Which amino acid side chain forms the Schiff's base with the substrate in the aldolase reaction?

- Ser
- Lys
- Tyr
- Arg

Question No.22

4.00

Bookmark

As a country, the United States is _____ that there are five time zones.

- too big
- very big
- much big
- so big

Question No.23

4.00

Bookmark

What is the integrating factor of differential equation $\cos x \frac{dy}{dx} + y \sin x = 1$?

- $\sin x$
- $\tan x$
- $\sec x$
- $\cos x$

Question No.24

4.00

Bookmark

Choose the best antonym of the italicized word.

The task assigned to him was *arduous*.

- good
- absorbing
- plain
- easy

Question No.25

4.00

Bookmark

Let A,B, C be three mutually independent events. Consider the two statements S_1 and S_2

$S_1 : A$ and $B \cup C$ are independent

$S_2 : A$ and $B \cap C$ are independent

Then

- only S_1 is true
- only S_2 is true
- both S_1 and S_2 are true
- neither S_1 nor S_2 is true

Question No.26

4.00

Bookmark

If two angles of a triangle are $\tan^{-1}(2)$ and $\tan^{-1}(3)$ then what is the value of the third angle?

- $\frac{\pi}{4}$
- $\frac{\pi}{2}$
- $\frac{3\pi}{4}$
- π

Question No.27

4.00

Bookmark

Which of the following will be observed in an interaction between two dipoles?

- r^6
- r^2
- $1/r^6$
- $1/r^2$

Question No.28

4.00

Bookmark

The mother gripped her child's arm _____ he be trampled.

- lest
- if not
- if
- unless

Question No.29

4.00

Bookmark

In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given four alternatives which will fill the blank space and show the same relationship with the third word as between the first two.

Truthfulness is to *Liar* as *Loyalty* is to?.....

- Devotion
- Traitor
- Falsehood
- Worker

Question No.30

4.00

Bookmark

Which of the following class of statements usually produce no object code when compiled?

- Declaration
- Unreachable
- Assignment
- Cont

Question No.31

4.00

Bookmark

Which of the following is a service not supported by the operating system?

- Compilation
- Accounting
- I/O operation
- Protection

Question No.32

4.00

Bookmark

If $|a| + |b| = |c|$ and $a + b = c$ then the angle between a and b is

- $\theta = \pi$
- $\theta = 2\pi$
- $\theta = \pi/3$
- $\theta = 0^\circ$

Question No.33

4.00

Bookmark

Which of the following operators takes only integer operands?

- /
- *
- %
- +

Question No.34

4.00

Bookmark

Bristle : Brush

- Arm : Leg
- Stage: Chairs
- Art: Sculpture
- Key: Piano

Question No.35

4.00

Bookmark

A father has 3 children with at least one boy. What is probability that he has 2 boys and 1 girl ?

- 1/2
- 1/4
- 2/3
- 1/3

Question No.36

4.00

Bookmark

If \vec{a} , \vec{b} and \vec{c} are unit vectors such that $\vec{a} + \vec{b} + \vec{c} = \vec{0}$, then what is the value of $\vec{a} \cdot \vec{b} + \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a}$?

- 1/3
- 1/2
- 3/2
- 1/2

Question No.37

4.00

Bookmark

If a hollow sphere filled with water loses its water at a constant rate, the center of mass of the sphere

- moves downward first and then upward
- exhibits a monotonous upward motion
- exhibits a monotonous downward motion
- remains stationary

Question No.38

4.00

Bookmark

In which model of database data is stored in tables:

- Network model
- Relational model

- Recreational model
- Hierarchical model

Question No.39

4.00

Bookmark

Which of the following is/are true in respect of DeBroglie's hypothesis?

- (i) electron can behave like a wave
 - (ii) wavelength of electrons depend on their velocities
 - (iii) wavelength of electrons will not depend on their velocities
- (i) and (ii)
 - (i) and (iii)
 - (i), (ii) and (iii)
 - (ii) and (iii)

Question No.40

4.00

Bookmark

If $x = \int_0^y \frac{dt}{\sqrt{1+9t^2}}$ and $\frac{d^2y}{dx^2} = ay$ then what is the value of a ?

- 9
- 0
- 10
- 1

Question No.41

4.00

Bookmark

If the cell membrane has an ion channel that is equally selective to all ions, this channel will?

- change the resting potential of the neuron
- decrease the resistance of the neuron
- make the cell more excitable
- have no effect on the neuron

Question No.42

4.00

Bookmark

Random priming technique for preparing DNA probes involves the labeling of 6 mer oligonucleotides. What is the number of possible random combinations when all the four nucleotides are used in the reaction ?

- 2096
- 1024
- 4000
- 6000

Question No.43

4.00

Bookmark

For a particle undergoing a uniform circular motion with radius r and velocity v, the acceleration is given by

- mv/r
- v^2/r
- mv^2/r
- v/r

Question No.44

4.00

Bookmark

Which of the following represents mammalian mitotic Cyclins

- Cyclins A and B
- Cyclins A and D
- Cyclins B and D
- Cyclins E and B

Question No.45

4.00

Bookmark

The number of genotypes in Mendelian dihybrid cross is:

- 3
- 16
- 12
- 9

Question No.46

4.00

Bookmark

Identify the adverb in the following sentence:

We looked upwards and saw a bright shooting star

- shooting
- upwards
- bright
- looked

Question No.47

4.00

Bookmark

Which of the following is not a command delimiter?

- &
- ;
- new line
- ,

Question No.48

4.00

Bookmark

If the atmospheric pressure suddenly drops to 0.5 bar, which of the following is likely to be right ?

- Trees will find it more difficult to send water to the top
- Animals will find it easier to breathe
- Aquatic plants will grow better due to increased dissolved oxygen
- Trees will find it easier to send water from the root to the top

Question No.49

4.00

Bookmark

If a random variable X assumes the values 0 and 1 with $P(X=0) = 3P(X=1)$, then variance of X is

- 2/16
- 3/16
- 1/16
- 4/16

Question No.50

4.00

Bookmark

The process of accessing data stored in a tape is similar to manipulating data on a

- heap
- queue
- stack
- list

Question No.51

4.00

Bookmark

Removal of gene activity A from a linear pathway results in higher than normal levels of transcripts from gene B. A reasonable hypothesis would be that

- Gene B must act upstream of Gene A
- Gene B acts downstream of Gene A and is regulated by A directly or indirectly
- The increase in transcript B abundance is an experimental error
- Gene A has no relation to transcripts of Gene B

Question No.52

4.00

Bookmark

If Milk is water, water is sugar, sugar is road, road is sky and sky is track where do aeroplanes fly?

- Milk
- Road
- Sugar
- Sky

Question No.53

4.00

Bookmark

The basic unit of chromatin nucleosome consists of

- H1, H2B, H3, H4 histones and 200 bp of DNA
- H1, H2, H3, H4 histones and 180 bp of DNA
- H2A, H2B, H3, H4 histones and 140 bp of DNA
- DNA polymerase, DNA helicase and histones

Question No.54

4.00

Bookmark

The normal rate of infection of a certain disease in animals is known to be 40%. In an experiment with 6 animals injected with a new vaccine it was observed that none of the animals caught infection. What is the probability of the observed result?

- 0.0467
- 0.001
- 0.0041
- 0.467

Question No.55

4.00

Bookmark

These poultry belong to Mr. Kishen, our new neighbor.
The underlined word is a _____ noun.

- abstract
- common
- collective
- proper

Question No.56

4.00

Bookmark

A recombinant vaccine is available for which one of the following cancers?

- Adult T cell leukemia
- Colon carcinoma
- Cervical carcinoma
- Glioblastoma

Question No.57

4.00

Bookmark

There are n locks and n matching keys. If all the locks and keys are to be perfectly matched, then what is the maximum number of trials required to open a lock?

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

Question No.58

4.00

Bookmark

Major gluconeogenesis occurs in

- Liver and skeletal muscle
- Liver and adrenal gland
- Liver and heart
- Liver and kidney

Question No.59

4.00

Bookmark

How many microliters of 0.1 M solution of sodium chloride will make 10 ml of 5 mM sodium chloride ?

- 10
- 100
- 200
- 500

Question No.60

4.00

Bookmark

Study the following information carefully and answer the question below it

The Director of an MBA college has decided that six guest lectures on the topics of Motivation, Decision Making, Quality Circle, Assessment Centre, Leadership and Group Discussion are to be organised on each day from Monday to Sunday.

- (i) One day there will be no lecture (Saturday is not that day), just before that day Group Discussion will be organised.
- (ii) Motivation should be organised immediately after Assessment Centre.
- (iii) Quality Circle should be organised on Wednesday and should not be followed by Group Discussion
- (iv) Decision Making should be organised on Friday and there should be a gap of two days between Leadership and Group Discussion

Which of the pairs of lectures were organised on first and last day?

- Quality Circle and Motivation
- Group Discussion and Quality Circle
- Group Discussion and Decision Making
- None of these

Question No.61

4.00

Bookmark

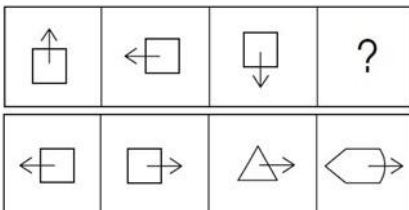
Anand is heavier than Gopal. Mohan is lighter than Jagan. Pandian is heavier than Jagan but lighter than Gopal. Who is the heaviest of all ?

- Anand
- Pandian
- Jagan
- Gopal

Question No.62

4.00

Bookmark



- (A)
 - (B)
 - (C)
 - (D)
- D
 - C
 - A
 - B

Question No.63

4.00

Bookmark

The following plant hormone is synthesized from an amino acid precursor

- Auxin
- Cytokinin
- Abscissic acid
- Ethylene

Question No.64

4.00

Bookmark

Constructor is called whenever

- an object is declared
- a class is used
- a class is declared
- an object is used

Question No.65

4.00

Bookmark

If all the 4 bases have equal probability of occurrence in a genome, approximately how many times will EcoRI cut in this genome if the size of the circular DNA is 1 Mbp?

- 244
- 6000
- 1000
- 10 power 6

Question No.66

4.00

Bookmark

Choose the best synonym of the italicized word.

Reena has an *insatiable* love for music.

- undesirable
- unchanging
- irreconcilable
- unquenchable

Question No.67

4.00

Bookmark

Assertion: Crude oil is abundantly found in nature

Reason: It is the main raw material for all automobiles

- Both A and R are true and R is not the correct explanation of A
- Both A and R are true and R is the correct explanation of A
- A is true but R is false
- A is false but R is true

Question No.68

4.00

Bookmark

Which is the weakest interaction?

- A covalent bond between the O and H atoms of water
- A hydrogen bond between two water molecules
- A van der Waals interaction between two methyl groups
- An ionic interaction between a carboxylic acid and an amine

Question No.69

4.00

Bookmark

What is the solution of the differential equation $(x+2y^3)\frac{dy}{dx} = y$?

- $\frac{y}{x} = x^2 + c$
- $\frac{x^2}{y} = y^2 + c$
- $\frac{x}{y} = y^2 + c$
- $\frac{x}{y^2} = y + c$

Question No.70

4.00

Bookmark

Which of the following abstract data types can be used to represent a many to many relation?

- Linked list

- Linked list
- Tree
- Graph
- Queue

Question No.71

4.00

Bookmark

The immunoglobulin fold is made up of

- a sandwich of two antiparallel beta sheets
- a beta barrel
- seven alpha helical segments
- a sandwich of two parallel beta sheets

Question No.72

4.00

Bookmark

The effect of natural selection may be countered by

- gene flow
- mutation
- genetic drift
- inbreeding

Question No.73

4.00

Bookmark

For a group containing 100 observations, the mean and the standard deviation are 8 and $\sqrt{10.5}$, respectively. For 50 observations selected from these 100 observations, the mean and standard deviation are 10 and 2, respectively. The values of the mean and standard deviation for the other half are

- 3,9
- 5,10
- 2,4
- 6,3

Question No.74

4.00

Bookmark

Rutherford's atomic theory basically formulated after an experiment with

- α particles
- γ rays
- X-rays
- β particles

Question No.75

4.00

Bookmark

Which of the following represent Heisenberg's uncertainty principle?

- (i) $\Delta x \Delta p \geq \hbar/2$
 - (ii) $\Delta E \Delta t \geq \hbar/2$
 - (iii) $\Delta x \Delta p \leq \hbar/2$
 - (iv) $\Delta E \Delta t \leq \hbar/2$
- (i) and (ii)
 - (iii) and (iv)
 - (ii) and (iii)
 - (i) and (iv)

Question No.76

4.00

Bookmark

Which of the following shell script's does not recognize the break command?

- goto
- while
- for
- until

Question No.77

4.00

Bookmark

What is the protein found in human hair and finger nails, as well as horns, wool, claws, bird beaks and spider webs?

- Glycogen
- Keratin
- Collagen
- Cellulite

Question No.78

4.00

Bookmark

Arrange the following in the increasing order of their frequencies

(i) ultra violet (ii) infra red (iii) x-rays (iv) radio frequency

- (iv), (iii), (ii), and (i)
- (iv), (ii), (i), and (iii)
- (i), (ii), (iii), and (iv)
- (iii), (i), (ii), and (iv)

Question No.79

4.00

Bookmark

Which one of the following techniques will be the most appropriate to separate dCTP from a mixture of dCTP, dCDP, dCMP ?

- Hydrophobic interaction chromatography
- Cation exchange chromatography
- Anion exchange chromatography
- Gel filtration chromatography

Question No.80

4.00

Bookmark

Which of the following is not a character special file?

- Terminal
- Tape Drive
- Modem
- Printer

Question No.81

4.00

Bookmark

Void can be used

- outside the brackets of a function that represent the function returns value
- in an expression
- b. in an comment line statement
- a datatype of a function that returns nothing to its calling environment

Question No.82

4.00

Bookmark

cout stands for

- class output
- common output
- call output
- character output

Question No.83

4.00

Question No.83 4.00 **Bookmark**

Which of the following diffraction helps us to solve the structures of macromolecules?

- UV rays
- radio frequency rays.
- Infrared rays
- X-rays

Question No.84

4.00

Bookmark

The resolution of a diffraction grating is independent of

- intensity of incident light
- number of grating lines
- wavelength of incident light
- order of the diffraction

Question No.85

4.00

Bookmark

The maximum number of dimension an array can have in C is

- 3
- 5
- 4
- compiler dependent

Question No.86

4.00

Bookmark

Statement (S): The gun recoils in the opposite direction of its firing.

Reason1 (R1): For every action there is an equal and opposite reaction.

Reason2 (R2): Mass can neither be created nor destroyed.

- Only S and R2 are true; R2 is the right reason for S.
- S, R1 and R2 are true; R1 is the right reason of S.
- S, R1, and R2 are true; R2 is the right reason of S.
- S, R1, and R2 are true; both R1 and R2 are reasons for S.

Question No.87

4.00

Bookmark

The following program fragment

for (i = 1; i < 5; ++i)

if(i == 3) continue;printf("%d,", i); results in the printing of

- 1,2,3,4
- 1,2,4
- 2,4,5
- 1,2,4,5

Question No.88

4.00

Bookmark Between any two real roots of the equation $e^x \sin x - 1 = 0$, the equation $e^x \cos x + 1 = 0$ has

- no root
- at least one root
- at most one root
- exactly one root

Question No.89

4.00

Bookmark

Why are rifamycins especially useful for studying transcription?

- Because they are highly specific for RNA-DNA hybrid

- Because they such high affinity for RNA- DNA hybrids
- Because they such high affinity for single stranded RNA
- Because they block RNA chain elongation, but do not inhibit RNA polymerase binding to the promoter nor formation of the initial phosphodiester bond
- Because they such high affinity for duplex DNA

Question No.90

4.00

Bookmark

Study the following information carefully and answer the question below it:

Aasha, Bhuvnesh, Charan, Danesh, Ekta, Farhan, Ganesh and Himesh are sitting around a circle, facing the centre. Aasha sits fourth to the right of Himesh while second to the left of Farhan. Charan is not the neighbour of Farhan and Bhuvnesh. Danesh sits third to the right of Charan. Himesh never sits next to Ganesh.

Who is to the immediate left of Aasha?

- Bhuvnesh
- Aasha
- Ganesh
- Charan

Question No.91

4.00

Bookmark

Which of the following language is case sensitive?

- BASIC
- VB
- C
- COBOL

Question No.92

4.00

Bookmark

The dominant force between a proton and an electron is

- Centripetal force
- Gravitational force
- moment of inertia
- Colombian force

Question No.93

4.00

Bookmark

Assume that each born child is equally likely to be a boy or a girl. If a family has two children, what is the conditional probability that both are girls given that the youngest is a girl?

- 1/4
- 1/3
- 1/2
- 1/8

Question No.94

4.00

Bookmark

Choose the missing term: SHG, RIF, QJE, PKD, ?

- OLD
- MLB
- NMD
- OLC

Question No.95

4.00

Bookmark

Which data structure is called as FIFO

- Heap
- Queue
- Stack
- Graph

Question No.96

4.00

Bookmark

In an isothermal process, which of the following remains constant?

- temperature
- pressure
- volume
- enthalpy

Question No.97

4.00

Bookmark

If the system of equations $x-ky-z=0$, $kx-y-z=0$, $x+y-z=0$ has a non zero solution, then what are the possible values of k ?

- 1,2
- 1,2
- 0,1
- 1,1

Question No.98

4.00

Bookmark

Study the following information carefully and answer the question below it

- (i) There is a group of five persons- A, B, C, D and E
- (ii) One of them is manual scavenger, one is sweeper, one is watchman, one is human scarecrow and one is grave-digger
- (iii) Three of them – A, C and grave-digger prefer tea to coffee and two of them – B and the watchman prefer coffee to tea
- (iv) The human scarecrow and D and A are friends to one another but two of these prefer coffee to tea.
- (v) The manual scavenger is C's brother

Which of the above statements is unnecessary?

- (iii)
- (ii)
- Null
- (iv)

Question No.99

4.00

Bookmark

The electric field at the centre of a hollow conducting sphere of radius r is

- independent of r
- inversely proportional to r^2
- directly proportional to r^2
- directly proportional to r

Question No.100

4.00

Bookmark

Correct the error in the italicized part of the sentence by choosing the most appropriate option.

Whenever the two sisters *go out for shopping*, they take their pet dog with them.

- go out to shopping
- go out shopping
- go out on shopping
- go out of shopping