MAH MCA CET

Question Paper - 2022



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This question paper has been compiled on the basis of memory based questions recall. We have tried to provide as many questions-answers as we could possibly collect. Hope this helps you in your preparation.

Section 1

COMPUTER

Q1. What will be the output of the following programs?

```
Int main()
{
int a = 3, b = 5;
int t = a;
a=b;
b=t;
printf("%d %d ,a, b);
}
```

1. 3, 3
2. 3, 5
3. 5, 5
4. 5, 3

Correct Answer : 4

Q2. Stack is a

1. Last in first out
2. First in last out
3. Both a and b
4. none

Correct Answer : 1

Q3. Postfix expression of ((A - (B+C)) * D) $(E+F) is

1. ABC+D*EF+$
2. ABC+D-*EF+$
3. ABC+-DE*F+$
4. ABC+-D*EF$+

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Correct Answer : 1

Q4. ASCII stands for

1. American Standard Code for Information Interchange
2. All purpose scientific Code for Information Interchange
3. American Security Code for Information Interchange
4. None of the above

Correct Answer : 1

Q5. In C random access is achieved by using

1. fseek (*fptr, offset, from_where)
2. fseek (fptr, offset, from_where)
3. fseek (*fptr,, from_where)
4. All

Correct Answer : 1

Q6. In a doubly linked list minimum number of fields in each node are

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

Correct Answer : 2

Q7. Nonlinear data structure is

1. Linked list
2. Binary tree
3. stack
4. queue

Correct Answer : 2

Q8. 8 Binary tree of order n contains at least _____ keys

1. (n-1)/2
2. n^2
3. (n-3)/2
4. none

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Correct Answer : 1

Q9. The time taken for the desired sector to rotate to the disk head is called

1. Positioning time
2. Random access time
3. Seek time
4. Rotational latency

Correct Answer : 4

Q10. If the resource allocation graph contains no cycles then

1. none
2. No deadlock
3. deadlock
4. May or may not be deadlock

Correct Answer : 2

Q11. Which of the following is not a valid identifier

1. average
2. none
3. 8_name
4. _Tot

Correct Answer : 3

Q12. Banker's algorithm to avoid deadlock, matrix can be updated in process by

1. available := available +request
2. available := available -request
3. available := allocated +request
4. none

Correct Answer : 1

Q13. In C, the NULL statement which does nothing is just

1. ,
2. ;
3. :

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4. .

Correct Answer : 2

Q14. Flip flop stores

1. 1 bit information
2. 2 bit information
3. 3 bit information
4. 4 bit information

Correct Answer : 1

Q15. For a deadlock to arise, which of the following conditions must hold simultaneously?

1. Mutual exclusion
2. No preemption
3. Hold and wait
4. All of the mentioned

Correct Answer : 4

Q16. Banker's algorithm is used for

1. To rectify deadlock
2. To detect deadlock
3. To prevent deadlock
4. To solve deadlock

Correct Answer : 3

Q17. The first computers were programmed using _____

1. Assembly language
2. Machine language
3. Source code
4. Object code

Correct Answer : 3

Q18. Grouping and processing all of a forms transaction at one time is called

1. Batch processing
2. A database management system

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3. All of these
4. None of these

Correct Answer : 1

Q19. Device drivers are

1. Tine power cords for external storage devices
2. Experts who know to maximize the performance of device
3. Small, special purpose programs
4. The innermost part of the operating system

Correct Answer : 3

Q20. The main purpose of a database management program is to

1. Used to store, retrieve, and run queries on data a database management system
2. Used to remove queries on data a database management system
3. All of these
4. None of these

Correct Answer : 1

Q21. How does a "smart" terminal differ from a dumb terminal?

1. It has primary memory
2. A dumb terminal is simply an output device that accepts data from the CPU. In contrast, a smart terminal is a monitor that has its own processor for special features, such as bold and blinking characters.
3. Both 1 and 2
4. None of the above

Correct Answer : 2

Q22. The piece of hardware that converts your computer digital signal to an analog signal that can travel over telephone lines is called a

1. Modem
2. Tower
3. Red wire
4. Blue card

Correct Answer : 1

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Q23. A goal of normalization is to _____

1. Minimize the number of relationships
2. Minimize the number of entities
3. Minimize the number of tables
4. Minimize the number of redundancy

Correct Answer : 4

Q24. An operating system that can do multitasking means that

1. The OS can divide up work between several CPUs.
2. Several programs can be operated concurrently.
3. Multiple people can use the computer concurrently.
4. All of the above

Correct Answer : b

Q25. In a sequence of events that takes place in an instruction cycle, the first cycle is

1. Execute cycle
2. Decode cycle
3. Fetch cycle
4. Restore cycle

Correct Answer : 3

Q26. A central computer that holds collections of data and programs for many PCs, workstations, and other computers is a

1. Supercomputers
2. Mini computers
3. Server
4. Laptop

Correct Answer : 3

Q27. The simultaneous processing of two or more programs by multiple processor is _____

1. multiprogramming
2. multitasking
3. time-sharing
4. multiprocessing

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Correct Answer : 4

Q28. Computer uses the _____ number system to store data & perform calculations

1. Decimal
2. Hexadecimal
3. Octal
4. Binary

Correct Answer : 4

Q29. Arithmetic operations are ____

1. Addition (+)
2. Subtraction (-)
3. Multiplication (x)
4. All of the above

Correct Answer : 4

Q30. With which tools any part of documents can be seen on the screen?

1. Editing
2. Searching
3. Pasting
4. Scrolling

Correct Answer : 4

Q31. What is a relational database?

1. Attributes
2. tables
3. records
4. fields

Correct Answer : 2

Q32. A ____ is the unique name that you give to a file of information.

1. Device letter
2. Folder
3. Filename

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4. Filename extension

Correct Answer : 4

Q33. Virtual memory is _____

1. RAM
2. Only necessary if you do not have any RAM in your computer
3. A back up device for floppy disks
4. Memory on the hard disk that the CPU uses as an extended RAM

Correct Answer : 4

Q34. System software is the set of programs that enables your computer's hardware devices and ____ software to work together.

1. Management
2. Utility
3. Processing
4. Application

Correct Answer : 4

Section 2

Mathematics

Q. 1 The solution of Differential equation $y \log \frac{dy}{dx} + y = 2 \log x$

1. $y = 2 \log x - \frac{c}{\log x}$
2. $y = \log x - \frac{c}{\log x}$
3. $y = \log x + \frac{c}{\log x}$
4. $y = 2 \log x + \frac{c}{\log x}$

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Correct Answer : 3

Q2. If the price of sugar is increased by 5 % by what percentage a person should reduce his sugar consumption?

1. 405/205
2. 505/105
3. 450/105
4. 500/105

Correct Answer : 4

Q3. Area of trapezium is 480 cm^2. Distance between 2 parallel sides is 15, one side is 20 cm , the other side is:

1. 40 cm
2. 44 cm
3. 43 cm
4. 42 cm

Correct Answer : 2

Q4. In two APs the common difference is 0, sum of the consecutive 3 terms is 15, P and Q are products of the terms such that P/Q = ⅞ then terms which satisfy these conditions are

1. 7,5,3 and 6,5,4
2. -5,5,15, abd -6,5,16
3. 3,5,7 and 4,5,6
4. none

Correct Answer : 4

Q5. Probability of a non swimmer is ⅕. Probability of out of 5 students , four are swimmer is

1. ${}^5C_4\ (4/5)^4\ 1/5$
2. $(4/5)^4\ 1/5$
3. ${}^5C_1\ (4/5)^4\ 1/5$
4. (4/5)

Correct Answer : 1

Q6. Binomial Expansion of $(a - b)^n$* n⩽5, sum of 5th and 6th term is 0, then what is value of a/b ?

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1. (n-5)/6
2. (n-4)/5
3. 5/(n-4)
4. 6/(n-5)

Correct Answer : 2

Q7. The least value of 2sin^2θ + 3cos^2θ is

1. 3
2. 1
3. 2
4. none

Correct Answer : 3

Q8. Three persons X, Y and Z invested an amount of 380, 400 and 420. Divide profit of Rs 180 among them

1. 60, 57, 63
2. 57, 60, 63
3. 63, 57, 60
4. none

Correct Answer : 2

Q9. Which is an even number?

1. 22563
2. 12479
3. 45678
4. 34233

Correct Answer : 3

Q10. Points A(2a, 4a), B(2a, 6a) and C(2a +$\sqrt{3}$, 5a0, a>0 are vertices of

1. Isosceles triangle
2. Right angled triangle
3. Equilateral triangle
4. none

Correct Answer : 3

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Q11. A and B participated in a race. A covers 200m distance in 22sec and B covers it in 25 sec. How far is B when A has crossed the finishing line?

1. 8m
2. 12m
3. 24m
4. 16m

Correct Answer : 3

Q12. $\log_{3\sqrt{2}}{}^{1/18}$

1. 2
2. -2
3. $\sqrt{2}$
4. $\sqrt{3}$

Correct Answer : 2

Q13. A function f: ([0,∞)→ [0,∞) and f(x)=x/(x+1) is

1. Neither one-one nor onto
2. Onto but not one-one
3. One-one and onto
4. One-one but not onto

Correct Answer : 4

Q14. A cuboid has dimensions 80 x 30 x 40, a color paper has to be put onto the back, both sides and front side. What will be the area of the paper required?

1. $6000cm^2$
2. $8000cm^2$
3. $8800cm^2$
4. $600cm^2$

Correct Answer : 3

Q15. $I_n = \int_0^{\Pi/4} \tan^n x dx$ **, then** $\frac{1}{I_2 + I_4}, \frac{1}{I_3 + I_5}, \frac{1}{I_4 + I_6}$ **are in**

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1. AP
2. GP
3. HP
4. none

Correct Answer : 1

Q16. Given f→[-10, 10]→R, sin f(x)=sinx + $\frac{x^2}{a}$ be odd function, then set of values of 'a' -

1. (-10, 10) - {0}
2. (0,15)
3. [100,∞)
4. (100,∞)

Correct Answer : 4

Q17. Sum of cubes of n natural numbers

1. $\frac{(n(n+1))^2}{4}$
2. $\frac{(n(n+3)^2)}{4}$
3. $\frac{(n(n+2)^2)}{4}$
4. none

Correct Answer : 1

Q18. Maximum and minimum value of 8 cosθ - 15 sinθ

1. 17 and -17
2. 18 and -18
3. 25 and -25
4. none

Correct Answer : 1

Q19. Sum of n natural numbers

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

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4. none

Correct Answer : 1

Q20. Angle between tangents drawn from a parabola y^2 = 4a(x -a) is

1. tan^{-1}(-2)
2. 45
3. 90
4. 60

Correct Answer : 3

Q21. In what proportion the 35% alcohol should be mixed with 60% of alcohol to make a 50% of alcohol solution?

1. 2/3
2. 3/2
3. 2/5
4. 3/5

Correct Answer : 1

Q22. Order and degree of differential equation of y^2 = 2c (x + $\sqrt{c}$) is

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

Correct Answer : 1

Q23. What is the fraction to 5/7 which is an % is to 9/15 ?

1. 10/21
2. 21/10
3. 10/23
4. None

Correct Answer : 1

Q24. If 1/a = 1/b + 1/c then c equals

1. ab/(b-a)

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2. ab/(b+a)
3. ab/(a-b)
4. none

Correct Answer : 3

Q25. Shortest distance between the parabola $2y^2 = 2x - 1$ and $2x^2 = 2y - 1$

1. $1/(2\sqrt{2})$
2. $2\sqrt{2}$
3. $\sqrt{36}/5$
4. 4

Correct Answer : 2

Q26. Eccentricity of the hyperbola $2x^2 - y^2 = 6$

1. $\sqrt{2}$
2. $\sqrt{3}$
3. 3
4. $\sqrt{6}$

Correct Answer : 2

Q27. Equation $\frac{x^2}{10-a} + \frac{y^2}{4-a} = 1$ represents an ellipse if

1. a>10
2. a>4
3. a<4
4. 4<a<10

Correct Answer : 3

Q28. Solution of Differential Equation $\frac{dy}{dx} = -\frac{y^2}{x^2 - xy}$

1. ky= $e^{\frac{-y}{x}}$
2. $ky= e^{\frac{y}{x}}$

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3. kx= $e^{\frac{-y}{x}}$

4. ky= $e^{\frac{y}{x}}$

Correct Answer : 2

Q29. Value of $\sqrt{3}$ cosec 20 - sec 20 is

1. 2sin 20/ sin 40
2. 4
3. Sin 20/ sin 40
4. 2

Correct Answer : 2

Q30. Solution at the differential equation ydx + (x +x^2y)dy = 0

1. -1/xy = c
2. -1/xy + log y = c
3. 1/xy + log y = c
4. Log y = cx

Correct Answer : 2

Q31. The vertex of the parabola $y^2 - 10y + 22 = 0$ is

1. (3,4)
2. (3,5)
3. (5,3)
4. None of these

Correct Answer : 2

Q33. For how many value of Θ between 2π is the equation 2 cosec 2Θ CotΘ - Cot^2Θ = is valid?

1. 0
2. 2
3. 1
4. None of these

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Correct Answer : 3

Q34. There are "n" arithmetic progressions beginning with 1 and there common difference being 1,2,3,.....n respectively then sum of their nth term is ……..

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

Correct Answer : 3

Q35. The area enclosed by |x| + |y| = 1 is

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

Correct Answer : 3

Q36. Ina caravan, in addition to 50 hens there are 45 goats and 8 camels with some keepers. If the total number of feet be 224 more than the number of heads, find the number of keepers.

1. 5
2. 10
3. 18
4. 15

Correct Answer : 4

Q37. The solution of differential equation $\frac{dy}{dx} - \frac{x\log x}{(1+\log x)} = \frac{e^y}{(1+\log x)}$ if y(1)=0, is

1. $e^y = x^{e^y}$
2. $x^x = y^{e^y}$
3. $x^x = x^{e^{ye^y}}$
4. none

Correct Answer : 3

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Q38. The solution of the differential equation $\frac{dy}{dx} = \frac{y^2}{xy - x^2}$ is

1. $y = ce^{xy}$
2. $y = ce^{x/y}$
3. log y = xy + c
4. log x = xy + c

Correct Answer : 3

Q39. The value o f$\sqrt{3}$sin x + cos x is maximum when x is equal to

1. 30°
2. 45°
3. 60°
4. 90°

Correct Answer : 3

Q40. The radius of the circle passing through the center of the incircle of triangle ABC and through the end points of BC is given by

1. a/2 sin A
2. a/2 cos A
3. a/2 sec A/2
4. none

Correct Answer : 3

Q41. If sinϴ = $\frac{m^2 - n^2}{m^2 + n^2}$, then the value of tanϴ is

1. tanϴ=$\frac{m^2 - n^2}{mn}$
2. tanϴ=$\frac{m^2 + n^2}{mn}$
3. Both 1 and 2
4. None of the above

Correct Answer : 1

Q42. One of the two events must occur. If the chance of one is 2/3rd of the other, then the odds in favour of the other are.

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1. 3/2
2. 5/7
3. 2/3
4. none

Correct Answer : 1

Q43. The solution of the differential equation $e^{x-y}dx + e^{y-x}dy = 0$ can be

1. $e^{2x} - e^{2y} = 0$
2. $e^{2x} + e^{2y} = 0$
3. $e^{x-y} + e^{y-x} = 0$
4. none

Correct Answer : 2

Q44. Ten years ago, the average age of A and B was 20 years. Average age of A, B and C is 30 years today. How old will C be after 5 years

1. 30
2. 20
3. 51
4. 35

Correct Answer : 4

Q45. If tanθ = 3 and θ lies in the third quadrant then the value of sinθ is

1. $1/\sqrt{10}$
2. $-1/\sqrt{10}$
3. $-3/\sqrt{10}$
4. $3/\sqrt{10}$

Correct Answer : 3

Q46. In a rhombus ABCD the diagonal AC and BD intersect at a point (1,2). If the point B is (2,3). The diagonal AC has equation

1. X - y=-1
2. X + y=0
3. X + y=3
4. none

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Correct Answer : 1

Q47. f(x).f(1/x)=f(x) + f(1/x) and f(4)=65 then f(6) is

1. 220
2. 217
3. 200
4. 273

Correct Answer : 2

Q48. The straight line y =3x+c will be tangent to hyperbola $\frac{x^2}{25} - \frac{y^2}{16} = 1$ if c is equal to

1. 119
2. 209
3. 225
4. 144

Correct Answer : 2

Q49. A boy carved his initials on the back of the tree at a height of 2.5 m above the ground the tree was 5 m tall at that time, in 10 years the tree attained a height of 15 m. The initial carved by a boy will now be found at what height above the ground?

1. 15 m
2. 17.5 m
3. 2.5 m
4. 7.5 m

Correct Answer : 4

Q50. The radius of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$ and having its center at ellipse (0,3)

1. $\sqrt{12}$
2. 7
3. 4
4. None

Correct Answer : 3

Q51. What is the angle between any two diagonals of a cube ?

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1. $cos^{-1}1/\sqrt{3}$
2. $cos^{-1}1/3$
3. $sin^{-1}1/3$
4. none

Correct Answer : 2

Q52. The probability that at least one of the events A and B occurs is 0.6. If A and B occur simultaneously with probability 0.2, then $P(A^-)+P(B^-)$ is

1. 1.4
2. 1.2
3. 0.4
4. 0.8

Correct Answer : 2

Q53. If $a = (1/10)^2$, b= 1/5, c=$\sqrt{\frac{1}{100}}$ then which of the following statements is correct?

1. c < a < b
2. a < b< c
3. a < c < b
4. None

Correct Answer : 3

Q54. The height of a room is 40% of the semiperimeter. It cost Rs 260 to paper the wall of the room with paper 50 cm wide at Rs 2 per m allowing the area of 15 sq.m for doors and windows the height of the room is

1. 4.0 m
2. 3.9 m
3. 2.6 m
4. 4.2 m

Correct Answer : 1

Q55. Suppose a,b,c are in Arithmetic progression and a^2, b^2, c^2 are in geometric progression. If a< b< c and a+b+c=3/2, the value of a is

1. 1/2 -1/$\sqrt{3}$
2. 1/2 -1/$\sqrt{2}$

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3. $1/2\sqrt{2}$
4. None

Correct Answer : 2

Q56. Let function f : R→R defined by f(x)=x^3, x∈R is

1. Injective
2. Bijective
3. Surjective
4. None

Correct Answer : 3

Q57. The area of quadrilateral formed by common tangent to ellipses
$E_1 : \frac{x^2}{16} + \frac{y^2}{9} = 1 \& E_2 : \frac{x^2}{9} + \frac{y^2}{16} = 1$ **is**

1. 49
2. 50
3. 25
4. 100

Correct Answer : 2

Q58. The age of surabhi neeraj is in the ratio 6:7, after 6 years the ratio of their age be 15:17. What is the age of the neeraj?

1. 24 years
2. 32 years
3. 26 years
4. 28 years

Correct Answer : 4

Q59. The sum of 2n terms of the series of which every term is a times the term before it and every odd term is c times the term before it, and first term being 1 is

(a) (1+a)($\frac{(ac)^n - 1)}{ac - 1}$

(b) (1+a)($\frac{(ac)^n - 1)}{ac + 1}$

(c) (1+a)($\frac{(ac)^n + 1)}{ac - 1}$

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(d)None of the above

Correct Answer : 1

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