DCET 2023

Diploma Common Entrance Test

Question Paper

Instructions:

- Total Questions: 100 | Maximum Marks: 100 | Duration: 3 hours
- Each question carries 1 mark | Answer key provided at the end

IT Skills

Q1.
Which of the following is not a cyber crime?
(A) Cryptography
(B) Denial of Service
(C) Man-in-the-middle attack
(D) Phishing

Q2.
DoS is abbreviated as _____.
(A) Denial of Service
(B) Distribution of Server
(C) Distribution of Service
(D) Denial of Server

Q3.
____ protects interconnected systems including hardware, software and programs and data from cyber attacks.
(A) Cyber Security
(B) Computer Security
(C) Resource Security
(D) Hardware Security

Q4.
Basic functionality of the network device firewall is:
(A) scans mobile applications
(B) monitoring database
(C) privatizes the computers
(D) monitoring incoming and outgoing networks

Q5.
An algorithm represented in the form of programming language is called:
(A) Flowchart
(B) Pseudocode
(C) Program
(D) Instruction

Q6.
The _____ symbol is used when the flowchart is starting or ending.
(A) Connector/Arrow
(B) Terminal box/Rounded rectangle
(C) Input/Output
(D) Process

Q7.
MIT App Inventor allows user to
(A) Create web application
(B) Build Android application
(C) Create System Software
(D) Develop Operating System

Q11.
Which of the following is used to style the appearance of web pages?
(A) Html
(B) JavaScript
(C) PHP
(D) CSS

Q12.
Which of the following is an example of web browser?
(A) Google
(B) Firefox
(C) Apache
(D) MySQL

Q13.
Which of the following is an open source and free workflow management software?
(A) Trello
(B) MS Excel
(C) Windows
(D) Linux

Q14.
ERP package will handle _____ business functionality/functionalities.
(A) One
(B) Two
(C) Three
(D) Multiple/all

Q15.
____ is a visual diagram of a company that describes what employees do, whom they report to and how decisions are made.
(A) Physical Structure
(B) Organizational Structure
(C) Logical Structure
(D) Hybrid Structure

Q16.
____ is a methodology used in system analysis to identify, clarify, and organize system requirements.
(A) Workflow
(B) Use case
(C) Algorithm
(D) Software

Q8.
What is the function of the ``when green flag clicked'' command block?
(A) Points Sprite in the specified direction
(B) If condition is true, runs the blocks inside
(C) Runs the script
(D) Stops the execution of script

Q9.
The correct sequence of HTML tags for starting a webpage is:
(A) Head, Title, Html, Body
(B) Html, Head, Title, Body
(C) Html, Body, Title, Head
(D) Html, Title, Head, Body

Q10.
Web server:
(A) is a computer system that delivers web pages
(B) is delivery news
(C) provides options for those seeking real-time discussions
(D) prints documents

Q17.
Which of the following is not an application of IoT?
(A) Web browser
(B) Smart home
(C) Smart city
(D) Self-driven cars

Q18.
Which of the following is not a cloud service option?
(A) VaaS
(B) IaaS
(C) PaaS
(D) SaaS

Q19.
How many types of services are offered by cloud computing to the users?
(A) 2
(B) 4
(C) 3
(D) 5

Q20.
Combination of Public and Private deployment is called
(A) Hybrid
(B) Hyper
(C) Public
(D) Private

FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING

Q21.
Unit of electrical power is
(A) Volt
(B) Watt
(C) Watt-hour
(D) Ampere-hour

Q22.
In pipe earthing, the diameter of GI pipe embedded in the pit is
(A) 32 mm
(B) 38 mm
(C) 48 mm
(D) 56 mm

Q23.
If a resistor of $100\,\Omega$ is connected in series with a parallel combination of two $200\,\Omega$ resistors, the effective resistance is
(A) 200 ohms
(B) 250 ohms
(C) 350 ohms
(D) 150 ohms

Q24.
If a resistor of $20\,\Omega$ is connected across a source of 5 V, the current in the circuit is
(A) 1 Ampere
(B) 4 Amperes
(C) 0.5 Amperes
(D) 0.25 Amperes

Q25.
Power factor is
(A) ratio of resistance to inductance
(B) ratio of apparent power to true power
(C) ratio of resistance to impedance
(D) ratio of inductance to capacitance

Q31.
A static machine that transfers electrical power from one circuit to another without changing frequency is called
(A) DC machine
(B) Alternator
(C) Induction motor
(D) Transformer

Q32.
The initial type of connection of motor windings in a star-delta starter is
(A) Star connection
(B) Delta connection
(C) Series
(D) Parallel

Q33.
The cause for a 3-phase motor producing mechanical noise is
(A) Interchanged supply terminals
(B) High load on motor
(C) High voltage on motor winding
(D) Incorrect coupling

Q34.
Cell is an _____ device.
(A) electro-mechanical
(B) electro-chemical
(C) electro-magnetic
(D) electro-dynamic

Q35.
The most commonly used battery in electric vehicles is
(A) Lithium-ion battery
(B) Lead-acid battery
(C) Nickel-Cadmium battery
(D) Alkaline rechargeable battery

Q26.

The phase–neutral voltage in a 3-phase star system is \(230\text{ V}\). The line voltage is

(A) 230 V
(B) 398.37 V
(C) 400 V
(D) 440 V

Q27.

The time period of an AC wave at \(50\text{ Hz}\) is

(A) 2 ms
(B) 10 ms
(C) 20 ms
(D) 50 ms

Q28.

The type of fuse used for domestic purpose is

(A) HRC fuse
(B) Kit-kat fuse
(C) Ceramic cartridge fuse
(D) Glass cartridge fuse

Q29.

MCCB stands for

(A) Moulded Case Circuit Breaker
(B) Miniature Case Circuit Breaker
(C) Maximum Current Circuit Breaker
(D) Minimum Current Circuit Breaker

Q30.

ELCB is used for detecting current leakage

(A) above 8 kVA
(B) below 5 kVA
(C) above 5 kVA
(D) below 8 kVA

Q36.

Digital signals are characterized by

(A) Continuous voltage levels
(B) Infinite resolution
(C) Discrete voltage levels
(D) Variable voltage levels

Q37.

According to Boolean Algebra, $A + A =$

(A) 2A
(B) A
(C) 1
(D) A^{2

Q38.

Photo diode is used in which application?

(A) Voltage regulation
(B) Temperature measurement
(C) Light detection
(D) RF amplification

Q39.

If resistor band = Brown (1), Black (0), Red ($\times 100$), resistance is

(A) 1 k\Omega
(B) 10 k\Omega
(C) 100 \Omega
(D) 100 k\Omega

Q40.

Binary equivalent of decimal 9 is

(A) 1001
(B) 1000
(C) 1100
(D) 1010

PROJECT MANAGEMENT SKILLS

Q41.

Project Management is a combination of

(A) human and non-human resources
(B) only human resources
(C) only non-human resources
(D) no resources at all

Q42.

The consultant appointed to carry out the project work is

(A) Compound house consultant
(B) In-house consultant
(C) Out-house consultant
(D) Bridge consultant

Q43.

The type of project which requires minimum amount of capital is

(A) Crash project
(B) Normal project
(C) Disaster project
(D) Consultant project

Q44.

Projects like building a hospital, park, playground and highway construction are examples of

(A) Social needs
(B) Customer needs
(C) Market needs
(D) Ecological needs

Q51.

The Project Life Cycle Curve indicates

(A) Work packaging
(B) Number of workers in the project
(C) Growth, maturity and decline
(D) Project manual

Q52.

Taking actions to measure the quality accurately is the function of

(A) Quality management
(B) Cost management
(C) Review management
(D) Risk management

Q53.

Project planning methodologies involve

(A) Planning by non-incentive and direction
(B) Planning by incentive and direction
(C) Unplanned initiation
(D) Changing the project policies

Q54.

Identify the incorrect statement

(A) Project objective should be specific
(B) Project objective should be realistic
(C) Project objective should not be framed timely
(D) Project objective should be measurable

Q45.
In Project Management, WBS stands for
(A) Work Breakdown Structure
(B) Waste Breakdown Structure
(C) Window Breakdown Structure
(D) Wireless Breakdown Structure

Q46.
The first step in Project Execution Plan is
(A) Work packaging plan
(B) Contracting plan
(C) Organization plan
(D) Procedure plan

Q47.
The team which gives the idea to start a project is
(A) Core project team
(B) Full project team
(C) Advising project team
(D) Initial project team

Q48.
In PEP, the letter 'E' stands for
(A) Execution
(B) Estimation
(C) Evaluation
(D) Enthusiasm

Q49.
In Project Life Cycle, more time is required for
(A) Project closure
(B) Project initiation
(C) Project execution
(D) Project planning

Q50.
Innovation is the hallmark of every project. Innovation means
(A) New ideas
(B) Project success
(C) Professional approach
(D) Project Management

Q55.
WBS, PEP and PPM are the tools used to design
(A) Project plan
(B) Project work system
(C) Project diary
(D) Project direction

Q56.
The earliest method used for planning of project was
(A) CPM
(B) PERT
(C) Bar Chart
(D) Milestone Chart

Q57.
The expansion of PERT is
(A) Programme Evaluation and Review Technique
(B) Project Estimation and Recording Tool
(C) Project Estimation and Resource Technology
(D) Performance Estimation and Resource Tool

Q58.
For non-repetitive projects, _____ tool is used in production planning and scheduling
(A) CPM
(B) PERT
(C) Both CPM and PERT
(D) Bar Chart

Q59.
The purpose of conducting a project review is
(A) To close the project
(B) To initiate the project
(C) To develop the project scope
(D) To assess project performance

Q60.
A project review does not contain
(A) Performance evaluation
(B) Evaluating the capital budget
(C) Data collection
(D) Initial review

ENGINEERING MATHEMATICS

Q61.
In a square matrix, if the elements above the principal diagonal are zero, then it is called
(A) Identity matrix
(B) Lower triangular matrix
(C) Upper triangular matrix
(D) Diagonal matrix

Q62.
The value of x if \(\begin{vmatrix x-1 & 2 \ 2 & 4 \end{vmatrix \) is singular
(A) 3
(B) 8
(C) -2
(D) 2

Q71.
The simplified value of \(\frac{\sin 3A + \sin A{\sin 3A - \sin A \) is
(A) $\cot A \tan 5A$
(B) $\tan A \cot 2A$
(C) $\tan 2A \cot A$
(D) $\tan 3A \cot 2A$

Q72.
If $y = \log x + \sec 2x$, then \(\frac{dy{dx \) is
(A) \(-\frac{1{x+\sec 2x \tan x \)
(B) \(\frac{1{x+2\sec 2x \tan 2x \)
(C) \(\frac{1{\sqrt{x+\sec x \tan x \)
(D) \(-\frac{1{\sqrt{x+\sec 3x \tan 2x \)

Q73.
The derivative of \(\frac{1+x{1-x \) is
(A) \(-\frac{2{(1-x)^2 \)
(B) \(\frac{2x{(1-x)^2 \)
(C) \(-\frac{2x{(1-x)^2 \)
(D) \(\frac{2{(1-x)^2 \)

Q63.

The inverse of the matrix \(A=\begin{bmatrix-1&0\5&7\end{bmatrix \) is

(A) \(-\frac{1{7\begin{bmatrix7&0\-5&-1\end{bmatrix \)
(B) \(\frac{1{7\begin{bmatrix7&0\-5&-1\end{bmatrix \)
(C) \(-\frac{1{7\begin{bmatrix-7&0\-5&-1\end{bmatrix \)
(D) \(\frac{1{7\begin{bmatrix7&0\5&1\end{bmatrix \)

Q64.

The eigenvalues of matrix \(A=\begin{bmatrix3&0\1&3\end{bmatrix \) are

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

Q65.

The two lines $ax + by = c$ and $a'x + b'y = c'$ are perpendicular if

(A) $ab' = ba'$
(B) $aa' + bb' = 0$
(C) $a'b + ab' = 0$
(D) $ab' + ba' = 0$

Q66.

The y-intercept of any line passing through origin is

(A) 0
(B) 1
(C) -1
(D) 2

Q67.

Slope form of straight line is

(A) $y + mx - c = 0$
(B) $x = my + c$
(C) $y = x + m$
(D) $y = mx + c$

Q68.

The tangent of the angle between two lines having slopes m_1, m_2 is

(A) \(\frac{m_1+m_2{1-m_1m_2 \)
(B) \(\frac{m_1+m_2{1+m_1m_2 \)
(C) \(\frac{m_1-m_2{1-m_1m_2 \)
(D) \(\frac{m_1-m_2{1+m_1m_2 \)

Q69.

If the ladder is inclined making 135° with wall, the inclination in radians is

(A) \(\frac{4\pi{3 \)
(B) \(\frac{3\pi{4 \)
(C) \(\frac{2\pi{4 \)
(D) \(\frac{4\pi{5 \)

Q70.

The value of $\sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ$ is

(A) \(\frac{1{2 \)
(B) \(-\frac{1{2 \)
(C) \(\frac{\sqrt{3{2 \)
(D) 0

Q74.

Find the second order derivative of \(y=e^{2x-e^{-x \)

(A) \(4e^{2x-e^{-x \)
(B) \(4e^{2x+e^{-x \)
(C) \(-4e^{2x-e^{-x \)
(D) \(4e^{2x+e^x \)

Q75.

Equation of tangent to $y = 2x^2 + x$ at (1,2) is

(A) $5x - y - 3 = 0$
(B) $5x + y + 3 = 0$
(C) $5x + y - 6 = 0$
(D) $5x + y + 6 = 0$

Q76.

The value of $\int(\sec x \tan x + \sec^2 x)dx$ is

(A) $\sec 2x + \tan x + c$
(B) $\sec x + \cosec x + c$
(C) $\sec x + \tan x + c$
(D) $\sec x - \cosec^2 x + c$

Q77.

The value of \(\int (2x^3+3x^2+2x)^{10 (3x^2+3x+1)\,dx \) is

(A) \(\frac{1{22(6x+3x^2+2x)^{11+c \)
(B) \(\frac{1{22(2x^3+3x^2+2x)^{11+c \)
(C) \(\frac{1{22(2x^3+3x^2-2x)^{12+c \)
(D) \(\frac{1{12(2x^3+3x^2-2x)^{12+c \)

Q78.

The value of \(\int_0^{\pi/4\tan^2 x\,dx \) is

(A) \(1+\frac{\pi{4 \)
(B) \(1+\frac{4\pi{2 \)
(C) \(1-\frac{\pi{4 \)
(D) \(1-\frac{4\pi{2 \)

Q79.

Area bounded by $y = \sin x$ and x-axis from $x = 0$ to $x = \pi$ is

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

Q80.

The value of $\tan 45^\circ \cot 225^\circ + \tan^2 60^\circ$ is

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

STATISTICS & ANALYTICS

Q81.

_____ is an example of quantitative data.

(A) Volume
(B) Words
(C) Symbols
(D) Colour

Q91.

The percentile divides a series into _____ equal parts.

(A) fifty
(B) twenty
(C) ten
(D) hundred

Q82.

Data cleaning is the process of

(A) removing viruses
(B) correctly formatting data
(C) removing duplicate data
(D) properly formatting data

Q83.

_____ is not a data collection tool.

(A) Word
(B) Focus Group Discussion
(C) Survey
(D) Questionnaire

Q84.

The graph of cumulative frequency is called

(A) Frequency polygon
(B) Histogram
(C) Cumulative frequency polygon
(D) Frequency histogram

Q85.

To calculate percentage frequency, we use _____ formula.

(A) P.f. = (f × n) ÷ 100
(B) P.f. = (f ÷ n) × 100
(C) P.f. = (100) ÷ (f × n)
(D) P.f. = (100) × (f ÷ n)

Q86.

If X_1, X_2, X_3 ... X_n are the observations of a given data, then the mean will be:

(A) $$\frac{\text{Total number of observations}}{\text{Sum of observations}}$$
(B) Sum of observations + Total number of observations
(C) $$\frac{\text{Sum of observations}}{\text{Total number of observations}}$$
(D) Total number of observations − Sum of observations

Q87.

The end points of a class interval are the _____ and _____ values a variable can take.

(A) Lowest and Highest
(B) Minimum and Maximum
(C) Numeral and Average
(D) Mean and Mode

Q88.

In which years did the girls participate more than the boys?

(A) 2020, 2023
(B) 2021, 2022
(C) 2022, 2023
(D) 2020, 2021

Q89.

In which two years did an equal number of boys participate?

(A) 2020, 2021
(B) 2020, 2022
(C) 2020, 2023
(D) 2021, 2022

Q90.

To find third quartile in Excel, we use _____ formula.

(A) = QUARTER (3, Range)
(B) = QUARTILE (3, Range)
(C) = QUARTER (Range, 3)
(D) = QUARTILE (Range, 3)

Q92.

If the first quartile is 23 and interquartile range is 20, the third quartile is

(A) 23
(B) 33
(C) 43
(D) 53

Q93.

The algebraic sum of the deviations of a frequency distribution from its mean is always

(A) a non-zero number
(B) zero
(C) less than zero
(D) greater than zero

Q94.

The Excel formula for ‘Mean’ is

(A) = MEDIAN (array of numbers)
(B) = AVERAGE (array of numbers)
(C) = MEAN (array of numbers)
(D) = MODE (array of numbers)

Q95.

What is output syntax in Python?

(A) Print()
(B) PRINT()
(C) print()
(D) Printf()

Q96.

'str' is a

(A) Text Type
(B) Numeric Type
(C) Binary Type
(D) Sequence Type

Q97.

In Python, _____ standard data types are commonly used.

(A) three
(B) five
(C) ten
(D) four

Q98.

The result of Python program gets displayed in _____

(A) IDLE Shell 3.9.1 window
(B) IDLE Shell 3.1.9 window
(C) ILDE Shell 3.9.1 window
(D) IELD Shell 3.9.1 window

Q99.

Which Python quotation does not accept quotes to denote strings?

(A) (' ')
(B) (\ \")"
(C) ( )
(D) (\" \"\")"

Q100.

In Python, _____ is used to end the physical line or ignore the comment.

(A) **
(B) #
(C) &
(D) \\

ANSWER KEY

1. (A)	2. (A)	3. (A)	4. (D)	5. (C)	6. (B)	7. (B)	8. (C)	9. (B)	10. (A)
11. (D)	12. (B)	13. (A)	14. (D)	15. (B)	16. (B)	17. (A)	18. (A)	19. (C)	20. (A)
21. (B)	22. (B)	23. (A)	24. (A)	25. (C)	26. (C)	27. (B)	28. (C)	29. (A)	30. (C)
31. (D)	32. (A)	33. (D)	34. (B)	35. (A)	36. (C)	37. (A)	38. (B)	39. (A)	40. (A)
41. (A)	42. (B)	43. (A)	44. (A)	45. (A)	46. (A)	47. (A)	48. (A)	49. (C)	50. (A)
51. (C)	52. (A)	53. (B)	54. (C)	55. (A)	56. (A)	57. (A)	58. (B)	59. (D)	60. (D)
61. (C)	62. (C)	63. (A)	64. (C)	65. (B)	66. (A)	67. (D)	68. (A)	69. (B)	70. (D)
71. (B)	72. (B)	73. (A)	74. (A)	75. (A)	76. (C)	77. (B)	78. (A)	79. (A)	80. (C)
81. (A)	82. (B)	83. (B)	84. (C)	85. (B)	86. (C)	87. (B)	88. (B)	89. (D)	90. (D)
91. (D)	92. (C)	93. (B)	94. (B)	95. (C)	96. (B)	97. (B)	98. (A)	99. (C)	100. (B)