



T.T.T ACADEMY
D-CET Coaching Center

11 Years
OF SHARING
KNOWLEDGE

DIPLOMA - CET

2024

Solutions of Previous Year Question Paper

D-CET EXAM SYLLABUS

All Departments

T.T.T was founded in the year 2013, and from the beginning, academy has constantly been serving quality education for the students. Along with the academic excellence record, the systematic structure of classes of this academy is really attractive to the students.

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No.1 D-CET Coaching Center in Karnataka



DCET 2023 - Question Paper & Solutions

1. 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

Ans : (b)

$$A = \begin{bmatrix} 2 & 0 & 0 \\ 1 & 4 & 0 \\ 2 & 5 & 1 \end{bmatrix}$$

2. The value of x if $\begin{bmatrix} x-1 & 2 \\ 2 & 4 \end{bmatrix}$ is singular, is

- a) 3
- b) 8
- c) -2
- d) 2

Ans : (d)

Given matrix $A = \begin{bmatrix} x-1 & 2 \\ 2 & 4 \end{bmatrix}$ is singular

w.k.t. $|A| = 0 \quad \therefore$ singular

$$\begin{vmatrix} x-1 & 2 \\ 2 & 4 \end{vmatrix} = 0$$

$$(x-1)4 - 4 = 0$$

$$4x - 4 - 4 = 0$$

$$4x = 8$$

$$x = \frac{8}{4} \quad x = 2$$

3. The inverse of the matrix $A = \begin{bmatrix} -1 & 0 \\ 5 & 7 \end{bmatrix}$ is

- a) $-\frac{1}{7} \begin{bmatrix} 7 & 0 \\ -5 & -1 \end{bmatrix}$
- b) $\frac{1}{7} \begin{bmatrix} 7 & 0 \\ -5 & -1 \end{bmatrix}$
- c) $-\frac{1}{7} \begin{bmatrix} -7 & 0 \\ -5 & -1 \end{bmatrix}$
- d) $\frac{1}{7} \begin{bmatrix} 7 & 0 \\ 5 & 1 \end{bmatrix}$

Ans : (a)

Given matrix $A = \begin{bmatrix} -1 & 0 \\ 5 & 7 \end{bmatrix}$

WKT $A^{-1} = \frac{1}{|A|} \text{adj } A$

\therefore adjoint of $A = \begin{bmatrix} 7 & 0 \\ -5 & -1 \end{bmatrix}$

and $|A| = \begin{vmatrix} -1 & 0 \\ 5 & 7 \end{vmatrix} = -7 - 0 = -7$

$\therefore A^{-1} = \frac{-1}{7} \begin{bmatrix} 7 & 0 \\ -5 & -1 \end{bmatrix}$

4. The eigenvalue of the matrix $A = \begin{bmatrix} 3 & 0 \\ 1 & 3 \end{bmatrix}$ is

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

Ans : (c)

Given $A = \begin{bmatrix} 3 & 0 \\ 1 & 3 \end{bmatrix}$

The characteristic equation of A is, $|A - \lambda I| = 0$

$$\begin{vmatrix} 3-\lambda & 0 \\ 1 & 3-\lambda \end{vmatrix} = 0$$

$$(3-\lambda)(3-\lambda) - 0 = 0$$

$$(3-\lambda) = 0 \text{ \& } (3-\lambda) = 0$$

$$\lambda = 3, \lambda = 3$$

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

- a) $ab' = ba'$
- b) $aa' + bb' = 0$
- c) $a'b + a'b' = 0$
- d) $ab' + ba' = 0$



Ans : (b)

Given $ax + by = c$ and $a'x + b'y = c'$ are perpendicular

$$ax + by = c \quad \text{---- (i)}$$

$$\therefore m_1 = \frac{-a}{b}$$

$$a'x + b'y = c' \quad \text{---- (ii)}$$

$$\therefore m_2 = \frac{-a'}{b'}$$

$$\therefore m_1 m_2 = -1 \quad (\because \text{lines are perpendicular})$$

$$\left(-\frac{a}{b}\right)\left(-\frac{a'}{b'}\right) = -1$$

$$aa' = -bb'$$

$$aa' + bb' = 0$$

6. The y-intercept of any line passing through the origin is

- a) 0 b) 1 c) -1 d) 2

Ans : (a)

The y-intercept of any line passing through the origin is zero.

7. Slope intercept form of straight line is

- a) $y + mx - c = 0$ b) $x = my + c$
c) $y = x + m$ d) $y = mx + c$

Ans : (d)

The slope intercept from the straight line is $y = mx + c$.

8. The tangent of the angle of intersection between two lines with slopes m_1 and m_2 is

- a) $\left| \frac{m_1 + m_2}{1 - m_1 m_2} \right|$ b) $\left| \frac{m_1 + m_2}{m_1 - m_2} \right|$
c) $\left| \frac{m_1 - m_2}{1 - m_1 m_2} \right|$ d) $\left| \frac{m_1 - m_2}{1 + m_1 m_2} \right|$

Ans : (d)

The tangent of the angle of intersection between

two lines with slopes m_1 and m_2 is $\left| \frac{m_1 - m_2}{1 + m_1 m_2} \right|$

9. If the ladder is inclined to the wall at an angle of 135° , then the inclination in radians is

- a) $\frac{4\pi}{3}$ b) $\frac{3\pi}{4}$ c) $\frac{2\pi}{4}$ d) $\frac{4\pi}{5}$

Ans : (b)

Given angle $\theta = 135^\circ$

$$\begin{aligned} \text{Angle in radian} &= \frac{\pi}{180} \times \theta = \frac{\pi}{180} \times 135 \\ &= \frac{3\pi}{4} \text{ radian} \end{aligned}$$

10. 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

Ans : (a)

$$\begin{aligned} &= \sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ \\ &= \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} - \frac{1}{2} \cdot \frac{1}{2} \times \frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2} \end{aligned}$$

11. 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) $\tan 3A \cot 2A$

Ans : (c)

$$\frac{\sin 3A + \sin A}{\sin 3A - \sin A} = \frac{2 \sin\left(\frac{3A+A}{2}\right) \cos\left(\frac{3A-A}{2}\right)}{2 \cos\left(\frac{3A+A}{2}\right) \sin\left(\frac{3A-A}{2}\right)}$$

$$[\because \sin C + \sin D = 2 \sin\left(\frac{C+D}{2}\right) \cos\left(\frac{C-D}{2}\right)]$$

$$[\because \sin C - \sin D = 2 \cos\left(\frac{C+D}{2}\right) \sin\left(\frac{C-D}{2}\right)]$$

$$= \frac{2 \sin 2A \cos A}{2 \cos 2A \sin A} = \tan 2A \cot A$$



12. 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) $-\frac{1}{\sqrt{x}} + \sec 3x \tan 2x$

Ans : (b)

If $y = \log x + \sec 2x$, then

$$\frac{dy}{dx} = \frac{1}{x} + 2 \sec 2x \tan 2x$$

13. The derivative of the function $\frac{1+x}{1-x}$ is

- a) $\frac{-2}{(1-x)^2}$ b) $\frac{2x}{(1-x)^2}$
 c) $\frac{-2x}{(1-x)^2}$ d) $\frac{2}{(1-x)^2}$

Ans : (d)

$$\text{Given } y = \frac{1+x}{1-x} = \frac{x-1}{-x+1}$$

$$\frac{dy}{dx} = \frac{[1-(-1)] \cdot 1}{(1-x)^2} = \frac{2}{(1-x)^2}$$

$$\begin{aligned} \text{[shortcut method: } y = \frac{ax+d}{cx+d} \text{ then } \frac{dy}{dx} \\ = \frac{(ad-bc)f'(x)}{(cx+d)^2} \end{aligned}$$

14. 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) $4e^{2x} + e^x$

Ans : (a)

$$\text{Given } y = e^{2x} - e^{-x}$$

$$\frac{dy}{dx} = 2e^{2x} + e^{-x}$$

$$\frac{d^2y}{dx^2} = 4e^{2x} - e^{-x}$$

15. The equation of the tangent to the curve $y = 2x^2 + x$ at (1, 2) is

- a) $5x - y - 3 = 0$ b) $5x + y + 3 = 0$
 c) $5x + y - 6 = 0$ d) $5x + y + 6 = 0$

Ans : (a)

$$\text{Given } y = 2x^2 + x$$

$$\frac{dy}{dx} = 4x + 1$$

$$m = \left. \frac{dy}{dx} \right|_{(1,2)} = (4 \times 1) + 1 = 5$$

The equation of tangent is given by

$$\begin{aligned} y - y_1 &= m(x - x_1) \\ y - 2 &= 5(x - 1) \\ y - 2 &= 5x - 5 \\ 5x - y - 5 + 2 &= 0 \\ \therefore 5x - y - 3 &= 0 \end{aligned}$$

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

- a) $\sec 2x + \tan x + c$ b) $\sec x + \operatorname{cosec} x + c$
 c) $\sec x + \tan x + c$ d) $\sec 2x - \operatorname{cosec}^2 x + c$

Ans : (c)

$$\int (\sec x \tan x + \sec^2 x) dx = \sec x + \tan x + c$$

17. The value of

$$\int (2x^3 + 3x^2 + 2x)^{10} (3x^2 + 3x + 1) dx \text{ is}$$

- a) $\frac{1}{22} (6x + 3x^2 + 2x)^{11} + c$



**T.T.T
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T.T.T Academy is a ground breaking effort to provide the greatest and highest-quality teaching for DCET hopefuls. In order to meet the industry's expanding demand, there is an immediate need for more qualified engineers and technical professionals. At the same time, the firm also wants quality workers. T.T.T Academy has created its own system in response to the rising need for trained professionals and high-quality training.

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Study
Material**

Morning Batch

- Timing : 7AM - 8.30AM
- Weekly mock test
- Every day 4 - 5 hrs of classes, after 6th sem exam.
- Both online live Classes & Offline classes
- Recording available at T.T.T live learn App
- PG facility available.

Evening Batch -1

- Timing : 5PM - 7PM
- Weekly mock test
- Every day 4 - 5 hrs of classes, after 6th sem exam.
- Both online live Classes & Offline classes
- Recording available at T.T.T live learn App
- PG facility available.

Evening Batch-2

- Timing : 7PM - 9PM
- Weekly mock test
- Every day 4 - 5 hrs of classes, after 6th sem exam.
- Both online live Classes & Offline classes
- Recording available at T.T.T live learn App
- PG facility available.

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b) $\frac{1}{22}(2x^3 + 3x^2 + 2x)^{11} + c$

c) $\frac{1}{22}(2x^3 + 3x^2 - 2x)^{12} + c$

d) $\frac{1}{12}(2x^3 + 3x^2 - 2x)^{12} + c$

Ans : (b)

$$\int (2x^3 + 3x^2 + 2x)^{10} (3x^2 + 3x + 1) dx$$

$$\int [f(x)]^n f'(x) dx = \frac{[f(x)]^{n+1}}{n+1} + c$$

$$\therefore \frac{1}{2} \int (2x^3 + 3x^2 + 2x)^{10} (6x^2 + 6x + 2) dx$$

$$= \frac{1}{2} \frac{(2x^3 + 3x^2 + 2x)^{11}}{11} + C$$

$$= \frac{1}{22} (2x^3 + 3x^2 + 2x)^{11} + C$$

18. 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) $1 - \frac{4\pi}{2}$

Ans : (c)

$$\int_0^{\pi/4} \tan^2 x dx = \int_0^{\pi/4} (\sec^2 x - 1) dx$$

$$= \tan^2 x \quad (\because \sec^2 \theta - \tan^2 \theta = 1)$$

$$= [\tan x - x]_0^{\pi/4} = \tan \frac{\pi}{4} - \frac{\pi}{4} - 0$$

$$= 1 - \frac{\pi}{4}$$

19. The area bounded by $y = \sin x$ and x -axis from $x = 0$ to $x = \pi$ is

a) 2 b) -2 c) 3 d) 1

Ans : (a)

The required area is given by

$$A = \int_0^{\pi} y dx = \int_0^{\pi} \sin x dx$$

$$= [-\cos x]_0^{\pi} = -\cos \pi - (\cos 0)$$

$$= -(-1) + 1 = 2$$

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

a) -4 b) 4 c) 2 d) 3

Ans : (b)

$$\tan 45^\circ \cot 225^\circ + \tan^2 60^\circ = 1 \times \cot (180^\circ + 45^\circ) + (\sqrt{3})^2$$

$$= 1 \times \cot 45^\circ + 3$$

$$= (1 \times 1) + 3 = 1 + 3 = 4$$

21. _____ is an example of quantitative data.

- a) Volume b) Words
c) Symbols d) Colour

Ans : (a)

The data which can be numerically measurable is called quantitative data.

"Volume" measured in numbers.

\therefore Volume is a quantitative data

22. Data cleaning in the process of

- a) removing viruses
b) correctly formatting data
c) removing duplicate data
d) properly formatting data

Ans : (Grace)

Data cleaning is the process of fixing (or) removing incorrect, corrupted, incorrectly formatted, duplicate (or) incomplete data with in a dataset.

23. _____ is not a data collection tool.

- a) Word b) Focus Group Discussion
c) Survey d) Questionnalro



Ans : (a)

The data collection tools focus group discussion, survey method, questionnaires, observation, Interview method.

∴ Word is not a data collection tool

24. The graph of cumulative frequency is called

- a) Frequency polygon
- b) Histogram
- c) Cumulative frequency polygon
- d) Frequency histogram

Ans : (Grace)

The cumulative frequencies can be plotted only on cumulative frequency polygon (or) cumulative frequency curve (O give curve)

25. To calculate percentage frequency, we use _____ formula.

- a) P.f. = $(f \times n) + 100$
- b) P.f. = $(f + n) \times 100$
- c) P.f. = $(100) + (f \times n)$
- d) P.f. = $(100) \times (f + n)$

Ans : (b & d)

$$\text{Percentage frequency} = \left[\frac{f}{n} \right] \times 100$$

26. If $X_1, X_2, X_3, \dots, X_n$ are the observations of a given data, then the mean of the observation 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

Ans : (c)

Mean of the observations is

$$\bar{X} = \frac{X_1 + X_2 + X_3 + \dots + X_n}{n} \quad \text{or}$$

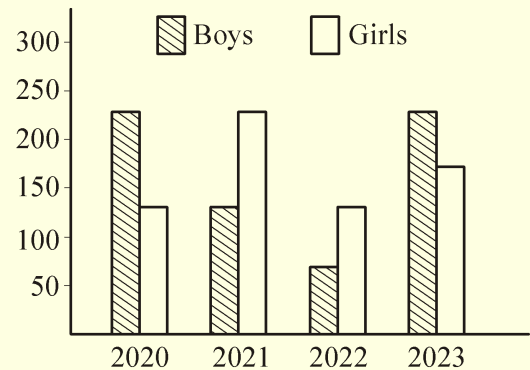
$$\bar{X} = \frac{\sum X}{n} \quad \text{or}$$

$$\bar{X} = \frac{\text{Sum of observations}}{\text{Total number of observations}}$$

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

- a) **Lowest and Highest**
- b) Minimum and Maximum
- c) Numeral and Average
- d) Mean and Mode

The graph given below, shows the participating of students of a school in outdoor games in different years. By using the data given below, answer the following questions (28 - 29) :



Ans : (a)

If $[10 - 20]$ is a class interval and the end points of the class interval are 10 and 20, which are the lowest and highest values in the variable.

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

- a) 2020, 2023
- b) **2021, 2022**
- c) 2022, 2023
- d) 2020, 2021



Ans : (b)

Boys participation in 2020 = 225 2021 = 125 2022 = 50 2023 = 225	Girls participation in 2020 = 125 2021 = 225 2022 = 125 2023 = 150
--	--

From the above table, in 2021 and 2022 girls participate more than boys.

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

- a) 2020, 2021 b) 2020, 2022
c) **2020, 2023** d) 2021, 2022

Ans : (c)

From the above table, In the year 2020 and 2023 there are equal number of boys participate.
In 2020 Boys participate = 225
In 2023 Boys participate = 225

30. 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)**

Ans : (d)

The formula for finding 3rd quartile in excel is = QUARTILE (Range, 3)

31. The percentile divides a series into _____ equal parts.

- a) fifty b) twenty
c) ten d) **hundred**

Ans : (d)

Data which divides into 100 equal parts is called percentile. It is denoted by P

32. The value of first quartile is 23 and interquartile of set of data range is 20. The value of third quartile is

- a) 23 b) 33 c) **43** d) 53

Ans : (c)

Given, 1st quartile = $Q_1 = 23$
Inter quartile range = $Q_3 - Q_1 = 20$ ---- (1)
From equation (1)
 $Q_3 - Q_1 = 20$
 $Q_3 - 23 = 20$
 $Q_3 = 20 + 23$
 $Q_3 = 43$ \therefore Third quartile = 43

33. 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

Ans : (b)

The property of arithmetic mean is
The algebraic sum of the deviations of a frequency distribution from its mean is equal to zero.

i.e., $\sum (X - \bar{X}) = 0$

34. 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)

Ans : (b)

The Excel formula for "mean" is
= AVERAGE (array of numbers)

35. What is output syntax in Python?

- a) Print (" ") b) PRINT (" ")
c) **print (" ")** d) Printf (" ")

Ans : (c)

in python print (" ") statement is used for output

36. "str" is a

- a) **Text Type** b) Numeric Type
c) Binary Type d) Sequence Type

Ans : (a)

str is text Type



37. In Python, _____ standard data types are commonly used.

- a) three
- b) five
- c) ten
- d) four

Ans : (Grace)

in python standard data types are numeric, Dictionary, Boolean, Set, Sequence types

38. 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

Ans : (a)

IDLE3.9.1 is the first version of Python it is Integrated Development and Learning Environment.

39. Which one of the following quotations in Python does not accept the quotes to denot strings?

- a) (' ')
- b) (" ")
- c) ()
- d) (" " " ")

Ans : (c)

in python its accept single quote double quote and triple quote.

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

- a) **
- b) #
- c) &
- d) \\

Ans : (b)

In Python, the # character is used to start a comment. The comment continues after the # until the end of the line.

41. Which of the following is *not* a cyber crime?

- a) Cryptography
- b) Denial of Service
- c) Man-in-the-middle attack
- d) Phishing

Ans : (a)

Cryptography is the process of hiding or coding information so that only the person a message was intended for can read it.

42. DoS is abbreviated as _____

- a) Denial of Service
- b) Distribution of Server
- c) Distribution of Service
- d) Denial of Server

Ans : (a)

DOS Expansion is denial-of-service.

43. _____ 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

Ans : (a)

CYBER SECURITY is a protect interconnected systems including hardware software and program and data from cyber-attack.

44. 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

Ans : (d)

A firewall is a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules

45. An algorithm represented in the form of programming language is called :

- a) Flowchart
- b) Pseudocode
- c) Program
- d) Instruction

Ans : (c)

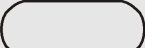
An algorithm represented in the form of a programming language is called a program.



46. The _____ symbol is used when the flowchart is starting or ending.

- a) Connector/Arrow
- b) Terminal box/Rounded rectangle**
- c) Input/Output
- d) Process

Ans : (b)

in flow chart "Terminator Symbol," this symbol represents the start points, end points, and potential outcomes of a path 

47. MIT App Inventor allows user to

- a) Create web application
- b) Build Android application**
- c) Create System Software
- d) Develop Operating System

Ans : (b)

MIT app inventor allows user to build fully functional apps for smartphones and tablets.

48. 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

Ans : (c)

Runs the script: - when green flag clicked block triggers the execution of the script or program attached to it.

49. 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

Ans : (b)

The correct sequence of HTML tags to start a webpage is html, head, title, and body.

50. 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

Ans : (a)

A web server stores and delivers the content for a website

51. Which of the following is used to style the appearance of web pages?

- a) Html
- b) JavaScript
- c) PHP
- d) CSS**

Ans : (d)

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes

52. Which of the following is an example of web browser?

- a) Google
- b) Firefox**
- c) Apache
- d) MySQL

Ans : (b)

Fire fox is example of web browser

53. Which of the following is an open source and free workflow management software?

- a) Trello**
- b) MS Excel
- c) Windows
- d) Linux

Ans : (a)

Trello is the visual tool that empowers your team to manage any type of project, workflow or task tracking.

54. ERP package will handle _____ business functionality/functionalities.

- a) One
- b) Two
- c) Three
- d) Multiple/all**

Ans : (d)

ERP systems supports all aspects of modules and provide transparency into complete business process.

55. _____ is a visual diagram of a company that describes what employees do, whom they report to and how decisions are made across the business.

- a) Physical Structure
- b) Organizational Structure**
- c) Logical Structure
- d) Hybrid Structure



Ans : (b)

Organisational structure describes entire structure of organisation and work structure of employees.

56. _____ is a methodology used in system analysis to identify, clarify, and organize system requirements.

- a) **Workflow** b) Use case
c) Algorithm d) Software

Ans : (a)

Workflow helps in identifying, clarify requirements of organise system.

57. Which of the following is *not* an application of IoT?

- a) **Web browser** b) Smart home
c) Smart city d) Self-driven cars

Ans : (a)

Smart home smart city self-driving cars applications of IoT but web browser is not a application of IoT.

58. Which of the following is *not* a cloud service option ?

- a) **VaaS** b) IaaS c) PaaS d) SaaS

Ans : (a)

PAAS, SAAS,IAAS all three is cloud services but VAAS(Voice as a service) is not cloud service

59. How many types of services are offered by cloud computing to the users ?

- a) 2 b) 4 c) 3 d) 5

Ans : (c)

PAAS, SAAS,IAAS services offered by cloud services.

60. Combination of Public and Private deployment is called

- a) **Hybrid** b) Hyper c) Public d) Private

Ans : (a)

Hybrid cloud refers to a mixed computing, storage, and services environment made up of on-premises infrastructure, private cloud services, and a public cloud—such as Amazon Web Services (AWS) or Microsoft Azure—with orchestration among the various platforms

61. Unit of electrical power is

- a) Volt b) **Watt**
c) Watt-hour d) Ampere-hour

Ans : (b)

A Watt is the unit of electrical power equal to one ampere under the pressure of one volt. 1 W is the power consumed by a device that carries 1 A of current when operated at a potential difference of 1 V.

62. 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

Ans : (b)

The size of the pipe used for earthing is of diameter 40 mm and 2.5 meters in length for ordinary soil or greater length in case of dry and rocky soil.

Pipe electrodes shall not be smaller than 38 mm internal diameter if made of galvanized iron or steel, and 100 mm internal diameter if made of cast iron.

63. If a resistor of 100 ohms is connected in series with a parallel combination of two 200 ohms resistors, then the effective resistance is

- a) **200 ohms** b) 250 ohms
c) 350 ohms d) 150 ohms

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Ans : (a)

The series combination of resistor is $R_1 = 100\Omega$
For parallel combination of resistor, lets $R_2 = 200\Omega$
and $R_3 = 200\Omega$

To calculate total parallel resistor $R_p = \frac{R_2 R_3}{R_2 + R_3}$

$$= \frac{200 \times 200}{200 + 200} = 100\Omega$$

The effective resistance is $R_p + R_1 = 100 + 100 = 200\Omega$

64. If a resistor of 20 Ω is connected across a source of 5 volts DC supply, then the current in the circuit is

- a) 1 Ampere b) 4 Amperes
c) 0.5 Amperes d) **0.25 Amperes**

Ans : (d)

Lets consider, $R_1 = 20\Omega$ $V = 5V$

Current in the circuit is given by $I = \frac{V}{R} = \frac{5}{20}$
 $= 0.25$ Amperes

65. 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

Ans : (C)

In AC circuits, the power factor is defined as the ratio of the resistance (R) to impedance (Z) in the circuit. Where ϕ is the angle between voltage and current. If the current lags the voltage, the power factor will be lagging. If the current leads the voltage, the power factor will be leading.

66. The phase-to-neutral voltage in a 3-phase star connected system is 230 V. The phase-to-phase (line-to-line) voltage is

- a) 230 V b) **398.37 V**
c) 400 V d) 440 V

Ans : (b)

The phase-to-phase (line-to-line) voltage is given by, where $V_{ph} = 230V$

$$V_L = \sqrt{3} \times V_{ph} = \sqrt{3} * 230 = 398.37 V$$

67. The time period of an AC wave at frequency of 50 Hz is

- a) 2 milliseconds b) 10 milliseconds
c) **20 milliseconds** d) 50 milliseconds

Ans : (c)

Time period of a wave is given by $= \frac{1}{frequency}$

$$= \frac{1}{50} = 0.02 \text{ s}$$

Since the options is in milliseconds $= 0.02 * 1000 = 20$ milliseconds.

68. The type of fuse used for domestic purpose is

- a) HRC fuse
b) **Kit kat or rewirable fuse**
c) Ceramic cartridge fuse
d) Glass cartridge fuse

Ans : (b)

Purpose of fuse in household circuit: It safeguards the circuit and the appliances connected in the circuit from being damaged if the current in the circuit exceeds the specified value due to voltage fluctuation or short-circuiting.

69. MCCB stands for

- a) **Moulded Case Circuit Breaker**
b) Miniature Case Circuit Breaker
c) Maximum Current Circuit Breaker
d) Minimum Current Circuit Breaker

Ans : (a)

MCCB stands for Moulded Case Circuit Breaker

70. ELCB is used for detecting current leakage

- a) above 8 kVA b) below 5 kVA
c) above 5 kVA d) below 8 kVA



Ans : (Grace)

71. A static machine which transfers electrical power from one circuit to another circuit without changing the frequency is called

- a) DC machine b) Alternator
c) Induction motor d) **Transformer**

Ans : (d)

Since it is designed to either increase or decrease AC voltage between the circuits while maintaining the frequency of the current.

72. The initial type of connection of the motor windings when started with a star delta starter is

- a) **star connection** b) delta connection
c) series d) parallel

Ans : (a)

During starting the stator winding is star connected, which provides less starting torque and puts less mechanical and electrical stress on the system, thereby increasing its lifespan.

73. The cause for a 3-phase motor producing inadvertent mechanical noise is :

- a) Interchanged supply terminals
b) High load on motor
c) High voltage on motor winding
d) **Incorrect coupling**

Ans : (d)

If the coupling is not aligned perfectly, it can cause excessive wear on the parts and eventually lead to failure. Other causes of coupling failure include poor installation, incorrect size, and material issues. Pump coupling failure can have a significant impact on the operation of a facility.

74. Cell is an _____ device

- a) electro-mechanical
b) **electro-chemical**
c) electro-magnetic
d) electro-dynamic

Ans : (b)

An electrochemical cell is a device that can generate electrical energy from the chemical reactions occurring in it, or use the electrical energy supplied to it to facilitate chemical reactions in it. These devices are capable of converting chemical energy into electrical energy, or vice versa.

75. 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

Ans : (a)

Lithium-ion batteries power the lives of millions of people every day. From laptops and cell phones to hybrids and electric cars, this technology is growing in popularity due to its light weight, high energy density, low self-discharge, no memory effect, may offer longer life and ability to recharge.

76. Digital signals are characterized by

- a) Continuous voltage levels
b) Infinite resolution
c) **Discrete voltage levels**
d) Variable voltage levels

Ans : (c)

A digital signal can only take on one value from a finite set of possible values at a given time. With digital signals, the physical quantity representing the information can be many things: Variable electric current or voltage.

77. According to rules and laws of Boolean Algebra, $A + A =$ _____

- a) $2A$ b) A c) 1 d) A^2

Ans : (b)

- An input that is AND'ed or OR'ed with itself is equal to that input
- $A + A = A$ variable OR'ed with itself is always equal to the variable.



78. Photo diode is used in which of the following applications ?

- a) Voltage regulation
- b) Temperature measurement
- c) **Light detection**
- d) Radio Frequency (RF) Amplification

Ans : (c)

This effect of the proportional change in photocurrent with the change in light intensity can be easily observed by applying a reverse bias. Since photodiodes generate current flow directly depending upon the light intensity received, they can be used as photodetectors to detect optical signals.

79. If a resistor is having a colour band as first band = Brown, second band = Black and third band = Red, then the resistance value is

- a) **1 kΩ**
- b) 10 kΩ
- c) 100 Ω
- d) 100 kΩ

Ans : (a)

According to colour code method each bands will have its own values, i.e., 1st band Brown = 10, 2nd band black = 1, 3rd band is red (multiplier band) = 100

Multiply all the band values. Then the resistance values is, $10 \times 1 \times 100 = 1000 = 1\text{k}\Omega$

80. The binary equivalent of the decimal number 9 is

- a) **1001**
- b) 1000
- c) 1100
- d) 1010

Ans : (a)

2	9 1
2	4 0
2	2 0
	1	

$$\therefore 9_{10} = 1001_2$$

81. 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

Ans : (a)

Project management involves the coordination and utilization of both human resources (such as project managers, team members, stakeholders) and non-human resources (such as tools, equipment, technology, materials, and finances) to achieve project goals and objectives. It is a holistic approach that combines both human and non-human elements to successfully complete a project.

82. The consultant who is appointed to carry out the project work is

- a) Compound house consultant
- b) In-house consultant
- c) **Out-house consultant**
- d) Bridge consultant

Ans : (c)

An outsourced consultant is someone who is hired from outside the organization to provide expertise, guidance, and support for a specific project or task

83. The type of project which requires minimum amount of capital is

- a) Crash project
- b) **Normal project**
- c) Disaster project
- d) Consultant project

Ans : (b)

For normal projects, will be allowed to take their normal time, minimum capital and no sacrifice in quality.

84. Projects like building a hospital, a park, a playground and government projects like highway construction are examples of

- a) **Social needs**
- b) Customer needs
- c) Market needs
- d) Ecological needs

Ans : (a)

The basic requirements for a society is hospital, park, schools, road construction etc., hence they all are social need projects.



85. In Project Management, WBS stands for

- a) **Work Breakdown Structure**
- b) Waste Breakdown Structure
- c) Window Breakdown Structure
- d) Wireless Breakdown Structure

Ans : (a)

WBS full form: Work Breakdown Structure

86. The first step in Project Execution Plan is

- a) Work packaging plan
- b) **Contracting plan**
- c) Organization plan
- d) Procedure plan

Ans : (b)

Under four sub plans of project execution plan Contracting plan will be the first step where it is the first step used in preparation of PEP. To develop self-regulating systems, it is necessary to contract out those areas where the owners company does not have inherent competence.

87. 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**

Ans : (d)

The initial project team consists of specific people who initially conceive the idea of starting a project.

88. In PEP, the letter 'E' stands for

- a) **Execution**
- b) Estimation
- c) Evaluation
- d) Enthusiasm

Ans : (a)

PEP full form Project Execution Plan.

89. In Project Life Cycle, more time is required for

- a) Project closure
- b) Project initiation
- c) **Project execution**
- d) Project planning

Ans : (c)

Execution phase consumes maximum time to complete work in a project life cycle.

90. Innovation is the hallmark of every project. Here innovation means

- a) **New ideas**
- b) Project success
- c) Professional approach
- d) Project Management

Ans : (a)

Innovation is a hallmark of many successful projects, and it refers to the process of introducing new ideas, methods, products, services, or approaches that create value and improve upon existing practices.

91. The Project Life Cycle Curve indicates

- a) Work packaging
- b) Number of workers in the project
- c) **Growth, maturity and decline**
- d) Project manual

Ans : (c)

Project life cycle curve explain how project is initiated ,its growth , its working process, maturity and the completion of project.

92. In Project Management, taking actions to measure the quality accurately is the function of

- a) **Quality management**
- b) Cost management
- c) Review management
- d) Risk management

Ans : (a)

Quality Management is one of the method to measures quality accurately in Project Management.

93. 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

Ans : (b)

Planning by Incentive: This could mean that project planning involves creating incentives or rewards to motivate project team members and stakeholders.

Planning by Direction: Planning by direction suggests that project planning involves providing clear guidance and direction to the project team.



94. Identify the *incorrect* statement below:

- 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

Ans : (c)

Project objective must be specific measurable and realistic. It cannot be changed timely.

95. WBS, PEP & PPM are the tools used to design

- a) Project plan
- b) **Project work system**
- c) Project diary
- d) Project direction

Ans : (b)

Project Work system classifies into Work Breakdown Structure , Project execution Plan , Project Procedure manual.

96. The earliest method used for planning of project was

- a) CPM
- b) PERT
- c) **Bar Chart**
- d) Milestone Chart

Ans : (c)

The earliest method used for project planning is Bar chart.

97. The expansion of PERT is

- a) **Programme Evaluation & Review Technique**
- b) Project Estimation and Recording Tool

- c) Project Estimation and Resource Technology
- d) Performance Estimation and Resource Tool

Ans : (a)

PERT full form Programme Evaluation and Review Technique

98. For non-repetitive projects _____ tool is used in production planning and scheduling.

- a) CPM
- b) **PERT**
- c) Both CPM and PERT
- d) Bar Chart

Ans : (b)

For non-repetitive projects PERT is the tool used in project planning and scheduling

99. 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**

Ans : (d)

Project review will help in evaluating project performance.

100. A project review does *not* contain

- a) Performance evaluation
- b) Evaluating the capital budget
- c) **Data collection**
- d) Initial review

Ans : (c)

Data Collection is not the step of project review.

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DCET SYLLABUS with effect from the Year 2023
As per C-20 Diploma Curriculum
(Common to all Engineering Diploma Programmes)

DURATION : 3 Hours

MAXIMUM MARKS : 100

SI. No.	TOPICS	MARKS
1	ENGINEERING MATHEMATICS	20
2	STATISTICS & ANALYTICS	20
3	IT SKILLS	20
4	FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING	20
5	PROJECT MANAGEMENT SKILLS	20
TOTAL		100

DETAILED SYLLABUS

1. ENGINEERING MATHEMATICS

20 Marks

Topics	Sub Topics	Marks
I. Matrices And	<ul style="list-style-type: none"> Matrix and types Algebra of Matrices (addition, subtraction, scalar multiplication and multiplication) Evaluation of determinants of a square matrix of order 2 and 3. Singular matrices Cramer's rule for solving system of linear equations involving 2 and 3 variables Adjoint and Inverse of the non-singular matrices of order 2 and 3 Characteristic equation and Eigen values of a square matrix of order 2 	4
II. Straight Lines	<ul style="list-style-type: none"> Slope of a straight line Intercepts of a straight line Intercept form of a straight line Slope-intercept form of a straight line Slope-point form of a straight line Two-point form of a straight line General form of a straight line Angle between two lines and conditions for lines to be parallel and perpendicular Equation of a straight line parallel to the given line Equation of a straight line perpendicular to the given line 	4



III. Trigonometry	<ul style="list-style-type: none"> • Concept of angles, their measurement, Radian measure and related conversions. • Signs of trigonometric ratios in different quadrants (ASTC rule) • Trigonometric ratios of allied angles (definition and the table of trigonometric ratios of standard allied angles say $900 \pm \theta$, $1800 \pm \theta$, $2700 \pm \theta$. and $3600 \pm \theta$.) • Trigonometric ratios of compound angles (without proof) • Trigonometric ratios of multiple angles • Transformation formulae 	4
IV. Differential Calculus And Applications	<ul style="list-style-type: none"> • Derivatives of continuous functions in an interval (List of formulae) • Rules of differentiation • Successive differentiation (up to second order) • Applications of differentiation 	4
V. Integral Calculus And Applications	<ul style="list-style-type: none"> • List of standard integrals and Basic rules of integration • Evaluation of integrals of simple function and their combination • Methods of integration • Concept of definite integrals • Applications of definite integrals 	4
		20

2. STATISTICS AND ANALYTICS

20 Marks

Topics	Sub Topics	Marks
I. Statistical Data Collection And Types	<ul style="list-style-type: none"> • Definition of data and classification (qualitative , quantitative discrete and continuous data) • Data collection tools <ol style="list-style-type: none"> i) Questionnaires. ii) Survey. iii) Interviews. iv) Focus group discussion • Data cleaning 	3



<p>II. Summarization of Data</p>	<ul style="list-style-type: none"> • Descriptive statistics <ul style="list-style-type: none"> i) Data tabulation (Frequency table) ii) Relative frequency table. • Grouped data <ul style="list-style-type: none"> i) Bar graph ii) Pie chart iii) Line graph iv) Frequency polygon v) Frequency curve vi) Relative frequency polygon vii) Histograms viii) Box plot • Leaf-stem plot 	<p>6</p>
<p>III. Measure of Location And Dispersion</p>	<ul style="list-style-type: none"> • Determination of central tendencies Range, Mean, Mode and Median for the data • Determination of absolute measures of dispersion for data like range quartile deviation, mean deviation, standard deviation and variance. • Skewness and kurtosis graphs 	<p>5</p>
<p>IV. Introduction To Python Programming</p>	<ul style="list-style-type: none"> • Introduction to PYTHON. • Syntax of PYTHON. • Comments of PYTHON. • Data types of PYTHON. • Variables of PYTHON. • If-else in PYTHON. • Loops in PYTHON. • Arrays and functions in PYTHON. 	<p>6</p>
		<p>20</p>

3. IT SKILLS

20 Marks

Topics	Sub Topics	Marks
<p>I. Introduction to Basics of Coding</p>	<ul style="list-style-type: none"> 1.1 Introduction to computer programming 1.2 Algorithms - With sufficient examples 1.3 Flowcharts - With sufficient examples 1.4 Execute simple programs 1.5 Introduction to Application development 1.6 Simple android application development 	<p>4</p>



<p>II. Design And Develop Web Pages</p>	<p>2.1 Basic web technologies</p> <ul style="list-style-type: none"> • Browser • Web - Server • Client-Server Model • URL • SEO techniques • Domain names and domain name system. <p>2.2 Creating Web-pages with HTML5 - Static</p> <ul style="list-style-type: none"> • Introduction, Editors • Tags, Attributes, Elements, Headings • Links, Images, List, Tables, Forms • Formatting, Layout, Iframes. <p>2.3 Formatting web pages with style sheets (CSS3).</p> <ul style="list-style-type: none"> • Introduction to CSS • Inline CSS, Internal CSS, Classes and IDs • div, Color, Floating, Positioning • Margins, Padding, Borders • Fonts, Aligning Text, Styling Links <p>2.4 Creating a web page dynamic using JavaScript.</p> <ul style="list-style-type: none"> • Dynamic web page and Introduction to JS • Basic syntax • Functions • Events <p>2.5 Creating dashboards in websites.</p>	<p>4</p>
<p>III. Business Process Automation / ERP</p>	<p>3.1 Introduction to business process automation.</p> <p>3.2 Organization structure and functions composition- Properties and applications</p> <ul style="list-style-type: none"> • Structure • Types • Functional Units <p>3.3 Workflows</p> <ul style="list-style-type: none"> • Introduction • Components • Use and use cases <p>3.4 Enterprise resource planning</p> <ul style="list-style-type: none"> • History • Evolution • Uses of ERP 	<p>4</p>



**IV.
Introduction
To Cloud
And IoT
Concepts**

- 4.1 Fundamentals of cloud
- 4.2 Cloud service models
 - IaaS (Infrastructure-as-a-Service)
 - PaaS (Platform-as-a-Service)
 - SaaS (Software-as-a-Service)
- 4.3 Cloud deployment types
 - Public,
 - Private,
 - Hybrid
 - Community Cloud
- 4.4 Cloud services:
 - Google Drive - file storage and synchronization service developed by Google;
 - Google docs- bring your documents to life with smart editing and styling tools to help you easily format text and paragraphs;
 - Google Co-lab (Usage of Jupyter Notebook):
Colab notebooks allow you to combine executable code and rich text in a single document, along with images, HTML, LaTeX, and more.
 - Google App Engine: Google App Engine is a Platform as a Service and cloud computing platform for developing and hosting web applications in Google-managed data centers. Applications are sandboxed and run across multiple servers.
- 4.5 Working of IoT and IoT components (Only brief introduction and demonstration through videos)
- 4.6 Explain concept of Internet of Things with examples
 - Smart home
 - Smart city
 - Smart farming

4



<p>V. Cyber security And Safety</p>	<p>5.1 Introduction to Cyber security and cyber safety.</p> <ul style="list-style-type: none"> • Brief awareness on cyber safety measures • Identification of basic security issues in mobile phones and personal computers • Installation of Antivirus software • Firewall concepts • Browser settings • Importance of privacy and Password policy (Best practices). <p>5.2 Common threats - Demonstration</p> <ul style="list-style-type: none"> • Phishing • DoS attack • Man in the middle attack • Eavesdropping • Spamming 	<p>4</p>
		<p>20</p>

4. FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING

- 20 Marks

Topics	Sub Topics	Marks
<p>I. Electrical Safety</p>	<p>1. Electrical Symbols</p> <p>2. Electrical safety</p> <ul style="list-style-type: none"> • Identify Various types of safety signs and what they mean • Demonstrate and practice use of PPE • Demonstrate how to free a person from electrocution • Administer appropriate first aid to victims, bandaging, heart attack, CPR, etc. • Fire safety, causes and precautionary activities. • Use of appropriate fire extinguishers on different types of fires. • Demonstrate rescue techniques applied during fire hazard, correct method to move injured people during emergency • Inform relevant authority about any abnormal situation <p>1.1 Earthing: Types</p>	<p>2</p>



**II. Electrical
Fundamentals**

1. Describe the sources of electrical energy.
2. Electrical current, voltage, emf, potential difference, resistance with their SI units.
3. Mention the meters used to measure different electrical quantities.

Identification Measuring devices

- Ammeter
- Voltmeter
- Wattmeter
- Ohmmeter
- Digital Multimeter
- Megger
- Tong tester

4. Explain supply systems like AC, DC.
 - Relationship between V, I and R. (Ohms law)
 - Behavior of V, I in Series and Parallel DC circuits.
 - Describe open circuit, close circuit and short circuit
 - Equation to find the effective Resistances connected in series
 - Equation to find effective Resistances connected in parallel
 - Resistances connected series and parallel combinations
 - AC sine wave: Sinusoidal voltage, current, amplitude, time-period, cycle, frequency, phase, phase difference, and their units.
 - Electrical work, power and power factor, SI units, mention the meters used to measure them.
5. Electrical energy
 - SI units
 - Mention the meters used to measure them
 - Single phase and Three phase supply.

5



<p>III. Protective Devices And Wiring Circuits</p>	<ol style="list-style-type: none">1. Protective Devices<ul style="list-style-type: none">• Necessity of Protective Devices• Various Protective devices and their functions• fuse wire,• Glass cartridge fuse• HRC fuse• Kit-kat fuse• MCB• MCCB• RCCB• ELCB• Relay• Different types of electrician tools and their function.• Describe various wiring tools.• State procedure of care and maintenance of wiring tools.1. Describe different types of wiring systems.<ul style="list-style-type: none">• Surface conduit• concealed conduit• PVC casing capping2. Wiring systems and their applications.3. Describe the types of wires, cables used for different current and voltage ratings.	<p>3</p>
<p>IV. Electrical Machines and Batteries and UPS</p>	<ol style="list-style-type: none">1. Transformer<ul style="list-style-type: none">• working principle• Transformation ratio• Types and applications with their ratings2. Induction motor<ul style="list-style-type: none">• Single phase and three phase Induction motor.• Necessity of starters.• Describe DOL AND STAR-DELTA starters.3. What are different causes and remedies for a failure of starter and induction motor.4. Battery<ul style="list-style-type: none">• Types of batteries (Lead acid battery, lithium, sealed maintenance free (SMF) battery, Modular battery).• Selection criteria of batteries for different applications.• Ampere-Hour Capacity.• Efficiency5. UPS<ul style="list-style-type: none">• List the types and applications• Selection criteria of UPS• Sizing of UPS	<p>5</p>



**V.
Introduction
to Electronic
Devices and
Digital
Electronics**

1. Compare Conductors, insulators and semiconductors with examples.
2. Identification of types and values of resistors-color codes.
3. PN junction diode
 - Symbol
 - Characteristics
 - Diode as switch.
 - Types of diodes and ratings
 - Applications
4. Rectifier
 - Need for AC to DC conversion
 - Bridge rectifier with and without C filter,
 - Rectifier IC.
5. Transistor (BJT)
 - Symbol
 - Structure
 - Working principle
 - Comparison of analog and digital signal
 - Digital systems, examples.
 - Binary numbers, Boolean identities and laws.
 - Digital system building blocks: Basic logic gates, symbols and truth tables.
 - IC-Definition and advantages.
6. Sensors
 - Concept
 - Types: Temperature, Pressure, Water, Light, Sound, Smoke, proximity Sensors, Flow, humidity, voltage, vibration, IR (Principle/working, ratings/ specifications, cost, and applications)
7. Actuators
 - Concept
 - Types and applications.
 - Relay as an actuator
8. Microcontroller
 - As a programmable device and list of real-world applications.
 - PLC and Their applications.

5

20



5. PROJECT MANAGEMENT SKILLS

20 Marks

Topics	Sub Topics	Marks
I. Introduction	<p>I. Introduction</p> <ul style="list-style-type: none"> • Meaning of Project • Features of a Project • Types of Projects • Benefits of Project Management • Obstacles in Project Management • Project Management as Profession • Project Manager and His Role • Project Consultants • What is Operation? • Difference between Project and Operation. • What is "Process" in Project Management and Process Groups? • What is Scope? Difference between Project Group Objectives and Project Scope. 	4
II. Project Administration	<ul style="list-style-type: none"> • Essentials of Project Administration • Project Team • Project Design • Work Breakdown Structure (WBS) • Project Execution Plan (PEP) • Contracting Plan • Work Packing Plan • Organisation Plan • Systems and Procedure Plan • Project Procedure Manual • Project Diary • Project Execution System • Project Direction • Communication in a Project • Project Co-ordination • Pre-requisites for Successful Project Implementation 	4



<p>III. Project Life cycle</p>	<ul style="list-style-type: none">• Phases of Project Life Cycle• Project Management Life Cycle (General)• Project Planning• Project Execution• Project Closure• Project Risks• Types of Risks: Illustrations• Risk Assessment Techniques with Illustrations• Project Cost Risk Analysis• Estimating Time and Cost Overrun Risks• Organization/Procedural/Systemic Reasons for Project Cost Overruns• Time Overruns	<p>4</p>
<p>IV. Project Planning, Scheduling and Monitoring</p>	<ul style="list-style-type: none">• Nature of Project Planning• Need for Project Planning• Functions of Project Planning• Steps in Project Planning• Project Planning Structure• Project Objectives and Policies• Tools of Project Planning• Project Scheduling• Time Monitoring Efforts• Bounding Schedules• Scheduling to Match Availability of Manpower• Scheduling to Match Release of Funds• Problems in Scheduling Real-life Projects• Introduction• Situation Analysis and Problem Definition• Setting Goals and Objectives• Generating Structures and Strategies• Implementation• What is Project Evaluation?• Why is Project Evaluation Important?• What are the Challenges in Monitoring and Evaluation ?	<p>4</p>



<p>V. Project Control, Review and Audit</p>	<ul style="list-style-type: none">• Projected Control Purposes• Problems of Project Control• Gantt Charts• Milestone Charts• Critical Path Method (CPM)• Construction of a Network• Network Technique in Project Scheduling• Crashing Project Duration through Network• Project Review• Initial Review• Post Audit• Performance Evaluation• Abandonment Analysis• Objectives of Project Audit• Functions of Project Auditor• Project Audit Programme• Difficulties in Establishing Audit Purpose and Scope• Digital Technology trends in Project management• Cloud Technology, IoT, AR and VR applications in Project management, Smart Cities	<p>4</p>
		<p>20</p>



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- **Duration** : After 6th Sem. Exams.
- Every day 5 to 6 hrs classes.
- Offline & Online live classes.
- Mock Tests and everyday class recordings available at our App.

OUR D-CET 2023 TOP RANK HOLDERS



**1st
RANK
State
Topper**

SANTHRUPTH H. R.



**Srujan Buddar
State Rank : 7
BLDEA Vijayapura**



**Gopinath Ramjee
State Rank : 8
SJPN Nidasoshi**



**Chandana H S
SP Ramanagara
Rank : 10**



**Bindu S
PVP Bangalore
Rank : 19**



**Raghavendra
GPT Kalburgi
Rank : 25**



**Vivitha Sequeira
MEI Bengaluru
Rank : 28**



**Zhenkar Gowda K P
MEI Bengaluru
Rank : 31**



**Somashekara G
SJP Bengaluru
Rank : 38**



**Punith Giri B T
GPT Hosadurga
Rank : 50**



**Gokulnath S
MEI Bengaluru
Rank : 54**



**Hemalatha S
GPT Chitradurga
Rank : 62**



**Harshith
Acharya Polytechnic
Rank : 64**



**Vaibhav D
GPT Hiriyur
Rank : 70**



**Balaraj S A
GPT Chennapattana
Rank : 75**



**Siddu R
BVVSP Hosapete
Rank : 80**



**Harshavardhan B
SJPNP Nidasoshi
Rank : 83**



**Shashank
VISSJ Shivamogga
Rank : 90 (G55)**



**B Girish
SGP Bellary
Rank : 90**



**Chandana B
MEI Bengaluru
Rank : 98**



**Karthik G
MEI Bengaluru
Rank : 107**



**Om Shivarjun
SSPT Tumakur
Rank : 111**



**Chandrashekhara M
MEI Bangalore
Rank : 115**



**Shivakumar S
SJP Bangalore
Rank : 117**



**Yashwanth P
SJP Bengaluru
Rank : 119**



**Amol Girigowda Patil
VMSMRKIT Nipani
Rank : 144**



**Sai Charan K
SGP Bellary
Rank : 146**



**Veeresh Amaragatti
BVVS Bagalkot
Rank : 150**



**Afnan Pasha
SJBGS Belluru Cross
Rank : 157**



**Praful Gowda D L
GPTI Bengaluru
Rank : 158**



**Hemavathi V M
PVP Bangalore
Rank : 160**



**Kalpitha R B
SVP Kumpta
Rank : 161**



**Jeevan G M
GPT Bellary
Rank : 165**



**Krishna N
SJP Bangalore
Rank : 166**



**Chandan T S
NTTF Bangalore
Rank : 169**



**Punith Kumar C
GPT Chitradurga
Rank : 171**



**Nandhini P
MEI Bengaluru
Rank : 176**



**Sai A Akhilandeshwari
KVTP Chikkaballapura
Rank : 186**



**Shamanth Kumar V
SJP Bengaluru
Rank : 190**



**Sweta
JNP Kushnoor
Rank : 192**



**Darshan M
SJP Bengaluru
Rank : 203**



**Nandhini A
MEI Bengaluru
Rank : 205**



**Lokesh N
HEA Bengaluru
Rank : 212**



Mahanthes K
MEI Bengaluru
Rank : 215



Sadath Khan
GPT Chintamani
Rank : 218



Gayana R
APSP Bengaluru
Rank : 219



Arun Kumar
GPT Vijaypur
Rank : 228



Sanjana Dhanjaya
NMIT Bengaluru
Rank : 239



Chethan C R
HEA Bengaluru
Rank : 247



Santhosh S
APS Bengaluru
Rank : 249



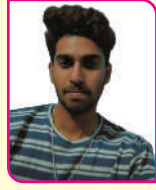
Prajna B
MEI Bengaluru
Rank : 250



Ravikanth
GPT Bidar
Rank : 253



Channappa
GPT Bidar
Rank : 270



Ekanth Gowda E
VVP Mysuru
Rank : 273



Udayshankar C A
PVP Bengaluru
Rank : 285



Gokul G
SJP Bengaluru
Rank : 291



Hemanth Kumar T
GPT K R Pete
Rank : 292



Nikhil G
MEI Bengaluru
Rank : 297



Balaji S
MEI Bengaluru
Rank : 298



Prakruthi L
MEI Bengaluru
Rank : 305



Kumaraswamy G
MEI Bengaluru
Rank : 311



Harshitha Gujjar
GPT Raichur
Rank : 313



Namratha Reddy
BGS Chikkaballapura
Rank : 317



Prajwal
SJP Bengaluru
Rank : 322



Madhushree S
GPT Bagepalli
Rank : 327



Vikas B
SKP Bengaluru
Rank : 341



Nandan Kumar S
SJP Bengaluru
Rank : 342



Vidyaashree G
MNTI Bengaluru
Rank : 345



Chandan H M
BGS Chikkaballapura
Rank : 346



Sukeerthi K S
SJP Bengaluru
Rank : 351



Shreyas
GPT Kalburgi
Rank : 355



Tarita
Acharya Bengaluru
Rank : 358



Pratik Lakkundi
BVVS Bagalkot
Rank : 360



Many H N
Rajiv Hassan
Rank : 381



Prajwal A B
PVP Bengaluru
Rank : 385



Tejas N
MEI Bengaluru
Rank : 387



Rohith K
SJP Bengaluru
Rank : 390



Suma P
PVP Bengaluru
Rank : 391



Guruprasad Shetty
GTTC Bengaluru
Rank : 422



Prajwal J B
Acharya Bengaluru
Rank : 428



Varun Gowda C
Ashoka Bengaluru
Rank : 438



Mohamad Rafi
Acharya Bengaluru
Rank : 439



Vishnu Deva
APS Bengaluru
Rank : 447



Chethan A
SJP Bengaluru
Rank : 451



Chetan S
GTTC
Rank : 457



Priyadarshini H R
GPT K R Pete
Rank : 459



Yashaswini N M
SJP Bengaluru
Rank : 469



Gayithri N
PVP Bengaluru
Rank : 481



Gopinath
JSS Mysuru
Rank : 489



G Chitrashree
MEI Bengaluru
Rank : 491



Prerana S
VISSJ Bhadravathi
Rank : 500



Shrinidhi N S
APS Bengaluru
Rank : 501



Afsha Sultana
SJP Bengaluru
Rank : 515



Imraz Kousar
JSS Mysuru
Rank : 516



Suhas G
SJP Bengaluru
Rank : 518



Akshatha C
SJP Bengaluru
Rank : 524



Shashikala N
PVP Bengaluru
Rank : 526



Tejas Kumar S
HMS Tumakur
Rank : 527



Sharath P
VISSJ Bhadravathi
Rank : 544



Induja R
East West Bengaluru
Rank : 556



Manas K
MEI Bengaluru
Rank : 557



Chandana M
SSPT Tipatur
Rank : 559



Vibhuvan M
GPT Tumakur
Rank : 559 (G55)



K R Shalini
SJP Bengaluru
Rank : 560



Pavan S
BVVS Bagalkot
Rank : 565



Punyashekhhar
SJBGS Bellur Cross
Rank : 567



Vardhan C
SJM Chitradurga
Rank : 572



Honnursab H B
SJP Bengaluru
Rank : 574



S Roshan Karthik
MEI Bengaluru
Rank : 576



Umapathi G N
GPT Chitradurga
Rank : 592



Vikas D H
DSDP Shivamogga
Rank : 598



Shruthi Nagave
SJP Nisoshi
Rank : 618



Shreyas M N
MNTI Bengaluru
Rank : 630



Karthik K
SJP Bengaluru
Rank : 638



Shashank K
SJP Bengaluru
Rank : 651



Tejas A
VET BVL Bengaluru
Rank : 656



Spoorthi Shree C R
SNP Ramanagara
Rank : 667



Charan M G
MEI Bengaluru
Rank : 674



S Basavaprabhu
JSS Nanjanagoodu
Rank : 679



Manoj S
DSDP Shivamogga
Rank : 680



Sai Shriya B S
BGS Chikkaballapur
Rank : 690



Puneetha G
PVP Bengaluru
Rank : 707



Vinayraj M
SJP Bengaluru
Rank : 714



Diganth S D
GPT Siddapura
Rank : 716



Varun Gowda V D
GTTC
Rank : 721



Rahul Rao R
PVP Bengaluru
Rank : 734



Pugazh Selvam S
SJP Bengaluru
Rank : 736



Praveen L
MEI Bengaluru
Rank : 741



Gurupriya Y S
NMIT Bengaluru
Rank : 746



Pooja Manawade
GPT Banahatti
Rank : 749



Mohamad Abdul Sandur
Polytechnic
Rank : 756



Chandu R
SSPT Tipatur
Rank : 763



Nithin Reddy
BGS Chikkaballapur
Rank : 767



Hamsa G
MEI Bengaluru
Rank : 787



Honnursab C
GPT Chitradurga
Rank : 791



Rakshitha R
MNTI Bengaluru
Rank : 821



Niranjana Nayak S
APS Bengaluru
Rank : 825



Manali
SJP Nidasoshi
Rank : 831



Anil Kumar V
MEI Bengaluru
Rank : 839



Kishor Kumar
GPT Chintamani
Rank : 840



Kushal Kumar T C
APS Bengaluru
Rank : 841



Chandrashekhar
BVVS Bagalkot
Rank : 843



G Dhanush
TMAE'S Hospet
Rank : 848



Ganesh
GPT Bidhar
Rank : 849



Bharath
Sandur Polytechnic
Rank : 851



Raksha K L
Acharya Bengaluru
Rank : 853



Vishnu N
BESIT Bengaluru
Rank : 855



Bhavani V R
STJ Harappanahalli
Rank : 874



Govindraj V
Acharya Bengaluru
Rank : 876



Kiran
BVVS Bagalkot
Rank : 894



Shashank S
MEI Bengaluru
Rank : 895



Pavan Kumar B M
Acharya Bengaluru
Rank : 902



Ajay S S
MEI Bengaluru
Rank : 904

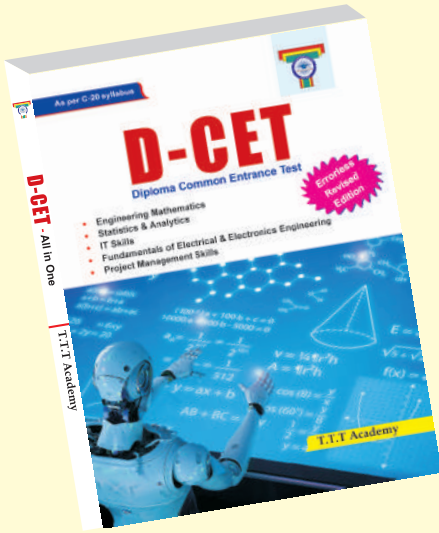


Abhishek Gowda S
HEA Bengaluru
Rank : 906



Mohamad Zaid
VISSJ Bhadravathi
Rank : 916

STUDY MATERIAL & RESULTS



DCET-23 State 1st Rank

Below 10 Ranks : 4 Students
Below 100 Ranks : 22 Students
Below 200 Ranks : 41 Students
Below 500 Ranks : 98 Students
Below 1000 Ranks : 173 Students
Below 1500 Ranks : 234 Students
Below 2000 Ranks : 289 Students



T.T.T. Academy

Dedicated to Excellence

- **T.T.T Methodology** : Starting with the very basics and strengthening the students at fundamentals.
- **Study Material** : Structured & research based study material for both theory & MCQ's.
- **Test System** : Regular Mock test on every sunday.
- A year long course programme for DCET by resource persons and subject experts.
- All competitive exams for KPSC, KPTCL, KPCL, BMRCL, ISRO, HAL, BEL, KSRTC, BHEL, DRDO, **JE & AE** posts exams.
- Orientation sessions will be provided on how to apply DCET application and admission procedure for top Engineering colleges.
- Regular offline and online live coaching classes.
- Additional support and care for slow learners as well as for meritorious students.
- CC camera surveillance on the campus.



TESTIMONIALS



TTT Institution has provided excellent guidance for DCET preparation, ensuring my success and securing 1st rank in Karnataka State. I am also thankful to my friends who played a crucial role in helping me achieving this milestone. Special gratitude to Savin Sir and the dedicated team for their effective online coaching classes. The regular mock tests helps us identify and rectify our mistake and with no doubt TTT Institution has helped many students across Karnataka to secure good ranking in DCET by providing both online and offline classes with well-equipped classroom, study material and infrastructure !!

Santhrupth H R
State 1st Rank Holder

Thank You So Much....!

For everything from "Study Materials to Mentoring" Coaching for DCET provided by T.T.T Academy helped me a lot to secure state 7th Rank in DCET-23. Meanwhile with DCET success, I have gained motivation for my future competitive studies.

I am very much grateful to T.T.T Academy and staff for providing excellent coaching and a good suggestion from the team whenever we had a doubt.

Continue with the same effective classes which will be helpful for our juniors.

Thank you once again.....!

Srujan Buddar
State 7th Rank Holder



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