



माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर

पाठ्यक्रम सत्र 2026–27

Informatics Practices

CLASS-12

विषय कोड -04

परीक्षा योजना निम्नानुसार है –				
प्रश्नपत्र	समय(घंटे)	प्रश्नपत्र के लिए अंक	सत्रांक	पूर्णांक
सैद्धान्तिक	3:15	56	14	70
प्रायोगिक	4.00	30	0	30

ईकाई संख्या व नाम	अध्याय संख्या व नाम	शीर्षक एवं विषय वस्तु	अंक भार
Unit I: Data Handling using Pandas and Data Visualization	Chapter 2 : Data Handling using Pandas - I Chapter 3 : Data Handling using Pandas - II Chapter 4 : Plotting Data using Matplotlib	Data Handling using Pandas -I Introduction to Python libraries- Pandas, Matplotlib. Data structures in Pandas - Series and data frames. Series: Creation of series from ndarray, dictionary, scalar value; Accessing Elements of a series, mathematical operations; series attributes, head and tail functions; selection, indexing and slicing. Data Frames: creation of data frames from dictionary NumPy ndarray, Dictionary of series, list of dictionaries, Dictionary of lists, text/CSV files, display, iteration. Operations on rows and columns: add (insert /append) , select, delete (drop column and row), renaming Row labels and column labels of a data frames, Head and Tail functions, Accessing Dataframes Element through indexing, indexing using labels, accessing data frame elements through slicing. Boolean indexing; joining, merging and concatenation of data frames. Attributes of Data frames Importing/Exporting Data between CSV files and Data Frames. (for practicals only) , PANDAS SERIES VS NUMPY NDARRAY Data handling using Pandas – II Descriptive Statistics: calculating values-max, min, count, sum, mean, median, mode, quartile, Standard deviation, variance. Data Frame operations: Aggregation, group by, Sorting, Deleting and Renaming Index, Reshaping Data, Pivoting. Handling missing values – dropping and filling. Importing/Exporting Data between MySQL database and Pandas.	24

		Data Visualization : Purpose of plotting, drawing and saving of plots using Matplotlib (line plot, bar graph, histogram, pie chart, frequency polygon, box plot and scatter plot). Customizing plots: marker, color, style (dashed, dotted), width; adding label, title, and legend in plots. The PANDAS PLOT functions	
Unit II: Database Query using SQL	Chapter 1 Querying and SQL Functions	Math functions: POWER (), ROUND (), MOD (). Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME (). Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*). Querying and manipulating data using Group by, Having, Order by Operations on Relations - Union, Intersection, Minus, Cartesian Product, JOIN (Cartesian Join, Equi Join, Natural Join)	20
Unit III: Introductions to Computer Networks	Chapter 5 : Internet and Web	Introduction to networks , Types of network: LAN , MAN , WAN. Network Devices : Modem, hub, switch, repeater, router, gateway Network Topologies: Star, Bus ,Tree, Mesh. Ring Introduction to internet, WWW and its applications- web , email Chat, VoIP. Website : Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website . Web Browsers: Introduction , commonly used browsers, browser Settings, add-ons and plug-ins, cookies	6
Unit IV: Societal impacts	Chapter 6 : Societal Impact	Digital Footprints, net and communication etiquettes, social media Etiquettes, data protection, Intellectual Property Rights (IPR), plagiarism licensing, and copyright, violation of IPR, free and open source software (FOSS), creative Commons cybercrime and cyber laws, hacking, phishing, ransomware, cyber bullying, combatting and Preventing Cyber crime overview of IT Act. E-waste : hazards and management . Awareness about health concerns related to the usage of technology	6

Practical

S.No.	Unit Name	Marks
1	Programs Using Pandas and Matplotlib	8
2	SQL Queries	5
3	Practical File (Minimum of 20 Programs based on Pandas, 5 based on Matplotlib and 20 SQL queries must be included)	5
4	Project work (Using concepts learned in class XI and XII)	7
5	Viva-Voce	5
	Total	30

Prescribed Book :

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