THE JAMMU & KASHMIR BOARD OF SCHOOL EDUCATION,

Academic Division, Rehari Colony, Jammu-Tawi /
New Campus, Bemina, Srinagar {UNION TERRITORY OF JAMMU & KASHMIR}
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NOTIFICATION

It is notified for information of all the concerned candidates of class 12th in particular and other stake holders in general:-

1- That the syllabi and courses of studies for Higher Secondary Part-II (Class 12th) of following subjects ***i.e. Statistics, Information Practice, Electronics and Computer Science*** have been revised (changed) from the current Academic session 2024-25.

2- That the Scheme of Assessment (weightage) of above mentioned subjects shall be as under:-

S.No	Name of title/subject	Maximum Marks	Theory marks	Practical /Project work Marks	
				External	Internal
1-	Statistics	100	70	20	10
2-	Information Practices	100	70	20	10
3-	Electronics	100	70	20	10
4-	Computer Science	100	70	20	10

3- That the question papers for ensuing Annual (Regular) Examination for the Academic Session 2024-25, scheduled to be held in the month of March-April, 2025 shall be set as per the revised (New) syllabi and courses of studies.

4- That the revised syllabi and courses of studies (updated syllabus) and scheme of assessment is available on JKBOSE official website: www.jkbose.nic.in.

No: F :(Acad-C)Rev/Syllabi/XII/24
Dated: 14-05-2024

Director Academics
14/05/2024

Copy to the:-

1- Director School Education, Kashmir/Jammu/Ladakh for information.
2- Joint Secretary Examination/Secrecy/General/ITSS J.D/KD for information and n/action.

3- Joint Director SCERT, Central/K.D/JD for information.
4- Chief Accounts officer, JKBOSE for information.
5- All Chief Education officers UTs of J&K/Ladakh for information.
6- Deputy Director Academics (JK BOSE) JD/KD for information.
7- Deputy Secretary, Central Secrecy for information & n/action along with syllabi.
8- Deputy/Assistant Secretary, Examination/Secrecy Unit 1st, II, III,/General Section/Registration/ Records/Forms/Strong Room, J.D/K.D for information .
9- Assistant Director Academics (JK BOSE) K.D for information.
10- Accounts officer JKBOSE, JD/K.D for information.
11- All Heads of (Govt. /Pvt.) Higher Secondary schools of UTs of J&K/Ladakh for information.
12- P/S to Administrative Secretary to Govt. School Education Department Civil Secretariat Srinagar/Jammu for information of the Administrative Secretary.
13- P/S to Chairman/Secretary, JKBOSE for information of the Chairman/Secretary
14- P/S to Director SCERT J&K for information.
15- All Sub/Branch, offices of J&K Board for information.
16- Assistant Secretary ITSS for information. He is requested to upload the notification on the official website.
17- Information officer J.D/K.D for information. He /She is requested to notify the notification in local dailies UTs of J&K/Ladakh.
18- Notice Boar d/Concerned file.

COMPUTER SCIENCE

CLASS XII

Maximum Marks=100
Time: 3 Hrs

Theory =70 Marks
Practical =30 Marks (Internal=10: External=20)

Unit 1: Control Structures in Python. **10 Marks**

Conditional Statements:

- If
- If-Else
- If-Elif-else.

Loops: -

- While Loop
- For Loop,
- Finite loop and Infinite Loop,
- Nested Loop.
- Break and continue.

Unit 2:-User Defined functions in Python : **10 Marks**

- Concept of a Function
- creating a function
- calling a Function
- Arguments, Arbitrary arguments
- Scope of a variable (Local and Global)
- Functions Returning values.

Unit 3: -Introduction to Object Oriented Programming in Python **10 Marks**

- Concept of Object-Oriented Programming
- Advantages of OOPs
- Basic elements of OOPs: Class, Object, Encapsulation, Polymorphism, Inheritance, Data abstraction and Data hiding,
- Access Specifiers (Public, Private, Protected).
- Constructors: -- Concept of Constructors
- Types of Constructors (Default and Parameterized constructor).
- Concept of Destructor.

Unit 4: - Data Structures in Python. **10 Marks**

- Arrays: Concept of Array, creating an array, Access the Elements of an Array, Array Length.
- Lists- Concept of Lists, Creating a list, List Items (Ordered, Changeable, Allow Duplicates) ,List Length.

- Dictionaries: - Concept of Dictionaries, Creating a dictionary, Dictionaries items:- (Ordered, Changeable, Allow Duplicates) , dictionary Length.
- Tuple: - Concept of Tuple, Creating a Tuple with one item, Tuple items: - (Ordered, Changeable, Allow Duplicates) , Tuple Length.
- Sets: - Concept of Sets, Creating a Set, Sets items: - (Ordered, Changeable, Allow Duplicates) , Set Length.

10 Marks

UNIT 5: Database and SQL

- Database and its advantages
- Relational data model
- Concept of Domain, Relation, Attribute, Tuple, Candidate key, Primary key, Alternate key
- SQL and its advantages
- Data types in SQL (NUMBER, CHAR, DATE)
- Data Definition Language and Data Manipulation Language
- SQL commands: DDL commands (CREATE, DROP, ALTER) , DML commands (SELECT, INSERT, UPDATE, DELETE)
- SQL functions: SUM(), AVG(), COUNT(), MIN(), MAX()

UNIT 6: Boolean Logic **10 Marks**

- Boolean Operators: AND, OR, NOT .
- Truth Table
- Basic Logic Gates: AND, OR, NOT, NAND, NOR
- Laws of Boolean Algebra: Commutative law, Associative law, Distributive law, De Morgan's law, Principle of Duality (Proving these laws using Truth Tables only)

UNIT 7: Networking and Cyber security **10 Marks**

- Networking and its advantages
- Types of Networks: PAN, LAN, MAN, WAN
- Network Topologies: Bus, Star, Ring
- Modem

Cyber safety and security

- Cyber Bullying: Preventive Measures
- Computer Safety and Security
- Internet Safety and Ethics
- Safe Social Networking
- Safe Email Practices
- Dos and Don'ts for Cyber Safety

PRACTICALS:

Programming in Python

1. WAP to find weather a number is even or odd.
2. WAP to Find greatest among three numbers.
3. WAP to find factorial of a number.
4. WAP to swap two numbers using a user defined function.
5. WAP to find length of a list.
6. WAP to implement concept of multilevel inheritance.
7. WAP to initialize array, display and access its elements.
8. WAP to create a dictionary.
9. WAP create a tuple using one element.
10. WAP to create a set with duplicate values.

SQL Commands:

1. Use SQL command to create a table with specified columns.
2. Use SQL command to insert data into a table.
3. Use SQL command to retrieve data from existing table.
4. Use SQL command to delete records from a table.
5. Use SQL command to drop an existing table.

Practical file

Practical file must contain the entire mentioned practical.

Viva voce

Viva will be asked from syllabus covered

Distribution of 20 marks for External practical

- Programming (Logic, Syntax, Indentation, output) (07 marks)
- SQL commands (03 marks)
- Practical file (05 marks)
- Viva (05 marks)

INFORMATION PRACTICES (IP)

Session: 2024-2025

Maximum Marks: 100 ***Time: 3Hrs***

Theory: Marks 70.

Practicals: Marks 30. External: 20 marks, Internal: 10 marks

TOPIC	Marks	Theory Lectures	Practical
Computer Networking	20	40	05
Internet & Cyber Security	15	25	-
Fundamentals of DBMS	20	40	20
Python Programming	15	30	20

Unit-I: Computer Networking

Introduction to Data Communication, Components of Data Communication, Data Flow (Simplex, Half Duplex and Full Duplex), A brief overview of networking, Identifying Computer over a Network (MAC, IP, DNS); IP Addressing: Types and Classes. Types of networking (PAN, LAN, MAN, WAN); Network Topologies (BUS, RING, STAR, TREE); Network Media- Guided (Twisted pair, Co-axial, Fiber Optics), Un-Guided Media, (Infrared, Radio, Microwave).

Network Device: Hub, Modem, Repeater, Gateway, Router, Switch, and their Functions. Network Technologies –Ethernet, Bluetooth, Wi-Fi.

Unit-II: internet and Cyber Security

Internet and World Wide Web, Internet Concepts: Web page and types, Web Browsers, URL, Web Address and Web application, ISP, Web Server and hosting of a website.

Cybercrime: Brief overview, Types of Cyber Crimes. Network threats (Virus, Trojan Horse, Worm, Denial of Services, Snooping), Social Networking Risks and Challenges- (Illegal content, Spam, Fake friends, Malicious Links, Phishing).

Cyber Security – Firewall and Anti-Virus.

Unit-III: Fundamentals of RDBMS

Introduction to Database, Definition of Database, DBMS, RDBMS Concepts, Table, Attribute, Tuple, Field; Data Definition, Data Types Key Concept, Types of Keys, Candidate Key, Alternate Key, Primary Key, Foreign Key; Database basic Constraints, Unique, Null, Not Null;

Structured Query Language (SQL) Concept, Types of SQL Commands; Basic SQL Data Types – Char, Varchar2, Number, Long, Date; SQL Operators – Arithmetic, Relational, Logical; Types of SQL Commands – DDL (Create, Alter, Drop, Truncate, Rename), DML (Insert, Select, Update, Delete), DCL (Grant, Revoke), TCL (Commit, Rollback, Save Point);

SQL Functions – Brief Overview, String Functions (LOWER, UPPER, INITCAP, CONCAT, SUBSTR, INSTR, TRIM), Number Functions (ABS, CEIL, FLOOR, LEN, MOD, SQRT); Group Functions (SUM, AVG, MAX, MIN, COUNT)

Unit-IV: Python Programming

Revision of Decision Structures, LOOPING Structures, Lists: List Operations - Creating, Initializing, Traversing, and Manipulating Lists, List Methods, and Built-In Functions viz len(list), Max(list), Min(list), cmp(list1,list2), list.append(obj), list.count(obj), list.index(obj), list.insert(obj), list.remove(obj), list.reverse(obj) and list.sort(obj).

Dictionary: Concept of Key-Value Pair, Creating, Initializing, Traversing, Updating, And Deleting Elements, Dictionary Methods, and Built-In Functions viz len(), pop(), popitem(), del keyword, clear. Basic introduction to Pandas.

Programs of Python

1. To print the multiplication table of a given number.
2. To find the sum of 'n' natural numbers.
3. To find the factorial of a natural number.
4. To count the number of vowels in user entered string.
5. To find minimum of three numbers
6. To generate Fibonacci series.
7. To append elements in a List
8. To remove elements in a List
9. To find the largest and smallest numbers in a List.
10. Create a dictionary to store names of states and their capitals.

Write the 20 SQL Query's

ELECTRONICS
Class 12th

Maximum Marks: 100 **Time: 3 hours**

Theory: 70 marks

Practical: 30 marks (Internal Assessment: 10 marks, External: 20 marks)

Unit-I

Design of combinational Logic Circuits: **(Marks = 15)**

Conversion of Boolean expression to canonical forms: Sum Of Products (SOP) and Product Of Sums(POS) forms. Use of Karnough map (upto three variables) for minimization of Boolean expressions. Converting expressions to logic circuits. Half-adder, full- adder. Subtractors: half subtractor, full subtractor.

Unit-II

Semiconductors: **(Marks =10)**

Electronic structure of atoms, energy band theory of Solids: insulators, semiconductors and conductors., intrinsic semiconductors, effect of temperature and doping, extrinsic semiconductors — donor and acceptor impurities in semiconductors, n-type and p-type semiconductors,Transport phenomenon in semiconductors (Drift and Diffusion)

Unit-III

Semiconductor Diode: **(Marks = 15)**

P-N Junction: depletion region, Junction Barrier, effect of voltage on movement of charges carriers across junction. V-I characteristics, Diode resistance. Diode as rectifier (half wave and full wave), average value, ripple factor and efficiency.

Unit-IV

Bipolar Junction Transistor (BJT) **(Marks = 15)**

Transistor: PNP and NPN, Working Principle, Transistor configurations: CE and CB. α and β of a transistor and their relationship, characteristics of CE. Concept of Load line and Q-point. Transistor as an amplifier in CE arrangement, Active , cutoff, saturation regions.

Unit-V

Communication: **(Marks = 15)**

Modulation, need for modulation, carrier wave, types of modulation, Amplitude modulation, graphical representation of AM wave, percent modulation, calculation of modulation index from waveform, , upper and lower side frequencies (qualitative treatment only). Limitations of AM. Frequency modulation, Graphical representation of FM wave, Qualitative concepts about the bandwidth and side frequencies. Advantages of FM over AM. Qualitative concept of Demodulation.

PRACTICALS (HSP-II)

1) Identification of Various electronics components from mixed collection of items.
2) To implement a circuit given in the expression using logic gates.
3) To design and implement a half adder using logic gates.
4) To design and implement a full adder using logic gates.
5)To design and implement a half subtractor using logic gates.

6) To design and implement a full subtractor using logic gates.

7) To study the V-I Characteristics of Semiconductor diode in forward bias.

8) To study the V-I Characteristics of Semiconductor diode in reverse bias.

9) To study a half wave rectifier.

10) To study a Full Wave rectifier.

11) To study the characteristics of NPN transistor.

12) To study the characteristics of PNP transistor.

13) To study common emitter npn transistor as Switch.

14) To study Common Emitter npn transistor as an Amplifier

15) Use of Multimeter to

(a) identify base of Transistor.

(b) distinguish between NPN and PNP type transistors.

(c) see the unidirectional flow of current in case of a diode.

(d) check whether a given electronic component is in working order.

16) To study the amplitude modulation, trace the waveform and calculate the modulation index.

17) Design and implement Simple electronic circuits.

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STATISTICS

Class:12th

MaximumMarks:100 (Theory:70,Practical:30)

Time : 3Hrs (Internal=10; External =20)

Unit I: Probability–I (07marks)

Random Experiment, Trail, Sample space, Sample point, Events, Impossibleevent, Exhaustive events, Equally like and mutually exclusive events, Independent & Dependent events. Definitions of Probability, Classical and Mathematical. Axioms of Probability. Law of Addition for two events. Law of Multiplication of two events. Concept of conditional probability, Statement of Baye's theorem.

Unit II:Probability–II (08marks)

Randomvariable,Typesofrandomvariable(DiscreteandContinuous),Distribution functions, Types of Distribution functions (Discrete and Continuous),Probability Mass Function, Probability Distribution Function, Numerical characteristics of random variable (Discrete and Continuous), Definition of some Discrete probability distributions (Bernoulli, Binomial and Poisson Distributions)and applications in real life, Evaluate first two moments of Discrete ProbabilityDistributions.

Unit III:Regression Analysis (08marks)

Concept of Bi-variate data, Graphical representation of Bi-variate data, Scattered diagram, Concept of Regression, Paired linear regression (Regression lines),Estimation of parameters (Least square method), Estimation of unknown observations, Regression Coefficients, Properties of regression coefficient, Fitting of regression lines to real life data, Application of regression analysis, Angle between two regression lines.

Unit IV: Theory of Attributes (08marks)

Concept of attributes, categories of attributes (Dichotomy, many-folds), Notations used in theory of attributes, Class frequencies, order of class frequencies, ultimate class frequency, consistence of data, (2X2) contingency table for attributes, Independence and association between two attributes, Yule's coefficient of association, use of Yule's coefficient of association in real life data.

UnitV:IndexNumber (08marks)

Basic information of Index Number, Characteristics of Index Number, Applications of index number, Problems in the construction of Index Number. Important terms used in index number (Base year price/quantities, current year price quantities, price relative, price index, quality index), Methods of constructing index number, Simple or un-weighted index number, limitation of simple index number,Simple average of price relatives. Weighted Index Number, Methods of calculating weighted index number (Laspeyer's, Paasche's and Fisher's index number), Time Reversal Test(TRT)and Factor Reversal Test (FRT),Testing for ideal index number.

Unit VI:Vital Statistics (07marks)

Meaning and nature of Vital Statistics, Uses of Vital statistics, Various terms used in vital statistics (Vital Events, Population, Mean Population), Concept of Fertility and Mortality, Different measures of fertility (Crude Birth Rate, Specific Birth Rate, General Fertility Rate, Specific Fertility Rate, Gross Reproduction Rate),Different measures of mortality (Crude Death Rate, Specific Death Rate, Standardized Death Rate).

Unit VII: Sampling Theory (08marks)

Meaning and Objective of sampling, Concept of Statistical Population andSample (WR, WOR), Homogenous and Heterogeneous population, Requisites of good sample, Sampling and Census, advantages and disadvantages of sampling over census, different sampling techniques (Simple Random Sampling, Stratified sampling and systematic sampling), Sampling and non-sampling errors, Advantagesand disadvantages of different sampling methods, Application of different sampling methods in real life situations.

Unit VIII: Time Series Analysis (07marks)

Introduction and Importance of Time Series, Examples of time series, Components of Time Series (Secular, Seasonal, Cyclic, Irregular trends), Graphical presentation of time series data, Measure of trend by using various techniques (Freehand method, Semi average method), Estimation of unknown values from giventimeseries data,Forecasting bytime series.

Unit IX: Linear Programming and Computer Applications-II (09 marks)

Concept of Linear programming, Feasible solution, Basic feasible solution, Two dimensional Linear programming problems, Graphical method to solve two dimensional Linear programming problems (Maximization/Minimization models).

Concept of software and hardware, System software and application software, Concept of Software used in statistical analysis (Microsoft Excel, Minitab, SPSS), Applications of Statistical software.

Practical/Projectwork

1. Fitting of Binomial and Poisson distribution.
2. Construct regression lines to real life data and estimate unknown values
3. Construction of Index number (Laspyer's, Paasche's and Fisher's),using market data.
4. Testing of ideal index number using data collected by students.
5. Estimation of different measures of fertility and mortality.
6. Forecasting of time series data using free hand method and semi-average method.
7. Calculation of sample mean and population mean from collected data and check **E(sample mean)=μ**
8. Construct different statistical charts by using statistical software.
9. Calculation of measures of central tendency and measures of dispersion by using statistical software.
10. Construct a linear programming problem and solve it by graphical method.