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QUESTION BANK

CLASS 12

COMPUTER SCIENCE PYTHON



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Formulae / Links**



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Marking Scheme
'2010 - 2014'
with detailed explanations**



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comprehension of the concepts**

**FOR
MARCH
2016
EXAMS**



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2015 with
toppers answers
of 2014 exam**



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Outside Delhi and compartment
from 2010 to 2015 examinations are
included with complete solutions**



**Strictly based on the latest
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**Includes questions
based on 'HOTS'
and value based questions**

Strictly Based on the Latest Syllabus issued by CBSE Board for 2016 Examination

QUESTION BANK

Chapter-Wise Solutions

Computer Science

(Based on Python)

Includes Solved Paper-2015

Class XII

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PREFACE

CBSE always believes in Global Trends of Educational Transformation. The CBSE curriculum gets its lead from National Curriculum Framework – 2005 and Right to Free and Compulsory Education Act – 2009. The aim of CBSE Curriculum is not just to let learners obtain basic knowledge but to make them life-long learners. CBSE always updates and reviews the syllabus to make it more relevant with educational transformation and in last few years the chapters and topics which CBSE has added are very interesting and increase practical knowledge.

Oswaal Question banks are designed to nurture individuality and thus enhance one's innate potentials which help in increasing the self-study mode for students. This book strengthens knowledge and attitude related to subject. It is designed in such a way that students can set their own goals and can improve their problem solving and thinking skills.

The journey of this book is never ending as this book is reviewed every year and new questions, previous year's examination questions, new HOTS or any change in syllabus is updated time to time. Also regular review and reader's feedback increases the efficiency of this book gradually.

Moreover, every Question Bank strictly follows the latest syllabus and pattern, and contains more than sufficient questions and brief description of chapters, which help students in practicing and completing the syllabus. Higher Order Thinking Skills (HOTS) questions, Value Based Questions and Previous Year Questions makes this book complete and very efficient. Solutions are always checked twice and tried to make precise as per marking scheme. Practically, this book provides students everything they need to learn.

At last we would like to thank our authors, editors, reviewers and specially students who regularly send us suggestions which helps in continuous improvement of this book and makes this book stand in the category of “One of the Best”. Wish you all Happy Learning.

–Publisher

COMPUTER SCIENCE (THEORY) 2015-16

Class XII (Theory) – Python

Highlights of Curriculum Document 2015-16 for March 2016 Exam	
Circular No. Acad.-18/2015	
Curriculum 2014-15 (Printed in 2014)	Curriculum 2015-16 final for the examination to be held in March 2016
Python Theory Table	Python Theory Table appended. (Page No. 205)
Unit 1 & Unit 2	Unit 1 and Unit 2 interchanged (Page No. 205)
Python Practical	In Python Practical's under practical file and viva voce marks weightage is changed (Page No. 208)

Duration : 3 Hours

Total Marks : 70

Unit No.	Unit Name	Marks
1.	OBJECT ORIENTED PROGRAMMING WITH PYTHON	24
2.	ADVANCE PROGRAMMING WITH PYTHON	20
3.	DATABASE MANAGEMENT SYSTEM AND SQL	8
4.	BOOLEAN ALGEBRA	8
5.	COMMUNICATION TECHNOLOGIES	10
TOTAL		70

UNIT 1 : OBJECT ORIENTED PROGRAMMING WITH PYTHON (50 Theory + 40 Practical) Periods

Review : Python covered in Class XI

Concept of Object Oriented Programming : Data Hiding, Data Encapsulation, Class and object, polymorphism, inheritance, advantages of Object Oriented Programming over earlier programming methodologies.

Classes : Defining classes (attributes, methods) creating instance objects, accessing attributes and methods, using built in class attributes (dict, doc, name, module, bases), constructor (`__init ()` , `__del ()` and `__str ()`) methods in a class, private attributes (limited support), importance of “self ” (act as a pointer to current calling object) operator overloading with methods.

Inheritance : Concept of base class and derived class : Single mutilevel and multiple inheritance-overriding methods, using `super ()` in derived class to invoke `__init ()` or overridden methods of parent class.

UNIT 2 : ADVANCE PROGRAMMING WITH PYTHON (42 Thoery + 36 Practical) Periods

Linear List Manipulation : Sequential allocation, traversal, insertion of an element in a sorted list, deletion of an element from the list, searching (linear, binary), sorting (insertion, selection, bubble).

Stacks (List implementation) : introduction to stack (LIFO operations), operations on stack (PUSH and POP) and its implementation in Python.

Converting expressions from infix to postfix notation and evaluation of postfix expression.

Queues (List implementation) : introduction to Queue (FIFO), operations on Queue (INSERT and DELETE) and its implementation in Python.

Data File

Need for non bold for data file, types of data file — text and binary, Opening and closing files – `open()`, `close()`, access modes (output, input, default), file object, `access_modes`, reading and writing a file `Read ()`, `readline ()`, `readlines ()`, `write ()`, `writelines` file positions (`seek()`, `tell()`), renaming and deleting a file, `flush()`;

Implementation of basic file operations on text and binary file in Python: Creating/writing data into file, reading and displaying data from file, searching for particular data from a file, insertion and deletion of data from an already existing file, modification of data in file.

Error and Exceptions – NameError, IndexError, TypeError, IO Error, ImportError, ValueError, EOFError. Generator function using Yield.

UNIT 3 : DATABASES AND SQL (20 Theory + 20 Practical) Periods

Data base Concepts : Introduction to data base concepts and its need.

Relation data model : Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;

Relational algebra : Selection, Projection, Union and Cartesian product;

Structured Query Language :

General Concepts : Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data Types : NUMBER/DECIMAL, CHARACTER/VARCHAR/VARCHAR2, DATE;

SQL COMMANDS : CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATESET....., INSERT, DELETE; SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BY;

SQL functions : SUM (), AVG (), COUNT (), MAX () AND MIN () ; Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian product and Union.

Note : Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.

UNIT 4 : BOOLEAN ALGEBRA (16 Theory + 0 Practical) Periods

Role of Logical Operations in Computing.

Binary - valued Quantities, Boolean Variable, Boolean Constant and Boolean Operators : AND, OR, NOT; Truth Tables; Closure, Property, Commutative Law, Associative Law, Identity Law, In-verse Law, Principle of Duality, Idempotent Law, Distributive Law, Absorption Law, Involution Law, DeMorgan's Law and their applications;

Obtaining Sum of Product (SOP) and Product of Sum (POS) from the Truth Table, Reducing Boolean Expression (SOP and POS) to its minimal form, Use of Karnaugh Map for minimization of Boolean expression (upto 4 variables);

Application of Boolean Logic : Digital electronic circuit design using basic Logic Gates (NOT, AND, OR, NAND, NOR)

Use of Boolean operators (NOT, AND, OR) in SQL SELECT statements.

Use of Boolean operators (AND, OR) in search engine queries.

UNIT 5 : COMMUNICATION TECHNOLOGIES (16 Theory + 3 Practical) Periods

Evolution of Networking : ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching).

Data Communication terminologies : Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, kbps, Mbps, Gbps, Tbps).

Transmission media : Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.

Network devices : Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, wifi card.

Network Topologies and types : Bus, Star, Tree, PAN, LAN, WAN, MAN.

Network Protocol : TCP/IP, File Transfer Protocol (FTP), PPP, SMTP, POP3, Remote Login (Talent), and Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, WLL.

Mobile Telecommunication Technologies : 1G, 2G, 3G and 4G

Electronic mail protocols such as SMTP, POP3

Protocols for Chat and Video Conferencing VOIP

Wireless technologies such as Wi-Fi and WiMax

Network Security Concepts :

Threats and prevention from Viruses, Worms, Trojan horse, Spams

Use of Cookies, Protection using Firewall.

India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking.

Introduction To Web Services : WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser, Web Servers. Web Hosting, Web Scripting—Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking)

Class XII (Practicals) - Python

Duration : 3 Hours

Total Marks : 30

1. **Programming in Python** 12
One programming problem in Python to be developed and tested in Computer Lab during the examination. Marks are allotted on the basis of following :
Logic : 7 Marks
Documentation/Indentation : 2 Marks
Output presentation : 3 Marks
Note : The types of problems to be given will be application type developed using classes from the following topics
 - String
 - Lists/Tuples
 - Dictionary
 - File Operations
2. **SQL Commands** 05
Five Query questions based on a particular Table/Reaction to be tested practically on Computer during the examination. The command along with the result must be written in the answer sheet.
3. A digital circuit design (after reduction using K-map) to be given during the examination. The question must be written in the answer sheet 02
4. **Project Work** 05
The project has to be developed in Python language with Object Oriented Technology.
(The project is required to be developed in group of 2-4 students)
 - Presentation on the computer
 - Project report (Listing, Sample, Outputs, Documentation)
 - Viva
5. **Practical File** 03 + 01*
Must have minimum 20 programs from the following topics
 - List (general, stack, queue)
 - File Handling
 - Programs based on Object Oriented Concepts
 - 15 SQL commands along with the output based on any table/relation* 1 mark is for innovating while developing programme.
6. **Viva Voce** 02
Viva will be asked from syllabus covered in class XII and the project developed by student.

WRITING - NOTES

1. _____
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**SOLVED
PAPER**

**C.B.S.E.
2015
Class–XII
Delhi & Outside Delhi**

**Computer
Science
(Python)**

Time allowed : 3 Hours

Max. Marks : 70

General Instructions :

- (i) *SECTION B* refers to programming language Python.
- (ii) *SECTION C* is compulsory for all.
- (iii) Answer either *SECTION A* or *SECTION B*.
- (iv) It is compulsory to mention on the page 1 in the answer book whether you are attempting *SECTION A* or *SECTION B*.
- (v) All questions are compulsory within each section.

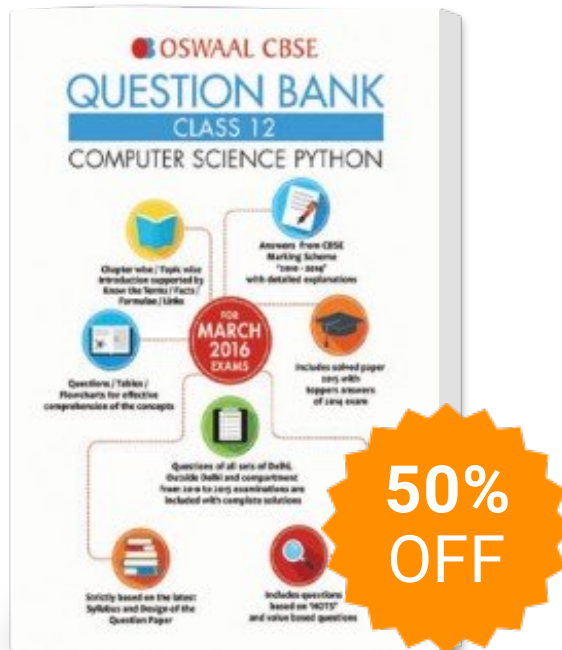
Delhi Set-I

Code No. 91/1

SECTION B

1. (a) How is `_init()` different from `_del()` ? 2
- (b) Name the function/method required to 1
- (i) check if a string contains only uppercase letters
 - (ii) give the total length of the list.
- (c) Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2
- ```
def Tot (Number) #Method to find Total
 Sum=0
 for C in Range (1, Number+1) :
 Sum+=C
 RETURN Sum
print Tot [3] # Function Calls
print Tot [6]
```
- (d) Find and write the output of the following python code : 2
- ```
for Name in ['Jayes', 'Ramya', 'Taruna', 'Suraj']:
    print Name
    if Name [0]== 'T' :
        break
else :
    print 'Finished!'
print 'Got it!'
```
- (e) Find and write the output of the following python code : 3
- ```
class Worker :
def _init_(self, id, name) : #constructor
 self.ID=id
 self.Name=name
def Change(self):
 self.ID=self.ID+10
```

# Oswaal CBSE Question Bank chapter-wise solutions For Class 12 Computer Science (Python)



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