केंद्रीय विद्यालय झुंझुनू

KENDRIYA VIDYALAYA JHUNJHUNU

अध्यापक दैनन्दिनी

सत्र 2021-22

TEACHER'S DIARY

अध्यापक का नाम		प्रदीप स्वामी
Teacher's Name	:	Pradeep Swami
पद		स्नातकोत्तरशिक्षक
Designation	:	PGT (Computer Science)
कक्षा		
Class	:	XI (CS), XI (IP), XII (CS), XII (IP)
विषय		संगणक विज्ञान
Subject	:	Computer Science
क्षेत्रीय कार्यालय (संभाग)	:	जयपुर
Regional Office	:	JAIPUR

A Parallel Supplement Online Blog: www.ictswami.wordpress.com

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Pradeep Swami August 5, 2018 Uncategorized 1 Comment Edit

आत्म-परिचय / BIO-DATA

Full Name & Designation : ..... PRADEEP SWAMI .....

Mother's Name ..... LATE. SMT. RESHMA DEVI .....

Father's Name / Husband's Name : ..... Sh. SITA RAM SWAMI .....

Date of Birth ..... 01/07/1981 .....

Qualifications ..... B.SC., PGDCA, MCA, B.Ed. .....

Office Address ..... KENDRIYA VIDYALAYA JHUNJHUNU .....

Date of joining in KVS ..... 05/09/2007 .....

Date of joining in the present station ..... 18-07-2014 ..... Date of joining in the present KV ..... 18-07-2014 .....

Date of joining in the present post ..... 05/09/2007 .....

Basic pay ..... 732000 ..... Scale of pay ..... Level-10 .....

Grade pay ..... Seniority No ..... 4813 .....

Employee code ..... 43825 ..... GPF / CPF No.

E-mail : PRADEEP.SWAMI2020@GMAIL.COM

Blood Group ..... AB+ ..... Awards obtained .....

Hobbies & interests ..... PLAYING BADMINTON AND VOLLEYBALL .....

Residential Address ..... TEHSIL- CHIRAWA, DISTT- JHUNJHUNU (RAJ.) .....

..... Phone No. 9649088838

Courses / Training programme attended .....

Sl No	Nature of Course Inservice/Orientation/Training	Venue	From	To	Duration
1	**Inservice Course**	KV NO-2 BHOPAL	14/05/**2018**	22/05/**2018**	**12 Days**
2	**Inservice Course**	KV NO-2 BHOPAL	23/12/**2018**	01/**01**/**2019**	**10 Days**

Sl No	Name of KV	From	To	Reason for Transfer
1	K V NO-2 PATHANKOT (PB)	05-09-2007	30-09-2011	DIRECT RECRUITMENT
2	K V CHAMERA-2 (HP)	01-10-2011	26-06-2014	DISPLACED UNDER-40
3	K V JHUNJHUNU	18-07-2014	TILL NOW	REQUEST TRANSFER

केन्द्रीय विद्यालय

आचार संहिता

(अनुच्छेद 59 शिक्षकों के लिए)

सी.टी.एस. (आचार) नियम 1964 का प्रावधान केन्द्रीय विद्यालय संगठन के सभी कर्मचारियों पर लागू होगा। इसी सन्दर्भ में निम्नलिखित आचार संहिता शिक्षकों पर भी लागू होगी, जिसका उल्लंघन करने पर कर्मचारी सी.सी. (आचार) नियम 1965 के अंतर्गत उत्तरदायी होगा।

1 शिक्षक अपने आचरण और व्यवहार द्वारा अपने शिष्यों में मातृभूमि के प्रति प्रेम और निष्ठा की भावना विकसित करें।

2 शिक्षक अपने आचरण और कार्यों द्वारा बच्चों में कानून व्यवस्था के प्रति सम्मान की भावना विकसित करे।

3 प्रत्येक शिक्षक ऐसी विद्यालयी गतिविधियों का आयोजन और विकास करें जो बच्चों में सार्वभौमिक भ्रातृत्व की भावना विकसित करे।

4 प्रत्येक शिक्षक अपने आचरण और व्यवहार द्वारा बच्चों में प्रत्येक धर्म के प्रति सहनशीलता की भावना विकसित करे।

5 कोई शिक्षक किसी राजनैतिक दल से कोई सम्बन्ध नहीं रखेगा और न ही किसी राजनैतिक गतिविधि में परोक्ष या अपरोक्ष रूप से भाग लेगा। वह ऐसी किसी संस्था या पार्टी से नहीं जुड़ेगा, जिसकी गतिविधियों को संगठन द्वारा विद्यालयों के उद्देश्यों, लक्ष्यों और कार्यों के विपरीत घोषित किया गया हो।

6 शिक्षक सदैव इस बात का ध्यान रखें कि उसके शिष्य किसी राजनैतिक क्रियाकलाप में भाग न लें।

7 कोई शिक्षक किसी राज्य या केन्द्रीय विधान पालिका का सदस्य नहीं होगा। वह एक उम्मीदवार के रूप में प्रतिभागिता देने से पूर्व त्यागपत्र देगा।

8 प्रत्येक शिक्षक आधुनिक समाज में व्याप्त अस्वस्थ प्रचलन एवं कुरीतियों का विरोध करे और अपने शिष्यों के मन में परस्पर सहयोग और समाजसेवा के सिद्धांत को पूरी तरह विकसित करे।

9 प्रत्येक शिक्षक विद्यालय की गतिविधियों में सहयोग करेगा और अन्य लोगों में भी सभी गतिविधियों में सहयोग की भावना को सुरक्षित रखेगा, ताकि उसके शिष्यों में नैतिक, मानसिक और शारीरिक हित की भावना विकसित हो सके।

10 प्रत्येक शिक्षक सभी शिष्यों के साथ अपने संबंधों में पूरी तरह निष्पक्षता रखेगा। शिक्षक द्वारा मंदग्राही बच्चों से विशेष रूप से सहानुभूति और सहयोग का व्यवहार रखने की अपेक्षा की जाती है।

11 प्रत्येक शिक्षक आजीवन एक शिक्षार्थी रहेगा, परन्तु केवल अपने ज्ञान को बढ़ाने के लिए नहीं, बल्कि उनके लिए भी जो उसके शिक्षार्थी हैं। वह अपनी सूझबूझ, विचार और आदर्शों के अनुरूप योजनाबद्ध तरीके से कार्य करे।

12 प्रत्येक शिक्षक प्रत्येक विद्यार्थी को विलक्षण विकास के योग्य समझते हुए और समाज में उसके योगदान को देखते हुए उसका सम्मान करेगा और उसको सहयोगी और रचनात्मक बनाने का प्रयास करेगा।

13 प्रत्येक शिक्षक अपनी आदतों में विनम्र और सौम्य होगा। वह विद्यार्थियों के सामने और विद्यालय में धूम्रपान, पान चबाना तथा अन्य अवांछनीय आदतों की उपेक्षा करेगा।

14 प्रत्येक शिक्षक अपने नैतिक चरित्र को एक उदाहरण के रूप में प्रस्तुत करेगा। विद्यालय में या विद्यालय से बाहर विपरीत लिंग के सदस्यों के साथ उसका व्यवहार कदापि किसी भी स्थिति में ऐसा न हो जो विद्यालय के लिए अपमानजनक हो।

15 प्रत्येक शिक्षक पद की प्रतिष्ठा और मान को ध्यान में रखते हुए सभ्य भाषा का प्रयोग करे।

16 प्रत्येक शिक्षक विचार और अभिव्यक्ति की स्वतंत्रता का पक्षपाती होने के साथ ही अपने विद्यार्थियों में वैज्ञानिक सोच के विकास का पक्षधर हो।

17 कोई भी शिक्षक परीक्षा या विद्यालय की दूसरी गतिविधियों, गलत साधनों में संलग्न नहीं होगा।

18 शिक्षक द्वारा संस्था या विभाग से संबंधित गोपनीय मामलों का खुलासा नहीं किया जायेगा।

19 कोई शिक्षक निजी शिक्षण या निजी व्यवसाय या अन्य किसी व्यवसाय से स्वयं को नहीं जोड़ेगा।

20 प्रत्येक शिक्षक स्वच्छ एवं साफ रहे। कार्यकाल के दौरान अनौपचारिक या अनियमित नहीं होगा, उसके वस्त्र साफ एवं प्रतिष्ठा के अनुरूप होंगे। शिक्षक ऐसे परिधान नहीं पहने, जिससे वह विद्यार्थियों और सहकर्मियों में उत्तेजना हँसी या दया का पात्र बने।

21 प्रत्येक शिक्षक विद्यालय में अपनी उपस्थिति में नियमित रहे और प्राचार्य द्वारा किये गये प्रत्येक कार्य को समय पर पूर्ण करे। उसे इस बात का अहसास रहे कि वह अपने विद्यालय की टीम का एक सदस्य है और विद्यालय में सहयोगपूर्ण वातावरण विकसित करने में मदद करेगा।

22 प्रत्येक शिक्षक विद्यालय के नियमों और अधिनियमों का अनुपालन करेगा। उच्च अधिकारी द्वारा जारी किए गए निर्देशों के अनुसार वैधानिक शक्ति और प्रतिष्ठा के प्रति सम्मान दिखाए।

23 कोई भी शिक्षक विद्यार्थियों और अभिभावकों के साथ वित्तीय लेन-देन नहीं करेगा और न ही अपने व्यक्तिगत स्वार्थ के लिए विद्यालय का शोषण करेगा। अपने व्यक्तिगत मामलों को सामान्य तौर पर इस प्रकार प्रस्तुत करेगा जिससे उस पर इतना कर्ज न हो जिसे वह चुका न सके।

24 कोई शिक्षक किसी पाठ्य-पुस्तक या सहायक पुस्तक को तैयार या प्रकाशित नहीं करेगा। प्रत्यक्ष रूप से भी तैयार करने में सहायक नहीं करेगा और संगठन की पूर्व अनुमति के बिना ऐसे किसी प्रकाशन का प्रयोग नहीं करेगा।

25 कोई शिक्षक किसी प्रकाशन कंपनी के लिए प्रचारक या विक्रेता का कार्य नहीं करेगा।

26 कोई शिक्षक संगठन से बाहर किसी कार्य अथवा नौकरी के लिए प्रार्थी नहीं होगा। वह केवल उचित माध्यम से ही अपने प्रार्थना-पत्र को अग्रसित करेगा।

27 कोई शिक्षक अपनी शिकायत प्रस्तुत नहीं करेगा। (केवल उचित माध्यम को छोड़कर) और विद्यालय में अपनी नौकरी से संबंधित मामलों में किसी अकार्यालयी या बाहरी सहायता की अपेक्षा नहीं करेगा।

28 प्रत्येक शिक्षक विद्यालय की संपत्ति और निधि का उतने ही विश्वास और सावधानी से प्रयोग करेगा जितना निजी संपत्ति और निधि का करता है।

29 सी.सी.एस. (आचार) नियम 1964 के नियम 13 के अंतर्गत प्रदान किए गए नियम के अतिरिक्त कोई भी शिक्षक किसी विद्यार्थी, अभिभावक या अन्य किसी व्यक्ति, जो विद्यालय में उसके पद के प्रभाव से सम्पर्क में है, से कोई उपहार स्वीकार नहीं करेगा या अपने किसी परिजन या अपने स्थान पर अन्य किसी व्यक्ति को इसकी अनुमति नहीं देगा।

30 संगठन की पूर्व अनुमति के बिना कोई भी शिक्षक अपना वक्तव्य प्रस्तुत नहीं करेगा। वह अपने नाम से बिना नाम के या धोखे से या अन्य व्यक्ति के नाम से ऐसा बयान अथवा दस्तावेज प्रकाशित नहीं करेगा। जिसमें केन्द्रीय सरकार अथवा राज्य सरकार की नवीनतम नीतियों की कटु आलोचना हो या केन्द्रीय सरकार और किसी विदेशी राज्य के बीच संबंध बिगड़ने की स्थिति पैदा हो।

31 उचित अधिकारी की सहमति के बिना कोई भी शिक्षक नकदी के रूप में अथवा किसी वस्तु में किसी संग्रह अथवा योगदान (चन्दा) की न तो माँग करेगा और न ही स्वीकार करेगा।

32 यह प्रत्येक शिक्षक का कर्त्तव्य होगा :—

(क) राष्ट्रीय ध्वज और राष्ट्रगान का सम्मान करना।

(ख) धर्म, भाषा, जातिगत वर्गभेद का ध्यान रखते हुए और महिलाओं के प्रति सम्मान की भावना रखते हुए भारत के लोगों में परस्पर बंधुत्व और सद्भावना को जगाना।

(ग) वैज्ञानिक सोच, मानवीयता और शोध एवं सुधार की भावना का विकास करना।

(घ) सार्वजनिक सम्पत्ति की रक्षा करना और हिंसा को रोकना।

(ङ) व्यक्तिगत और सामूहिक गतिविधियों के सभी आयामों में उत्तमता की ओर बढ़ना ताकि राष्ट्र निरंतर उपलब्धि और विकास के उच्च स्तर तक उठ सके।

33 यदि कोई शिक्षक कानून के दायरे में अपराधी ठहराया गया या गिरफ्तार हुआ तो उसका कर्तव्य होगा कि वह यथाशीघ्र अपने तात्कालिक अधिकारी को अपराधी होने पर या गिरफ्तार होने का सत्य और उससे जुड़ी परिस्थितियों के बारे में सूचित करे, यदि ऐसा नहीं हुआ तो यह समझा जाएगा कि वह जान-बूझकर अपनी सूचनाएँ छिपा रहा है।

34 (क) प्रत्येक शिक्षक हर समय

(ख) पूर्ण निष्ठा बनाए रखेगा।

(ग) अपने कर्त्तव्य के प्रति समर्पित होगा।

(घ) संगठन का कर्मचारी होने के नाते ऐसा कुछ नहीं करेगा जो कि संगठन के कर्मचारी के लिए अशोभनीय हो।

(ङ) किसी भी शिक्षक को निम्नलिखित सुविधाएँ पाने का अधिकार होगा :—

(1) अपनी योग्यता बढ़ाने के लिए किसी परीक्षा में बैठना।

(2) किसी साहित्यिक, वैज्ञानिक या व्यावसायिक संगठन का सदस्य होना या बने रहना।

(3) किसी वैधानिक शिकायत के निवारण हेतु आवेदन प्रस्तुत करना, बशर्ते यह प्रस्तुतीकरण अभद्र या कटु भाषा में न हो।

हस्ताक्षर

CHAPTER – VI
(CODE OF CONDUCT FOR TEACHER)

Article 59 (For Teachers)

The provisions of the CCS (Conduct) Rules, 1964 shall apply mutandis to all the employees of Kendriya Vidyalaya Sangathan. In addition to this, the following code of conduct shall also be applicable to teachers. Violation of these shall make on employee liable for action under the CCS (CCA) Rules, 1965.

1. Every teacher shall, by precept and example, instill in the minds of the pupils, entrusted to his care, love for the motherland.
2. Every teacher shall by precept and example, Inculcate in the minds of his pupils respect for law and order.
3. Every teacher shall organize and promote all school activities which foster a feeling of universal brotherhood amongst the pupils.
4. Every teacher shall, by precept and example, promote tolerance for all religious amongst his pupils.
5. No teacher shall be a member of any political party or carry on activities either openly or in camera in support of any such party. He shall also not have any association with either any political party or any organisation which has been declared by the Sangathan to be carrying out its activities against the aims, objects and functions of Kendriya Vidyalayas.
6. The teacher shall always be on the alert to see that his pupils do not take active part in politics.
7. No teacher shall be a member of the State or Central Legislature. He shall resign his job before contesting for elections as a candidates.
8. Every teacher shall take a stand against unhealthy and bad customs and practices in modern society and must strive his best to instil in the minds of his pupils the principles of co-operation and social service.
9. Every teacher shall co-operate with and secure the co-operation of other persons in all activities which aim at the improvement of the moral, mental and physical well being of pupils.
10. Every teacher shall be strictly impartial in his relations with all his pupils. He shall be sympathetic and helpful particularly to the show learners.
11. Every teacher shall be a learner throughout his life not only to enrich his own knowledge, but also of those who are placed in his care. He shall plan out his work on approved lines and do it methodically and vigilantly, eschewing all extraneous considerations.
12. Every teacher shall regard each individual pupil as capable of unique development and of taking his due place in the society, and help him to be creative as well as co-operative.
13. Every teacher shall be temperate and sober in his habits. He shall scrupulously avoid smoking, chewing of betel leaves and such other undesirable habits in the presence of students and within the precincts of the Vidyalayas.
14. Every teacher shall have an exemplary moral character. His dealing with the members of the opposite sex in the Vidyalaya or outside, shall not be such as would cause reflection on his character or bring discredit to the Vidyalayas.
15. Every teacher shall take pride in his calling and try to promote the dignity and solidarity of his profession.
16. Every teacher shall be an advocate of freedom of thought and expression and the development of scientific temper in himself and his students.
17. No teacher shall indulge in or encourage any form of malpractice connected with examinations or other school activities.
18. Confidential matters relating to the Institution and the Department shall not be divulged by any teacher.
19. No teacher shall undertake private tuition or private employment or otherwise engage himself in any business.
20. Every teacher shall be clean and trim. He shall not be casual and informal, while on duty. His dress shall be neat and dignified. He shall no on account be dressed so as to become an object of excitement or ridicule or pity at the hands of students and his colleagues.

21. Every teacher shall be punctual in attendance in respect of his class work as also for any other work connected with the duties assigned to him by the Principal. He shall realize that he is a member of the team and shall help in developing a corporate life in the School.

22. Every teacher shall abide by the rules and regulations of the Vidyalaya and show due respect to the constituted authority, diligently carrying out instructions issued to him by the superior authority.

23. Every teacher shall avoid monetary transaction with the pupils and parents and refrain from exploiting his Vidyalaya influence for personal ends. He shall generally conduct his personal matters in such a manner that he does not incur a debt beyond his means to repay.

24. No teacher shall prepare or publish any text-book or keys or assist directly or indirectly in their preparation, or use such publications without obtaining prior approval of the Sangathan.

25. No teacher shall engage himself as a selling agent or convasser for any publishing firm/trader.

26. No teacher shall apply for an assignment or job outside the Sangathan directly. He shall invariably forward his application through proper channel.

27. No teacher shall present his grievances if any, except through proper channel, nor will be canvass for any non-official or outside influence or support in respect of any matter pertaining to his service in the Vidyalaya.

28. Every teacher shall consider Vidyalaya properly and funds as if placed in trust with him and shall exercise the same with prudence and care as he would do in respect of his own property or funds.

29. No teacher shall accept or permit any member of his family or any other person acting on his behalf to accept any gift from any pupil, parent or any person with whom he has come into contact by virture of his position in the Vidyalaya except as provided under Rule 13 of the CCS (Conduct) Rules, 1964.

30. No teacher shall, except with the previous sanction of the Sangathan, give any talk on the radio, publish any statement or document either in his own name or anonymously, pseudonymously or in the name of any other person, which has the effect of an adverse criticism of any current or recent policy or action of the Central Government or a State Government, or which is capable of embarrassing the relations between the Central Government and a State Government or between the Central Government and the Government of any foreign State.

31. No teacher shall, except with the previous sanction of the competent authority, ask for or a accept contribution or other collection in cash or in kind in pursuance of any object, whatsever.

32. It shall be the duty of every teacher :

    (i) to respect the National Flag and the National Anthem.

    (ii) to promote harmony and the spirit of common brotherhood amongest all the people of India transcending religious, linguistic and regional or sectional diversities and to renounce practices derogatory to the dignity of women.

    (iii) to develop scientific temper, humanism and spirit of inquiry and reform.

    (iv) to safeguard public property and to abjure violence.

    (v) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endevaour and achievement.

33. If a teacher is convicted by a Court of Law or arrested, it shall be his duty to inform his immediate superior the fact of his conviction or arrest and the circumstances connected therewith as soon as it is possible for him to do so. Failure to do so will be regarded as deliberate suppression of material information.

34. (a) Every teacher shall at the times :

        (i) maintain absolute integrity.

        (ii) maintain devotion to duty.

        (iii) do nothing which is unbecoming of an employee of the Sangathan.

    (b) Nothing contained in part (a) of his Article shall be deemed to take away or abridge the right of a teacher:

        (i) to appear at any examination to improve his qualifications.

        (ii) to become or to continue to be a member of any literacy, scientific or professional organization.

        (iii) to make any representation for the redressal of any bonafide grievances, subject to the condition that such representation is not made in any rude or indecorous languages.

अध्यापक समय सारिणी / TEACHER'S TIME - TABLE

DAYS/TIMING	8:00 AM TO 8:45 AM	9:00 AM TO 9:40 AM	10:00 AM TO 10:40 AM	11:00 AM TO 11:40 AM	12:00 PM TO 12:40 PM	01:00 PM TO 01:40 PM
MONDAY		XII-IP		XI-IP		
TUESDAY	XII-CS		XI-CS			
WEDNESDAY		XII-IP		XI-IP		
THURSDAY	XII-CS		XI-CS			
FRIDAY		XII-IP		XI-IP		
SATURDAY	XII-CS		XI-CS			

कक्षा / Class	XI-IP	XI-CS	XII-IP	XII-CS
घण्टे की संख्या No. of Perlod	3	3	3	3

SPECIAL SCHEME OF ASSESSMENT FOR THE SESSION 2021-22

केन्द्रीय माध्यमिक शिक्षा बोर्ड
(शिक्षा मंत्रालय, भारत सरकार के अधीन एक स्वायत्त संगठन)
CENTRAL BOARD OF SECONDARY EDUCATION
(An Autonomous Organisation under the Ministry of Education, Govt. of India)

CBSE/DIR (ACAD)/2021

Date: July 05, 2021
Circular No: Acad-51/2021

All the Heads of Schools affiliated to CBSE

Subject: Special Scheme of Assessment for Board Examination Classes X and XII for the Session 2021-22

COVID 19 pandemic caused almost all CBSE schools to function in a virtual mode for most part of the academic session of 2020-21. Due to the extreme risk associated with the conduct of Board examinations during the second wave in April 2021, CBSE had to cancel both its class X and XII Board examinations of the year 2021 and results are to be declared on the basis of a credible, reliable, flexible and valid alternative assessment policy. This, in turn, also necessitated deliberations over alternative ways to look at the learning objectives as well as the conduct of the Board Examinations for the academic session 2021-22 in case the situation remains unfeasible.

CBSE has also held stake holder consultations with Government schools as well as private independent schools from across the country especially schools from the remote rural areas and a majority of them have requested for the rationalization of the syllabus, similar to last year in view of reduced time permitted for organizing online classes. The Board has also considered the concerns regarding differential availability of electronic gadgets, connectivity and effectiveness of online teaching and other socio-economic issues specially with respect to students from economically weaker section and those residing in far flung areas of the country. In a survey conducted by CBSE, it was revealed that the rationalized syllabus notified for the session 2020-21 was effective for schools in covering the syllabus and helped learners in achieving learning objectives in a less stressful manner.

In the above backdrop and in line with the Board's continued focus on assessing stipulated learning outcomes by making the examinations competencies and core concepts based, student-centric, transparent, technology-driven, and having advance provision of alternatives for different future scenarios, the following schemes are introduced for the Academic Session for Class X and Class XII 2021-22.

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2. **Special Scheme for 2021-22**

   A. **Academic session to be divided into 2 Terms with approximately 50% syllabus in each term:**

   The syllabus for the Academic session 2021-22 will be divided into 2 terms by following a systematic approach by looking into the interconnectivity of concepts and topics by the Subject Experts and the Board will conduct examinations at the end of each term on the basis of the bifurcated syllabus. This is done to increase the probability of having a Board conducted classes X and XII examinations at the end of the academic session.

   B. **The syllabus for the Board examination 2021-22 will be rationalized** similar to that of the last academic session to be notified in July 2021. For academic transactions, however, schools will follow the curriculum and syllabus released by the Board vide Circular no. F.1001/CBSE-Acad/Curriculum/2021 dated 31 March 2021. Schools will also use alternative academic calendar and inputs from the NCERT on transacting the curriculum.

   C. **Efforts will be made to make Internal Assessment/ Practical/ Project work more credible and valid** as per the guidelines and Moderation Policy to be announced by the Board to ensure fair distribution of marks.

3. **Details of Curriculum Transaction**

   - Schools will continue teaching in distance mode till the authorities permit in-person mode of teaching in schools.
   - **Classes IX-X: Internal Assessment** (throughout the year-irrespective of Term I and II) would include the *3 periodic tests, student enrichment, portfolio and practical work/ speaking listening activities/ project.*
   - **Classes XI-XII: Internal Assessment** (throughout the year-irrespective of Term I and II) would include end of topic or unit tests/ exploratory activities/ practicals/ projects.
   - Schools would create a student profile for all assessment undertaken over the year and retain the evidences in digital format.
   - CBSE will facilitate schools to upload marks of Internal Assessment on the CBSE IT platform.
   - Guidelines for Internal Assessment for all subjects will also be released along with the rationalized term wise divided syllabus for the session 2021-22.The Board would also provide additional resources like sample assessments, question banks, teacher training etc. for more reliable and valid internal assessments.

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4. **Term I Examinations:**

- At the end of the first term, the Board will organize **Term I Examination** in a flexible schedule to be conducted between November-December 2021 with a window period of 4-8 weeks for schools situated in different parts of country and abroad. Dates for conduct of examinations will be notified subsequently.
- The Question Paper will have Multiple Choice Questions (MCQ) including case-based MCQs and MCQs on assertion-reasoning type. Duration of test will be **90 minutes** and it will cover only the rationalized syllabus of **Term I only** (i.e. approx. 50% of the entire syllabus).
- Question Papers will be sent by the CBSE to schools along with marking scheme.
- The exams will be conducted under the supervision of the External Center Superintendents and Observers appointed by CBSE.
- The responses of students will be captured on OMR sheets which, after scanning may be directly uploaded at CBSE portal or alternatively may be evaluated and marks obtained will be uploaded by the school on the very same day. The final direction in this regard will be conveyed to schools by the Examination Unit of the Board.
- Marks of the **Term I** Examination will contribute to the final overall score of students.

5. **Term II Examination/ Year-end Examination:**

- At the end of the second term, the Board would organize **Term II or Year-end Examination** based on the rationalized syllabus of Term II only (i.e. approximately 50% of the entire syllabus).
- This examination would be held around **March-April 2022** at the examination centres fixed by the Board.
- The paper will be of **2 hours duration** and have questions of different formats (case-based/ situation based, open ended- short answer/ long answer type).
- In case the situation is not conducive for normal descriptive examination **a 90 minute MCQ** based exam will be conducted at the end of the Term II also.
- Marks of the Term II Examination would contribute to the final overall score.

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6. **Assessment / Examination as per different situations**

A. In case the situation of the pandemic improves and students are able to come to schools or centres for taking the exams.

Board would conduct Term I and Term II examinations at schools/centres and the theory marks will be distributed equally between the two exams.

B. In case the situation of the pandemic forces complete closure of schools during November-December 2021, but Term II exams are held at schools or centres.

Term I MCQ based examination would be done by students online/offline from home - in this case, the weightage of this exam for the final score would be reduced, and weightage of Term II exams will be increased for declaration of final result.

C. In case the situation of the pandemic forces complete closure of schools during March-April 2022, but Term I exams are held at schools or centres.

Results would be based on the performance of students on Term I MCQ based examination and internal assessments. The weightage of marks of Term I examination conducted by the Board will be increased to provide year end results of candidates.

D. In case the situation of the pandemic forces complete closure of schools and Board conducted Term I and II exams are taken by the candidates from home in the session 2021-22.

Results would be computed on the basis of the Internal Assessment/Practical/Project Work and Theory marks of Term-I and II exams taken by the candidate from home in Class X / XII subject to the moderation or other measures to ensure validity and reliability of the assessment.

In all the above cases, data analysis of marks of students will be undertaken to ensure the integrity of internal assessments and home based exams.

Dr. Joseph Emmanuel
Director (Academics)

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Copy to the respective Heads of Directorates, Organizations and Institutions as indicated below with a request to disseminate the information to all the schools under their jurisdiction:

1. The Commissioner, Kendriya Vidyalaya Sangathan, 18 Institutional Area, Shaheed Jeet Singh Marg, New Delhi-110016
2. The Commissioner, Navodaya Vidyalaya Samiti, B-15, Sector-62, Institutional Area, Noida-201309
3. The Director of Education, Directorate of Education, Govt. of NCT of Delhi, Old Secretariat, Delhi-110054
4. The Director of Public Instructions (Schools), Union Territory Secretariat, Sector 9, Chandigarh-160017
5. The Director of Education, Govt. of Sikkim, Gangtok, Sikkim-737101
6. The Director of School Education, Govt.of Arunachal Pradesh, Itanagar-791 111
7. The Director of Education, Govt. of A&N Islands, Port Blair-744101
8. The Director of Education, S.I.E., CBSE Cell, VIP Road, Junglee Ghat, P.O. 744103, A&N Island
9. The Director, Central Tibetan School Administration, ESSESS Plaza, Community Centre, Sector -3, Rohini, Delhi
10. The Additional Director General of Army Education, A-Wing, Sena Bhawan, DHQ, PO, New Delhi-110001
11. The Secretary AWES, Integrated Headquarters of MoD (Army), FDRC Building No.202, Shankar Vihar (Near APS), Delhi Cantt-110010
12. All Regional Directors/Regional Officers of CBSE with the request to send this circular to all the Heads of the affiliated schools of the Board in their respective Regions
13. All Joint Secretary/ Deputy Secretary/ Assistant Secretary/SPS / Analyst, CBSE
14. All Head(s)/ In-Charge(s), Centre of Excellence, CBSE
15. In charge IT Unit with the request to put this Circular on the CBSE Academic Website
16. In-Charge, Library
17. The Head (Media & Public Relations), CBSE
18. DS to Chairman, CBSE
19. SPS to Secretary, CBSE
20. SPS to Director (Academics), CBSE
21. SPS to Director (Information Technology), CBSE
22. SPS to Controller of Examinations, CBSE
23. SPS to Director (Training and Skill Education), CBSE
24. SPS to Director (Professional Examinations), CBSE
25. SPS to Director (CTET), CBSE
26. SPS to Director (EDUSAT), CBSE
27. Record File

Director (Academics)

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Informatics Practices

CLASS XI

Code No. 065

2021-22

1. **Prerequisite :** None
2. **Learning Outcomes** :

At the end of this course, students will be able to:

- Identify the components of the Computer System.
- Create Python programs using different data types, lists and dictionaries.
- Explain what is 'data' and analyse using NumPy.
- Explain database concepts and Relational Database Management Systems.
- Retrieve and manipulate data in RDBMS using Structured Query Language
- Identify the Emerging trends in the fields of Information Technology.

3. **Distribution of Marks and Periods** :

Unit No.	Unit Name	Marks	Periods Theory	Periods Practical	Total Period
1	Introduction to Computer System	5	10	-	10
2	Introduction to Python	25	35	35	70
3	Data Handling using NumPy	15	28	15	43
4	Database concepts and the Structured Query Language	20	25	25	50
5	Introduction to Emerging Trends	5	7	-	7
	Practical	30	-	-	-
	Total	100	105	75	180

4. **Unit Wise syllabus**

Unit 1: Introduction to Computer System

Introduction to computers and computing: evolution of computing devices, components of a computer system and their interconnections, Input/Output devices.

Computer Memory: Units of memory, types of memory – primary and secondary, data deletion, its recovery and related security concerns.

Software: purpose and types – system and application software, generic and specific purpose software.

Unit 2: Introduction to Python

Basics of Python programming, Python interpreter - interactive and script mode, the structure of a program, indentation, identifiers, keywords, constants, variables, types of operators, precedence of operators, data types, mutable and immutable data types, statements, expressions, evaluation of expressions, comments, input and output statements, data type conversion, debugging, control statements: if-else, for loop

Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions.: len(), list(), append(), extend(), insert(), count(), find(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum()

Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions: len(), dict(), keys(), values(), items(), get(), update(), clear(), del()

Unit 3: Data Handling using NumPy

Data and its purpose, importance of data, structured and unstructured data, data processing cycle, basic statistical methods for understanding data - mean, median, mode, standard deviation and variance.

Introduction to NumPy library, NumPy arrays and their advantage, NumPy attributes, creation of NumPy arrays; from lists using np.array(), np.zeros(), np.ones(),np.arange() , indexing, slicing, and iteration; concatenating and splitting array;

Arithmetic operations on one dimensional and two dimensional arrays.

Calculating max, min, count, sum, mean, median, mode, standard deviation, variance on NumPy arrays.

Unit 4: Database concepts and the Structured Query Language

Database Concepts: Introduction to database concepts and its need, Database Management System.

Relational data model: concept of attribute, domain, tuple, relation, candidate key, primary key, alternate key, foreign key.

Structured Query Language: Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL: Creating a database, using database, showing tables using MySQL,

Data Types : char, varchar, int, float, date

Data Definition Commands: CREATE, DROP, ALTER (Add and Remove primary key, attribute).

Data Query Commands: SELECT-FROM- WHERE, LIKE, BETWEEN, IN, ORDER BY, using arithmetic, logical, relational operators and NULL values in queries, Distinct clause

Data Manipulation Commands: INSERT, UPDATE, DELETE.

Unit 5: Introduction to the Emerging Trends

Artificial Intelligence, Machine Learning, Natural Language Processing, Immersive experience (AR, VR), Robotics, Big data and its characteristics, Internet of Things (IoT), Sensors, Smart cities, Cloud Computing and Cloud Services (SaaS, IaaS, PaaS); Grid Computing, Block chain technology.

5. Practical Marks Distribution

Sl.No.	Unit Name	Marks
1	Problem solving using Python programming language	8
2	Problem solving using NumPy	5
3	Creating database using MySQL and performing Queries	5
4	Practical file (minimum of 20 python programs , 5 Numpy programs and 20 SQL queries)	7
5	Viva-Voce	5
	Total	30

6. Suggested Practical List :

6.1 Programming in Python

1. To find average and grade for given marks.
2. To find the sale price of an item with a given cost and discount (%).
3. To calculate perimeter/circumference and area of shapes such as triangle, rectangle, square and circle.
4. To calculate Simple and Compound interest.
5. To calculate profit-loss for a given Cost and Sell Price.
6. To calculate EMI for Amount, Period and Interest.
7. To calculate tax - GST / Income Tax.
8. To find the largest and smallest numbers in a list.
9. To find the third largest/smallest number in a list.
10. To find the sum of squares of the first 100 natural numbers.
11. To print the first 'n' multiples of a given number.

14. To print the number of occurrences of a given alphabet in a given string.
15. Create a dictionary to store names of states and their capitals.
16. Create a dictionary of students to store names and marks obtained in 5 subjects.
17. To print the highest and lowest values in the dictionary.

6.2 Numpy Program

18. To create an array of 1D containing numeric values 0 to 9.
19. To create a NumPy array with all values as 0.
20. To extract values at odd numbered positions from a NumPy array.
21. To create a 1-D array having 12 elements usinf arange(). Now, convert this array into a 2-D array with size 4X3.
22. To perform basic arithmetic operations on 1D and 2D array .

6.3 Data Management: SQL Commands

23. To create a database
24. To create a student table with the student id, class, section, gender, name, dob, and marks as attributes where the student id is the primary key.
25. To insert the details of at least 10 students in the above table.
26. To delete the details of a particular student in the above table.
27. To increase marks by 5% for those students who have Rno more than 20.
28. To display the entire content of the table.
29. To display Rno, Name and Marks of those students who are scoring marks more than 50.
30. To find the average of marks from the student table.
31. To find the number of students, who are from section 'A'.
32. To add a new column email in the above table with appropriate data type.
33. To add the email ids of each student in the previously created email column.
34. To display the information of all the students, whose name starts with 'AN' (Examples: ANAND, ANGAD,..)
35. To display Rno, Name, DOB of those students who are born between '2005- 01-01' and '2005-12-31'.
36. To display Rno, Name, DOB, Marks, Email of those male students in ascending order of their names.
37. To display Rno, Gender, Name, DOB, Marks, Email in descending order of their marks.
38. To display the unique section available in the table.

Reference:

NCERT Informatics Practices - Text book for class - XI ***(ISBN- 978-93-5292-148-5)***

Informatics Practices

CLASS XII

Code No. 065

2021-2022

1. Prerequisite: Informatics Practices Class XI

2. Learning Outcomes

At the end of this course, students will be able to:

- Create Series, Data frames and apply various operations.
- Perform aggregation operations, calculate descriptive statistics.
- Visualize data using relevant graphs.
- Design SQL queries using aggregate functions.
- Import/Export data between SQL database and Pandas.
- Learn terminology related to networking and the internet.
- Identify internet security issues and configure browser settings.
- Explain the impact of technology on society including gender and disability issues.

3. Distribution of Marks and Periods

Unit No	Unit Name	Marks	Periods Theory	Periods Practical	Total Period
1	Data Handling using Pandas and Data Visualization	30	50	40	90
2	Database Query using SQL	25	30	22	52
3	Introduction to Computer Networks	7	12	2	14
4	Societal Impacts	8	14	-	14
	Project	-	-	10	10
	Practical	30	-	-	-
	Total	100	106	74	180

4. Unit Wise syllabus

Unit 1: Data Handling using Pandas and Data Visualization

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; mathematical operations; series attributes, head and tail functions; selection, indexing and slicing.

Data Frames: creation of data frames from dictionary of series, list of dictionaries, text/CSV files, display, iteration. Operations on rows and columns: add add (insert /append) , select, delete (drop column and row), rename, Head and Tail functions, indexing using labels, Boolean indexing; joining, merging and concatenation of data frames.

Importing/Exporting Data between CSV files and Data Frames. *(for practicals only)*

Data handling using Pandas – II

Descriptive Statistics: max, min, count, sum, mean, median, mode, quartile, Standard deviation, variance.

Data Frame operations: Aggregation, group by, Sorting, Deleting and Renaming Index, Pivoting.

Handling missing values – dropping and filling.

Importing/Exporting Data between MySQL database and Pandas.

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: color, style (dashed, dotted), width; adding label, title, and legend in plots.

Unit 2: Database Query using SQL

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)

Unit 3: Introduction to Computer Networks

Introduction to networks, Types of network: LAN, MAN, WAN.

Network Devices: modem, hub, switch, repeater, router, gateway

Network Topologies: Star, Bus, Tree, Mesh.

Introduction to Internet, URL, 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.

Unit 4: Societal Impacts

Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act.

E-waste: hazards and management.

Awareness about health concerns related to the usage of technology.

5. Project Work

The aim of the class project is to create tangible and useful IT applications. The learner may identify a real-world problem by exploring the environment. e.g. Students can visit shops/business places, communities or other organizations in their localities and enquire about the functioning of the organization, and how data are generated, stored and managed. The learner can take data stored in a csv or database file and analyze it using Python libraries and generate appropriate charts to visualize. If an organization is maintaining data offline, then the learner should create a database using MySQL and store the data in tables. Data can be imported in Pandas for analysis and visualization.

Learners can use Python libraries of their choice to develop software for their school or any other social good.

Learners should be sensitized to avoid plagiarism and violation of copyright issues while working on projects. Teachers should take necessary measures for this. Any resources (data, image etc.) used in the project must be suitably referenced.

The project can be done individually or in groups of 2 to 3 students. The project should be started by students at least 6 months before the submission deadline.

6. Distribution of Practical Marks

Sl.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

7. Suggested Practical List

7.1 Data Handling

1. Create a pandas series from a dictionary of values and an ndarray
2. Given a Series, print all the elements that are above the 75th percentile.
3. Create a Data Frame quarterly sales where each row contains the item category, item name, and expenditure. Group the rows by the category, and print the total expenditure per category.
4. Create a data frame based on ecommerce data and generate descriptive statistics (mean, median, mode, quartile, and variance)
5. Create a data frame for examination result and display row labels, column labels data types of each column and the dimensions
6. Filter out rows based on different criteria such as duplicate rows..
7. Find the sum of each column, or find the column with the lowest mean.
8. Locate the 3 largest values in a data frame.
9. Subtract the mean of a row from each element of the row in a Data Frame.
10. Replace all negative values in a data frame with a 0.
11. Replace all missing values in a data frame with a 999.
12. Importing and exporting data between pandas and CSV file
13. Importing and exporting data between pandas and MySQL database

7.2 Visualization

14. Given the school result data, analyse the performance of the students on different parameters, e.g subject wise or class wise.
15. For the Data frames created above, analyze and plot appropriate charts with title and legend.
16. Take data of your interest from an open source (e.g. data.gov.in), aggregate and summarize it. Then plot it using different plotting functions of the Matplotlib library.

7.3 Data Management

17. Create a student table with the student id, name, and marks as attributes where the student id is the primary key.
18. Insert the details of a new student in the above table.
19. Delete the details of a particular student in the above table.
20. Use the select command to get the details of the students with marks more than 80.
21. Create a new table (order ID, customer Name, and order Date) by joining two tables (order ID, customer ID, and order Date) and (customer ID, customer Name, contact Name, country).
22. Create a foreign key in one of the two tables mentioned above
23. Find the min, max, sum, and average of the marks in a student marks table.
24. Find the total number of customers from each country in the table (customer ID, customer Name, country) using group by.
25. Create a new table (name, date of birth) by joining two tables (student id, name) and (student id, date of birth).
26. Write a SQL query to order the (student ID, marks) table in descending order of the marks.

7.4 Introduction to Computer Networks

27. Download, install and configure browser.

Reference:

NCERT Informatics Practices - Text book for class - XII

Computer Science
CLASS-XI
Code No. 083
2021-22

1. Learning Outcomes

Student should be able to

a) develop basic computational thinking
b) explain and use data types
c) appreciate the notion of algorithm
d) develop a basic understanding of computer systems - architecture, operating system and cloud computing
e) explain cyber ethics, cyber safety and cybercrime
f) Understand the value of technology in societies along with consideration of gender and disability issues

2. Distribution of Marks

Unit No.	Unit Name	Marks	Periods	
			Theory	Practical
I	Computer Systems and Organisation	10	10	10
II	Computational Thinking and Programming - 1	45	80	60
III	Society, Law and Ethics	15	20	----
	Total	70	110	70

3. Unit wise Syllabus

Unit I: Computer Systems and Organisation

- Basic Computer Organisation: Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB)
- Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software
- Operating system (OS): functions of operating system, OS user interface
- Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits
- Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems.
- Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32)
- Emerging trends: Cloud computing, cloud services (SaaS, IaaS, PaaS), blockchains, Artificial Intelligence (AI), Machine Learning (ML), Internet of Things (IoT)

Unit II: Computational Thinking and Programming – 1

- Introduction to problem solving: Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition
- Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments
- Knowledge of data types: number (integer, floating point, complex), boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types
- Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in)
- Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output
- Errors: syntax errors, logical errors, runtime errors
- Flow of control: introduction, use of indentation, sequential flow, conditional and iterative flow control
- Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number
- Iterative statements: for loop, range function, while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc
- Strings: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split()
- Lists: introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list
- Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple
- Dictionary: introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del(), clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them
- Sorting techniques: Bubble and Insertion sort
- Introduction to Python modules: Importing module using 'import <module>' and using from statement, Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median,mode)

Unit III: Society, Law and Ethics

- Digital Footprints
- Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes
- Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache)
- Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime
- Cyber safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying.
- Safely accessing web sites: malware, viruses, trojans, adware
- E-waste management: proper disposal of used electronic gadgets
- Indian Information Technology Act (IT Act)
- Technology & Society: Gender and disability issues while teaching and using computers

4. Practical

S.No.	Unit Name	Marks (Total=30)
1.	**Lab Test (12 marks)**	
	Python program (60% logic + 20% documentation + 20% code quality)	**12**
2.	**Report File + Viva (10 marks)**	
	Report file: Minimum 20 Python programs	**7**
	Viva voce	**3**
3.	Project (that uses most of the concepts that have been learnt) (See CS-XII for the rules regarding the projects)	**8**

5. Suggested Practical List

Python Programming

- Input a welcome message and display it.
- Input two numbers and display the larger / smaller number.
- Input three numbers and display the largest / smallest number.
- Generate the following patterns using nested loop.

Pattern-1	Pattern-2	Pattern-3
*	1 2 3 4 5	A
**	1 2 3 4	AB
***	1 2 3	ABC
****	1 2	ABCD
*****	1	ABCDE

- Write a program to input the value of x and n and print the sum of the following series:
  - $1+x+x^2+x^3+x^4+\ldots\ldots\ldots\ldots x^n$
  - $1-x+x^2-x^3+x^4-\ldots\ldots\ldots\ldots x^n$
  - $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \ldots\ldots\ldots\ldots \frac{x^n}{n}$
  - $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \ldots\ldots\ldots\ldots \frac{x^n}{n!}$
- Determine whether a number is a perfect number, an armstrong number or a palindrome.
- Input a number and check if the number is a prime or composite number.
- Display the terms of a Fibonacci series.
- Compute the greatest common divisor and least common multiple of two integers.
- Count and display the number of vowels, consonants, uppercase, lowercase characters in string.
- Input a string and determine whether it is a palindrome or not; convert the case of characters in a string.
- Find the largest/smallest number in a list/tuple
- Input a list of numbers and swap elements at the even location with the elements at the odd location.
- Input a list of elements, sort in ascending/descending order using Bubble/Insertion sort.
- Input a list/tuple of elements, search for a given element in the list/tuple.
- Input a list of numbers and find the smallest and largest number from the list.
- Create a dictionary with the roll number, name and marks of n students in a class and display the names of students who have scored marks above 75.

6. Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XI)
- Support Materials on the CBSE website.

Computer Science
CLASS-XII
Code No. 083
2021-22

1. Prerequisites

Computer Science- Class XI

2. Learning Outcomes

Student should be able to

a) apply the concept of function and recursion.
b) create and use Python libraries.
c) explain and use the concept of file handling.
d) explain the concept of efficiency in algorithms and computing in general.
e) use basic data structure: Stacks and Queues.
f) explain basics of computer networks.
g) use Database concepts, SQL along with connectivity between Python and SQL.

3. Distribution of Marks:

Unit No.	Unit Name	Marks	Periods	
			Theory	Practical
I	Computational Thinking and Programming - 2	40	70	50
II	Computer Networks	10	15	---
III	Database Management	20	25	20
	Total	70	110	70

4. Unit wise Syllabus

Unit I: Computational Thinking and Programming – 2

- Revision of Python topics covered in Class XI.
- Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)
- Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths
- Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file

- Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file
- CSV file: import csv module, open / close csv file, write into a csv file using csv.writerow() and read from a csv file using csv.reader( )
- Python libraries: creating python libraries
- Recursion: simple programs with recursion: sum of first n natural numbers, factorial, fibonacci series
- Idea of efficiency: number of comparisons in Best, Worst and Average case for linear search
- Data Structure: Stack, operations on stack (push & pop), implementation of stack using list. Introduction to queue, operations on queue (enqueue, dequeue, is empty, peek, is full), implementation of queue using list.

Unit II: Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)
- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves)
- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)
- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP, wireless/mobile communication protocol such as GSM, GPRS and WLL
- Mobile telecommunication technologies: 1G, 2G, 3G, 4G and 5G
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting

Unit III: Database Management

- Database concepts: introduction to database concepts and its need
- Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join

- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications

5. Practical

S.No.	Unit Name	Marks (Total=30)
1	**Lab Test:** 1. Python program (60% logic + 20% documentation + 20% code quality)	7
	2. 5 SQL Queries based on one/two table(s).	5
2	Report file: Minimum 20 Python programs. Out of this at least 5 programs should be based on SQL Queries and 2 programs based on Python-database connectivity.	7
3	Project (using concepts learnt in Classes 11 and 12)	8
4	Viva voce	3

6. Suggested Practical List:

Python Programming

- Write a recursive code to find the factorial of a natural number.
- Write a recursive code to find the sum of all elements of a list.
- Write a recursive code to compute the n^{th} Fibonacci number.
- Read a text file line by line and display each word separated by a #.
- Read a text file and display the number of vowels/consonants/uppercase/lowercase characters in the file.
- Remove all the lines that contain the character 'a' in a file and write it to another file.
- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
- Write a Python program to implement a stack and queue using list.
- Create a CSV file by entering user-id and password, read and search the password for given user-id.

Database Management

- Create a student table and insert data. Implement the following SQL commands on the student table:
    - ALTER table to add new attributes / modify data type / drop attribute
    - UPDATE table to modify data
    - ORDER By to display data in ascending / descending order
    - DELETE to remove tuple(s)
    - GROUP BY and find the min, max, sum, count and average
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

7. Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XII)
- Support Materials on the CBSE website.

8. Project

The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity. This should be done in groups of two to three students and should be started by students at least 6 months before the submission deadline. The aim here is to find a real world problem that is worthwhile to solve.

Students are encouraged to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves.

The students should be sensitised to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

अध्यापक द्वारा अपंनायी गई किसी नई पद्धति अथवा प्रायोजना पर टिपण्णी
Notes on any innovation or project undertaken by the teacher

1. **ONLINE BLOG:** ictswami.wordpress.com
2. **YOUTUBE CHANNEL:**

   https://www.youtube.com/channel/UClForwqJCnpYep8beLAv8qw?view_as=subscriber

अध्यापक द्वारा किये गए लाभदायक पाठ्यक्रम का अभिलेख
Records of any useful professional reading done by the teacher

Text Books/Reference Books

1. Computer Science (Python) by Mrs. Sumita Arora
2. Computer Science (Python) by Mrs. Preeti Arora
3. Informatics Practices (Python) by Mrs. Sumita Arora
4. Informatics Practices (Python) by Mrs. Preeti Arora

छात्र को किसी भी विषय में दिए गए परामर्श कि अनुपूरक की सूची
A List of supplementary reading / websites suggested to student in any subject, books suggested to gifted students

1. www.cbseguess.com
2. www.onlineteachers.com
3. Question bank of Python by Sumita Arora
4. CBSE Website www.cbse.nic.in
5. https://pythonclassroomdiary.in/
6. Dikhsa portal https://diksha.gov.in/

सम्बंधित विषय समिति की अनुसंशाओ का अभिलेख विशेषतः उनकी कक्षाओं के संबंध में तथा उनके अनुश्रवन के लिए

Record of the recommendations of the subject Committee meeting (especially those relevant to his/ her class and follow up thereof)

1. Taking Remedial class for slow bloomer
2. Motivate the students to create Real Life projects in Computer Science
3. Motivate the student to Create GUI application using python
4. Small Project using python:

A. Library management System
B. Salary Management Application
C. Student Record Keeping Application

Record of Staff Meeting/ Academic Advisory Committee Meeting/ Inspection Meeting

08/04/2020 (Monday)

1. Creation of class wise / subject wise groups on WhatsApp.
2. Motivate Students to attend online class on WhatsApp.
3. Provide Students Online Material in form of pdf/ video etc. of chapters for study at home.
4. Teachers also attend the class and take doubt class of students
5. Help the students as much as possible in this pandemic situation.
6. Guide about the online Periodic Test via google forms.
7. Guide the students to go through the KVS RO Jaipur online website for study that is www.kvsrojaipuronline.in

From 03/05/2021 To 20/06/2021

(Summer Vacations)

22/06/2020 (Tuesday)

1. Starting Online Classes after Summer Break
2. Using zoom, webx, google meet and others tools
3. Using various tools of the Online Learning
4. Telling various resources of the online learning to students
5. Distribution of google class codes and others details

05/07/2020 (Monday)

1. CBSE Result analysis Discussion of X and XII
2. Taking Class and Attendance record properly
3. Monthly Test and Syllabus reduction information
4. Finding the difficulty in Online Classes and the students who are not regular in the class
5. Discussion regarding CBSE New Scheme of Assessment for the session 2021-22

02/08/2020 (Monday)

1. CBSE Result analysis Discussion of X and XII
2. Taking Class and Attendance record properly
3. Monthly Test and Syllabus reduction information
4. Finding the difficulty in Online Classes and the students who are not regular in the class
5. Discussion regarding CBSE New Scheme of Assessment for the session 2021-22

शिक्षक के कार्यकाल के समय में आई कठिनाइयों / समस्याओं पर टिपण्णी
Notes on the difficulties/ problems faced by the teacher during curriculum transaction

1. No any difficulty faced during online classes. Except some students not attend the classes on regular basis.

Efforts made by teacher to solve the difficulties/ problems and result of the action taken

Improving Academic Performance:

- **Efforts to help students deal with specific academic weaknesses can involve improvements in teacher practices in the classroom – of which many examples are given in the next section, and/or be focused on the weak students.**
- **Start by asking students what they know and build their knowledge and confidence by teaching**
- **Some familiar material and gradually moving to a new or difficult topic.**
- **Explain the importance of a topic being taught and its relevance to the 'real world.**
- **Give practical examples particularly when explaining difficult concepts.**
- **Organize lectures by points, including adequate examples in each, using materials beyond the textbook.**
- **Use media Power-points – Hyperlinks, Videos to make instruction more visual and tactile.**
- **Be available for formal and informal contact after class.**

Name of Student requiring remedial help and steps taken to improve the student's performance

Students Name	Reason & Steps taken
Kumari Riya (XII-IP)	STUDENT IS NOT ATTENDING ONLINE CLASSES REGULARLY. ACTION TAKEN: NOTES PROVIDED, VIDEO PROVIDED FOR THE HELP

Class XII COMPUTER SCIENCE

SR NO	NAME
1	AKANSHA
2	AKASH VERMA
3	AMAN KASWA
4	ANUJ SHARMA
5	ARYAN MEENA
6	KUSHAY KUMAR
7	MAYANK POONIA
8	NIKHIL CHOUDHARY
9	NIKHIL THORY
10	REHAN CHOUDHARY
11	SUMIT KUMAR

Class XII INFORMATICSPRACTICES

SR NO	NAME
1	ADITYA SHARMA
2	HIMANSHU CHOUDHARY
3	KAJAL
4	MONIKA MAHICH
5	MUKEET
6	NIKHIL
7	NAMAN ROHILLA
8	NIJIN SAJI
9	NIKHIL BUDANIA
10	PALAK JANIGR
11	POOJA SARAWAG
12	RIYA RAO
13	VISHAL KUMAR
14	YASHSVI RATHORE

Bright Student

Class XII- COMPUTER SCIENCE

1. KUSHAY KUMAR
2. AMAN KASWA
3. NIKHIL THORY
4. MAYANK POONIA
5. ANUJ SHARMA
6. AKASH VERMA

Class XII- COMPUTER SCIENCE

1. HIMANSHU CHOUDHARY
2. NIKHIL BUDANIA
3. VISHAL KUMAR
4. KAJAL
5. MUKEET
6. NAMAN ROHILA

Plan of action for the enrichment of the bright students

- **To make the students practice more and more HOTS questions which are available in study materials.**
- **To make the students practice more problems from the books other than CBSE books.**
- **To discuss the questions asked in Cyber Olympiad.**
- **To discuss the questions asked in the Board exam papers other than CBSE.**
- **To take special care of every individual bright students to optimize the performance of the students in the various competitive exams.**
- **To encourage the students for attending the online tests conducted by the various reputed. Organizations which are working for the welfare of the students.**
- **To encourage the students for attending the MOCK tests conducted by the various reputed organizations which are working for the welfare of the students.**

Plan of action for slow learners

- **Emphasis on basic of Computer Programming e.g. Python.**
- **Emphasis on to solve the math problem by Computer Programming like Calculator**
- **Regular class tests**
- **Providing them personal attention**
- **Practice of selected topics in which they can score minimum pass marks**
- **Regular contact with parents to make the students regular in the class**
- **Regular practice of previous year questions**
- **Providing moral boost up to these students**
- **Providing them extra time and material**
- **Adopting various methods of teaching such as Quiz, Blackboard tests, test on the question already provided**
- **Regular practice of 3 hours. on Model/Board paper tests**
- **Regular class tests using cumulative syllabus**
- **Regular revision of formulas**
- **Frequent interaction with students to get the knowledge of individual difficulties**

Online Attendance Record

Meeting Participants

The attendee list for **Meet – aht-qnjw-jmx** from **Aug 6, 2021 9:06 AM**. You can download a copy of the report in CSV format.

NAME ▼	FIRST SEEN AT	TIME IN CALL (HH:MM:SS)
ADITYA SHARMA XII-C	09:06 AM	00:52:05
HIMANSHU DARIA XII-B	09:11 AM	00:29:24
MONIKA XII-B	09:07 AM	00:51:19
MUKEET KHAN XII-B	09:06 AM	00:52:07
NAMAN ROHILLA XII-C	09:06 AM	00:52:39
NIJIN SAJI XII-C	09:06 AM	00:52:22
NIKHIL BUDANIA XII-B	09:06 AM	00:52:40
NIKHIL XII-C	09:06 AM	00:52:40
PALAK JANGIR XII-C	09:06 AM	00:52:40
POOJA XII-C	09:06 AM	00:51:07
RIYA RAO XII-B	09:06 AM	00:50:41
VISHAL KUMAR XII-B	09:08 AM	00:47:50
YASHVI RATHORE XII-B	09:23 AM	00:35:45
pradeep swami	09:06 AM	01:45:53

Meeting Participants

The attendee list for **Meet – huv-avxt-kxg** from **Aug 3, 2021 8:01 AM**. You can download a copy of the report in CSV format.

NAME ▼	FIRST SEEN AT	TIME IN CALL (HH:MM:SS)
AKANSA XII-A	08:01 AM	00:51:25
AKASH VERMA XII-A	08:02 AM	00:50:39
AMAN KASWA XII-A	08:08 AM	00:45:06
ANUJ SHARMA XII-A	08:03 AM	00:48:57
KUSHAY KUMAR XII-A	08:05 AM	00:47:18
MAYANK POONIA XII-A	08:02 AM	00:50:37
NIKHIL CHOUDHARY XII-A	08:01 AM	00:51:12
NIKHIL XII-A	08:05 AM	00:47:12
SUMIT KUMAR XII-A	08:01 AM	00:51:26
pradeep swami	08:01 AM	01:44:34

Export as CSV

परिणाम विशेषण / RESULT ANALYSIS XII

ONLINE PERIODIC TEST-1 (06-JULY-2021)

Class XII- COMPUTER SCIENCE

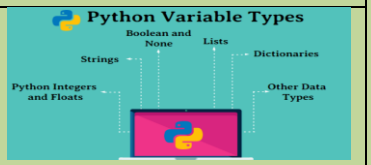
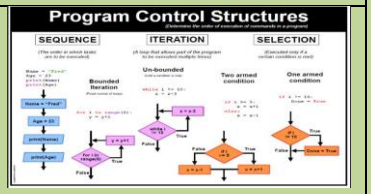
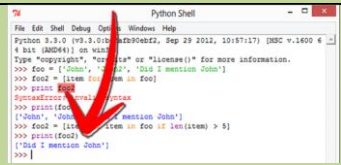
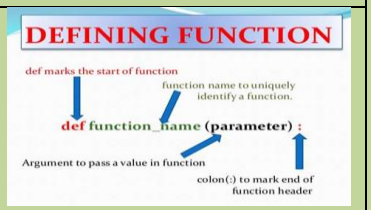
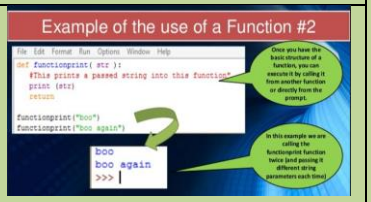
SR NO	NAME	OBTAINED MARKS (OUT OF 30)
1	AKANSHA	16
2	AKASH VERMA	19
3	AMAN KASWA	28
4	ANUJ SHARMA	20
5	ARYAN MEENA	ABSENT
6	KUSHAY KUMAR	28
7	MAYANK POONIA	21
8	NIKHIL CHOUDHARY	17
9	NIKHIL THORY	26
10	REHAN CHOUDHARY	ABSENT
11	SUMIT KUMAR	16

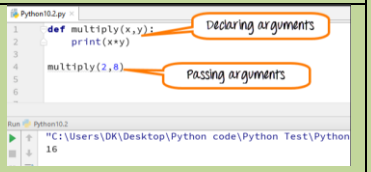
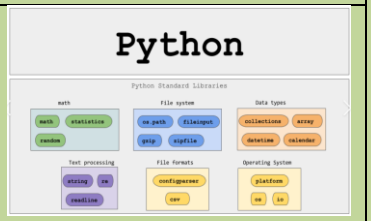
ONLINE PERIODIC TEST-1 (06-JULY-2021)

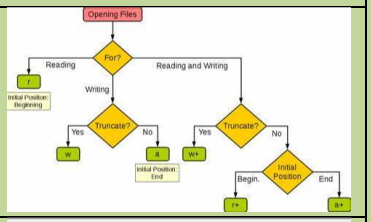
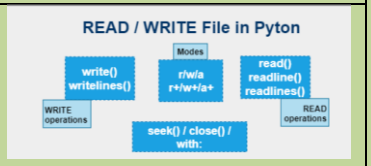
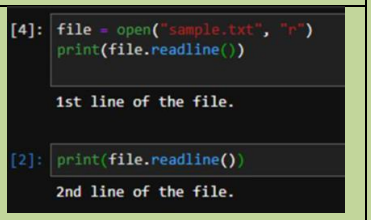
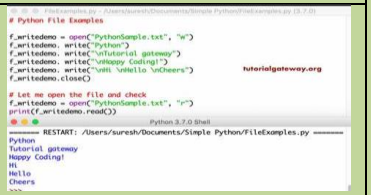
Class XII – INFORMATICSPRACTICES

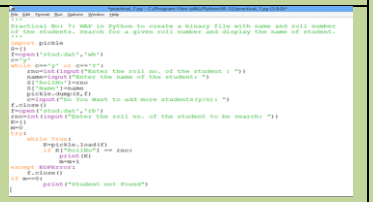
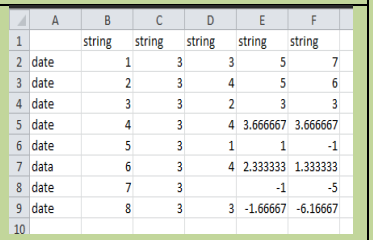
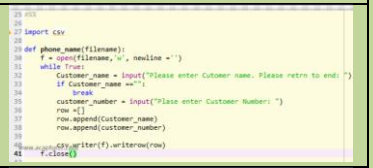
SR NO	NAME	OBTAINED MARKS (OUT OF 30)
1	ADITYA SHARMA	14
2	HIMANSHU CHOUDHARY	28
3	KAJAL	26
4	MONIKA MAHICH	19
5	MUKEET	26
6	NIKHIL	19
7	NAMAN ROHILLA	25
8	NIJIN SAJI	14
9	NIKHIL BUDANIA	28
10	PALAK JANIGR	18
11	POOJA SARAWAG	17
12	RIYA RAO	18
13	VISHAL KUMAR	28
14	YASHSVI RATHORE	18

LESSON PLANS CLASS- XII (COMPUTER SCIENCE)

DATE	TOPIC	DETAILS	ICT TOOLS
1-4-2021	Revision of the basics of Python covered in Class XI.	Python fundamentals like tokens, variables , input, output and introductory	
12-4-2021	Revision of the basics of Python covered in Class XI.	Conditional and iterative statements for loop while loop and if else statement	
19-4-2021	Revision of the basics of Python covered in Class XI.	Strings, lists, tuples, dictionaries, various in built methods	
26-4-2021	mutable/immutable properties of data objects,	Mutability/Immutability of arguments/parameters and function calls	
29-4-2021	mutable/immutable properties of data objects,	Mutability/Immutability of arguments/parameters and function calls	
		SUMMER VACATION FROM 03-05-2021 TO 20-06-2021	

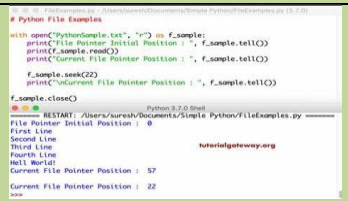
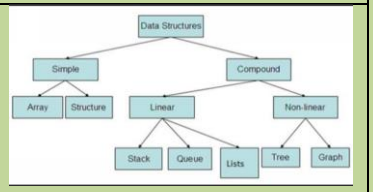
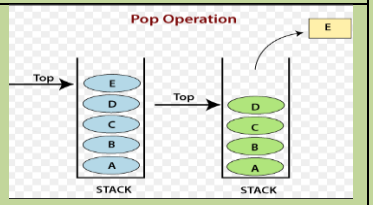
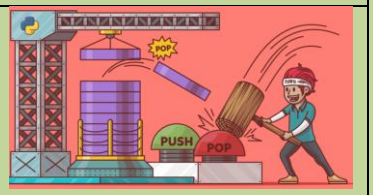
21-6-2021	RANDOM NUMBER	Random module, randint() function and live program to find out possible outputs	
24-6-2021	passing strings, lists, tuples, dictionaries to functions,	Passing parameters, positional required arguments, default arguments, using multiple arguments types together	
28-6-2021	scope, parameter passing,	Scope of variables, local variables, global variables	
1-7-2021	default parameters, positional parameters, return values	Live program	Google Meet Google Classroom, WHATSAPP, Blog
4-7-2021	functions using libraries: mathematical and string functions.	What is a library, importing modules, python standard library	
6-7-2021		ONLINE PERIODIC TEST-1 (06 JULY 2021)	

8-7-2021	File Handling	File handling: Need for a data file, Types of file: Text files, Binary files and CSV (Comma separated values) files.	
12-7-2021	File Handling –Text File	Text File: Basic operations on a text file: Open (file name, mode), Close( ) Various modes of file and pointer position in file.	
14-7-2021	File Handling –Text File	Read and Write data in text file. read( ) method - read data from file. (string) write( ) method – write data into file. (string)	
16-7-2021	File Handling –Text File	readline( ) method - read one line from file. - It returns a line as string value readlines( ) method – write all lines from file. - It returns a list of lines(strings) value	
20-7-2021	File Handling –Text File	write ( ) method- write a string value into file. writelines( ) method writes multiple lines (string values) into file	
22-7-2021	File Handling – Binary File	import pickle package pickling – Convert python object into byte stream to write in file. un-pickling – Convert byte stream into python object.	

24-7-2021	File Handling – Binary File	Binary File: Basic operations on a binary file: (absolute or relative path), open( ) and Close( ) for a binary file.	Google Meet Google Classroom
26-7-2021	File Handling – Binary File	Methods of Pickle Package load( ) – used to read python object from file dump( ) – used to write python object into file	
28-7-2021	File Handling – CSV File	CSV File: Import csv module, csv.writer(file pointer) - create writing object that writes python stream into csv file. csv.reader (file pointer) - create reading object that reads python stream from csv file.	
28-7-2021	File Handling – CSV File	csv.writerow( ) – write one row data into csv file. csv.writerows( ) – write multiple rows into csv file.	
30-7-2021	File Handling – CSV File	Open csv file by using “with” keyword with open(“file name.csv”, mode) as alias name: .... When the file opened by using “with” keyword then File does not required to close explicitly.	
3-8-2021	Exception Handling in File	Exception Handling try: .....Codes..... ..... except Error Type- (optional): ..... Code to control Exception raised in try block	Google Meet Google Classroom, WHATSAPP, Blog

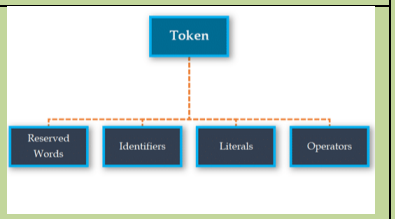
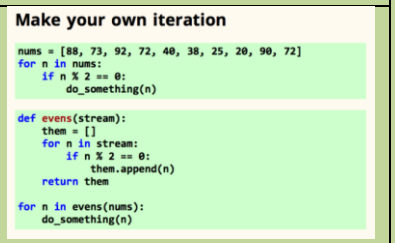
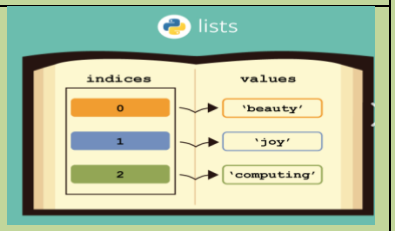
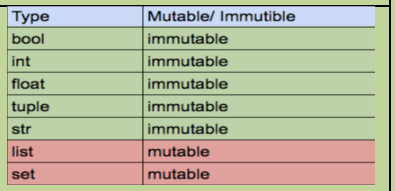
	A	B	C	D	E	F
1		string	string	string	string	string
2	date	1	3	3	5	7
3	date	2	3	4	5	6
4	date	3	3	2	3	3
5	date	4	3	4	3.666667	3.666667
6	date	5	3	1	1	-1
7	data	6	3	4	2.333333	1.333333
8	date	7	3		-1	-5
9	date	8	3	3	-1.66667	-6.16667
10						

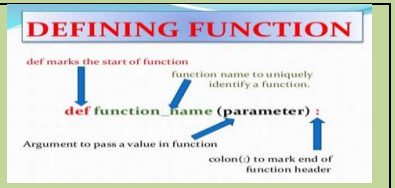
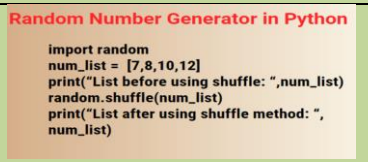
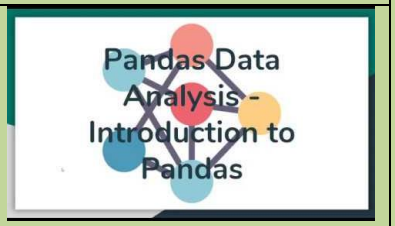
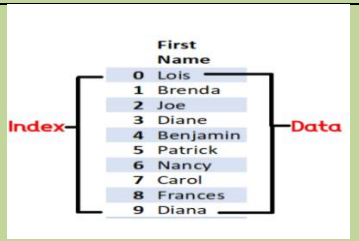
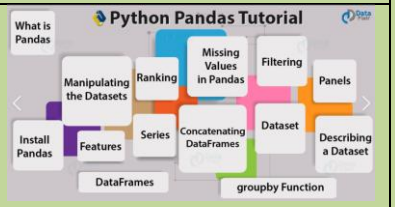
```
with open('sample.txt') as reader:
  data = reader.read()
  print(data)

f = open("data.txt", "a")
f.writelines(["\nSee you soon!", "\nPeek-a-boo."])
f.close()
```

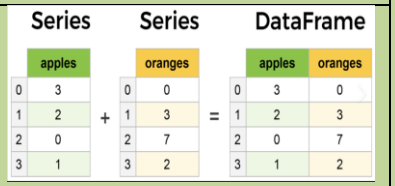
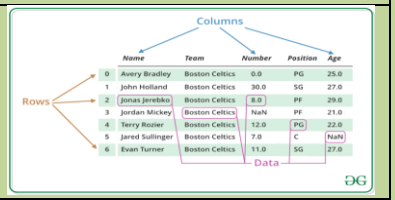
5-8-2021	Random Access to File	tell( ) – It returns the current position of file pointer in the file. (in form of byte-integer) seek(offset, location) –It set the file pointer at specified given location in the file. Where location is: 0-From BOF, 1- From Current, 2- From EOF	
7-8-2021	Question paper solution.	Live Practical of Python File Handling. Solved the CBSE previous year questions based on file handling.	Google Meet Google Classroom
10-8-2021	Online Test	Online Test was conducted by using google form.	Google form.
12-8-2021	Data structures	Data Structure: Linked List, Stack, Queue, Tree Revision of List and Methods of List.	
14-8-2021	Data Structures	Implementation of Stack & Characteristics of Stack. Creation of Stack using List.	
17-8-2021	Data Structures	PUSH Operation on stack using List POP Operation on stack using List	
18-8-2021	Data Structures	Searching Operation on stack Using List	

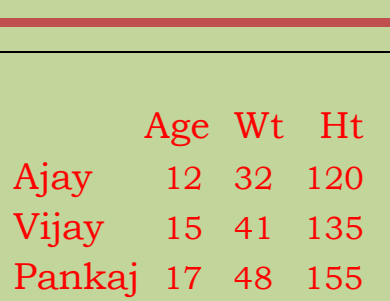
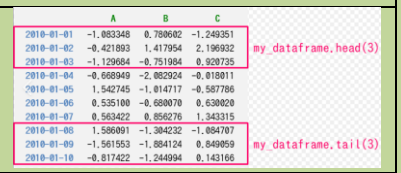
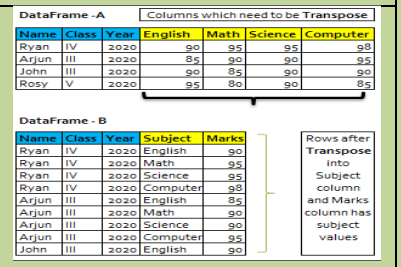
20-8-2021	Data Structure	CBSE Previous year paper solution.	

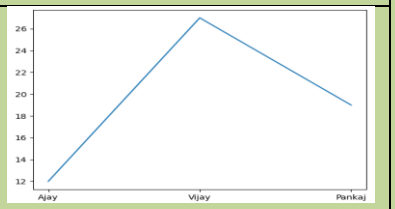
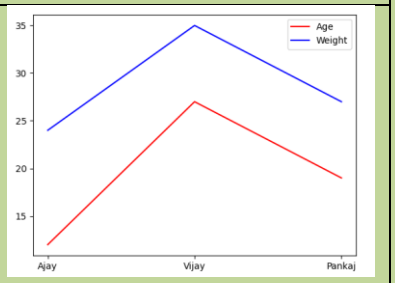
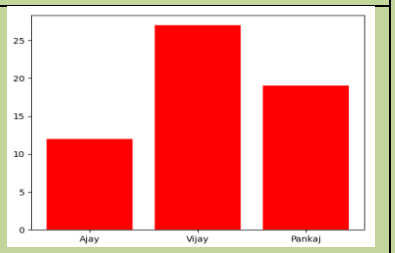
LESSON PLANS CLASS- XII (INFORMATICS PRACTICES)

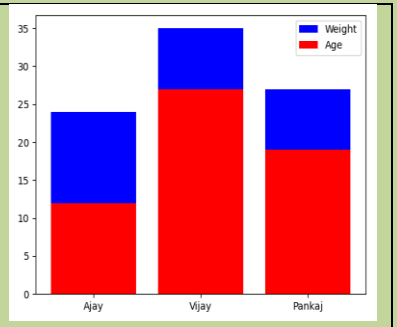
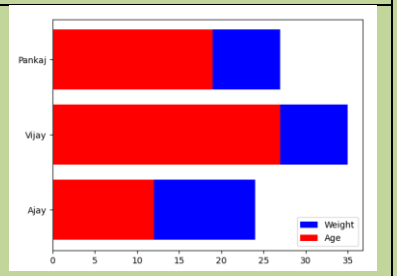
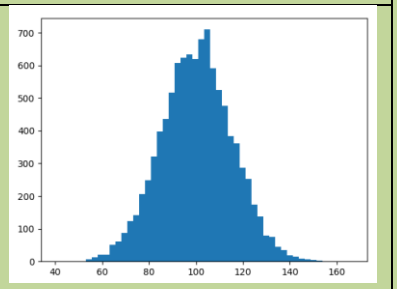
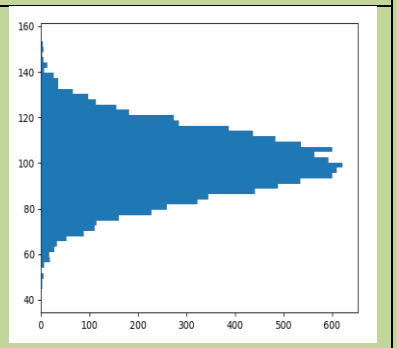
DATE	TOPIC	DETAILS	ICT TOOLS
1-4-2021	Revision of the basics of Python covered in Class XI.	Python fundamentals like tokens, variables , input, output and introductory	
12-4-2021	Revision of the basics of Python covered in Class XI.	Conditional and iterative statements for loop while loop and if else statement	
19-4-2021	Revision of the basics of Python covered in Class XI.	Strings, lists, tuples, dictionaries, various in built methods	
26-4-2021	mutable/immutable properties of data objects,	Mutability/Immutability of arguments/parameters and function calls	

29-4-2021	mutable/immutable properties of data objects,	Mutability/Immutability of arguments/parameters and function calls	
		SUMMER VACATION FROM 03-05-2021 TO 20-06-2021	
21-6-2021	RANDOM NUMBER	Random module, randint() function and live program to find out possible outputs	
24-6-2021	Python Pandas Introduction	Use of Pandas Library in Programming Language. Modules included in Pandas Library.Importance of Pandas Libarary.	
28-6-2021	Pandas- Series Object	Creation of Pandas Series() by using various input data and formats. Like List, String, Tuple, Dictionary etc.	
1-7-2021	Attributes of Pandas Series	Various Attributes used with Series Object and their functionality.	

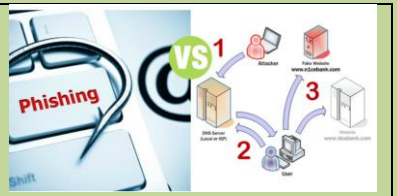
4-7-2021	Special cases with Series()	Some Special cases applied with Series() and their functionality.	Google Meet Google Classroom
6-7-2021		**ONLINE PERIODIC TEST-1 (06 JULY 2021)**	
7-7-2021	Series Vs DataFrame	Basic difference between Pandas Series and DataFrame structure.	
9-7-2021	DataFrame Creation	import pandas as pd Object=[ ] / ( ) / { } Df=pd.DataFrame(data=Object, index=[list of row index], Coulmns=[column heading])	
12-7-2021	DataFrame by using List of list	import pandas as pd Lst=[[12,32,120], [15,41,135], [17,48,155]] Df=pd.DataFrame(data=Lst, index=['Ajay','Vijay','Pankaj'], coulmns=['Age', ' Wt', 'Ht']) print(Df)	Age Wt Ht Ajay 12 32 120 Vijay 15 41 135 Pankaj 17 48 155
14-7-2021	DataFrame by using tuple of lists	import pandas as pd Lst=([12,32,120], [15,41,135], [17,48,155]) Df=pd.DataFrame(data=Lst, index=['Ajay','Vijay','Pankaj'], coulmns=['Age', ' Wt', 'Ht']) print(Df)	Age Wt Ht Ajay 12 32 120 Vijay 15 41 135 Pankaj 17 48 155
16-7-2021	DataFrame by using list of tuples	import pandas as pd Lst=[(12,32,120), (15,41,135), (17,48,155)) Df=pd.DataFrame(data=Lst, index=['Ajay','Vijay','Pankaj'], coulmns=['Age', ' Wt', 'Ht']) print(Df)	Age Wt Ht Ajay 12 32 120 Vijay 15 41 135 Pankaj 17 48 155

19-7-2021	DataFrame by using Series	import pandas as pd s1=pd.Series([12,32,120] s2=pd.Series([15,41,135]) s3=pd.Series([17,48,155]) st=s1+s2+s3 Df=pd.DataFrame(data=st, index=['Ajay','Vijay','Pankaj'], coulmns=['Age', ' Wt', 'Ht']) print(Df)	
21-7-2021	DataFrame head( ) and tail( )	head(n)- returns first n number of rows from DataFrame tail(n) – returns last n number of rows from DataFrame (if n is not given then default 5 rows will return)	
23-7-2021	More commands of DataFrame	Slicing of DataFrame, Boolean Indexing, Add new row, Add new column, delete existing row, delete existing column.	
26-7-2021	Attributes of DataFrame	Index, column, values, transpose, ndim, size, shape etc.	
28-7-2021	Data Visualization- Python	Introduction about Data Visualization. Types of charts / graphs created in Python. Line chart, bar graph, scatter chart, histogram graph, pie chart, boxplot graph.	

30-7-2021	matplotlib and pyplot	Import the package – matplotlib.pyplot Matplotlib is a library that contains packages for several of visualizations. Pyplot is a package that contains several methods to create graphs & charts.	Google Meet Google Classroom
2-8-2021	Line Chart	Import matplotlib.pyplot as Plt Name=['Ajay','Vijay','Pankaj'] Age=[12,27,19] Plt.plot(Name, Age) Plt.show()	
2-8-2021	Multiple Line charts with attributes and legend.	Import matplotlib.pyplot as Plt Name=['Ajay','Vijay','Pankaj'] Age=[12,27,19] Weight=[24,35,27] plt.plot(Name, Age, color="r", label="Age") plt.plot(Name, Weight, color="b", label="Weight") plt.legend(loc="upper right") Plt.show()	
4-8-2021	bar Chart	Import matplotlib.pyplot as Plt Name=['Ajay','Vijay','Pankaj'] Age=[12,27,19] Plt.bar(Name, Age) Plt.show()	

4-8-2021	Multiple bar charts with attributes and legend.	Import matplotlib.pyplot as Plt Name=[‘Ajay’,’Vijay’,’Pankaj’] Age=[12,27,19] Weight=[24,35,27] plt.bar(Name, Age, color="r", label="Age") plt.bar(Name, Weight, color="b", label="Weight") plt.legend(loc="upper right") Plt.show()	
6-8-2021	Multiple horizontal bar charts with attributes and legend.	Import matplotlib.pyplot as Plt Name=[‘Ajay’,’Vijay’,’Pankaj’] Age=[12,27,19] Weight=[24,35,27] plt.barh(Name, Age, color="r", label="Age") plt.barh(Name, Weight, color="b", label="Weight") plt.legend(loc="lower right") Plt.show()	
9-8-2021	Histogram vertical graph	Import matplotlib.pyplot as Plt Import numpy as np Import random m=100 s=15 x=m+s*np.random.randn(10000) plt.hist(x,bins=50) plt.show()	
9-8-2021	Histogram Horizontal graph	Import matplotlib.pyplot as Plt Import numpy as np Import random m=100 s=15 x=m+s*np.random.randn(10000) plt.hist(x,bins=50, orientation=”horizontal”) plt.show()	

11-8-2021	Societal Impact- Net and Communication Etiquettes	Digital footprint, Managing digital footprint. Internet and network related etiquettes, E-mail related etiquettes.	
13-8-2021	Societal Impact- Ethical Issues	Intellectual Property Rights (IPR), Plagiarism, copyrights & Licenses. Domains of Open Source Technology	
16-8-2021	Societal Impact- OOS Philosophy	Terminology, Definitions and OSS Philosophy	
18-8-2021	Societal Impact- Cyber Crime	Cyber Crime, Cyber Law and IT Acts	
20-8-2021	Societal Impact- E-Waste Management	E-Waste, E-Waste Disposal process, Benefits of E-waste Recycling. Health Concerns with technology usage.	

23-8-2021	Societal Impact- Data Protection	Threats on data: Viruses, Spyware, Adware, Spamming, PC Intrusion, Eavesdropping, Phishing & Pharming, Cookies	
25-8-2021	Data Protection solutions	Solution to Viruses, Adware & Spyware Solution to Eavesdropping Solution to PC Intrusion Solution to Phishing & Pharming Data Privacy Vs Data Protection	

Thanks