KENDRIYA VIDYALAYA NAD KARANJA
CLASS XII (A/B/C)
AUTUMN BREAK (21/10/20 to 31/10/2020)
HOLIDAY HOMEWORK 2020-21

ENGLISH

1. You have planned to organise a camp for the children of age group 10-13 years for developing their creative skills in art and craft, Clay modeling, music etc in your School during the autumn break. Draft a notice in not more than 50 words giving all details. You are Reena/ Roshan , secretary, Art and Craft Club, B V Public School, Delhi.

2. Along with air and water pollution, our cities are also under attack of noise pollution. Marriage, DJ's during wedding receptions, loud music from neighbourhood flats etc are all sources of noise which is not good for the old, the ailing and the students. Write a letter in 120- 125 words to the editor of a local newspaper describing the problem and making a request to the concerned authorities to solve it. You are Karan/ Karuna, M 114, Mall Road, Delhi.

3. Within a few months you will be joining college. How do you look at college life? Is it freedom from strict discipline imposed on you by the school? A carefree life with no worries of completing assigned homework? Or, is it the beginning of responsible preparation for a brilliant career? Write an article in 100- 125 words on what you think of college life. You are Ankit/ Anushka.

4. Completion of comprehension questions pertaining to Indigo and On the Face of It.

विषय हिंदी

1)   वर्ष 2020 ने मनुष्य की जीवन शैली बदल दी है I विविध पहलुओं को पीपीटी के माध्यम से दर्शाइए I

2)   पठित कविताओं का काव्य–सौन्दर्य लिखिए I

3)   पाठ्यक्रम का अभ्यास

4)   फीचर लेखन :

क)   समुद्री–तटों पर रहने वाले लोगों का जीवन

ख)   आजीविका के विविध–साधनों की उपलब्धि   (अलग–अलग पेशे)

ग)   कोई दो औपचारिक पत्र लिखिए I

(सारा कार्य परियोजना पुस्तिका में कीजिए)

PHYSICS

Q 1-what do you mean by electric flux?

Q 2- State and proof gauss's theorem and its all applications ?

Q 3- Define conductor and insulator ? Give five examples.

Q 4- Explain :-

i. Free charges and bond charges inside the conductor.

ii. Dielectrics and electric polarisation.

iii. Capacitors and capacitance

Q 5- Derive combination of capacitors in series and parallel?

Q 6- Derive capacitance of a parallel plane capacitor with dielectric medium between the plates?

Q 7- State and proof energy stored in a capacitor?

Q 8- what is the work done in moving test charge 'q' through a distance of 1cm along the equatorial axis of an electric dipole? [hint: on equatorial line V=0] (1)

Q 9- why an electric dipole places in a uniform electric field does not undergoes acceleration? (1)

Q 10- what is meant by electrostatic shielding? (1)

Q 11- A thin straight infinitely long conducting wire having charge density lamda is enclosed by acylindrical surface of radius r and length l,its axis coinciding with the length of the wire. Find the expression for electric flux through the surface of the cylinder. (2)

Q 12- Explain the role of earthing in house hold wiring. (2)

Q 13- Calculate the force between two alpha particles kept at a distance of 0.02mm in air. (2)

Q 14-A sensitive instrument is to be shielded from a strong electric field in its enviroment.

Suggest a possible way. (2)

Q 15- Name the physical quantities whose SI units are Vm, V/m. Which of these are vectors? (2)

Q 16- 27 small drops of mercury having the same radius collage to form the big drop. Find the ratio of the capacitance of the big drop to small drop. (2)

Q 17- Write the dimensional formula of 'E0' the permittivity of free space. (1)

Q 18- an electric dipole is placed in an electric field due to a point charge. Will there be a force and torque on the dipole ? (1)

Q 19-Explain why the electric field inside a conductor placed in an external electric field is always zero? (1)

Q 20- Draw a graph to show the variation of potential applied and charge stored in a capacitor.Derive the expression for energy stored In a parallel plate capacitor from the capacitor. (3)

Q 21-Deduce coulomb's law from Gauss's law (3)

Q 22- Three charges –q, Q and –q are placed at equal distances on a straight line. If the potential energy of system of these charges is zero, then what is the ratio of Q:q? (3)

Q 23- A parallel plate capacitor is charged to a potential difference V by dc . source and then disconnected. The distance between the plates is then halved. Explain with reason for the change in electric field,capacitance and energy of the capacitor. (3)

Q 24- State Gauss's law and use this law to derive the electric field at a point from an infinitely long straight uniformly charged wire. (3)

Q 25-Derive an expression for torque acting on an electric dipole in a uniform electric field. (3)

ECONOMICS

1. Complete the CBSE project work for final Exam on the Topics which were given earlier. Project should be in the soft copy.
2. Prepare for the Test of last 2 units of Macro-Economics. (Government Budget & Balance of payments)

BIOLOGY

1. DRAW ALL THE DIAGRAMS OF MOLECULAR GENETICS AND EXPLAIN IN BRIEF.
2. SOLVE ALL THE SAMPLE PAPERS ISSUED BY THE CBSE.
3. SELECT A TOPIC FOR INVESTIGATORY PROJECT,IT SHOULD BE BASED ON CURRENT BIOSOCIAL SITUATION,MOLECULAR THERAPR—GENE THERAPY,PANDEMICS PAST AND PRESNT,SARS VIRUS HISTORY ETC,IT MUST INCLUDE DATA AND ITS INTERPRETATION OR TOPIC OF YOUR CHOICE.

COMPLETE PRACTICALS THROUGH OLABS SIMULATIONS

HISTORY

Q. 1 Make the important notes of all taught chapters 1 to 13 of History textbook .

Q.2 Write any 5 very short answer questions, 5 short answer questions,and 5 MCQ from each taught chapter of history textbook p

Q.3 Download any two sample papers from CBSE website and solved it's in your notebook.

Q.4 Identified and locate places in the map of India (map work attached in google classrom).

Q.5 Make PPT and Project file on given topics.

Geography

1. Construct a class XII Geography paper for board as per CBSE norms and latest split up syllabus with marking scheme.
2. Complete following topics in practical record book-

Chapter: 1 Data- Its Sources and Compilation
  - Sources of Data
  - Tabulation and Classification of Data
  - Data Compilation and Presentation
  - Processing of Data, Grouping of Data, Process of Classification

Chapter: 2 Data Processing
  - Measures of Central Tendency- Mean, Median, Mode
  - Measures of Dispersion- Range, Standard Deviation and Coefficient of Variation
  - Measures of Relationship- Spearman's Rank Correlation

Chapter: 3 Graphical Representations of Data
  - General Rules for Drawing Graphs, Diagrams and Maps
  - Construction of Diagrams- Line Graph, Polygraph, Bar Diagram(Simple, Line & Bar, Multiple, Compound), Pie Diagram, Flow Maps/Chart
  - Thematic Maps- Dot maps, Choropleth maps, Isopleth maps

Chapter: 4 Use of Computer in Data Processing and Mapping
  - Advantages of a computer over manual methods
  - Hardware Configuration and Software
  - MS Excel or Spreadsheet
  - Important Functions for Entering and Storing Data
  - Mapping Software and their functions

MATHEMATICS

SECTION A

Questions 1 to 4 carry 1 mark each.

1. If R={(x,y):x+2y= 8} is a relation on N, then write the range of R.

2. For the set A = {1,2,3} ,define a relation R on the set A as follows R= {(1,1),(2,2),(3,3),(1,3)} write the ordered pairs to be added to R to make the smallest equivalence relation.

3. If A is a matrix of order m x n and B is a matrix such that AB^T and B^TA are both defined , then what will be the order of matrix B.

4. Find the principal value of the following

$$Sin^{-1}\frac{1}{2} - 2\ sin^{-1}(\frac{1}{\sqrt{2}})$$

5. Let f: R→R be defined by $f(x) = \frac{3x+2}{5x-3}$ then

a) $F^{-1}(x)= x$ b) $f^{-1}(x) = -f(x)$ c) $fof(x) = -x$ d) $f^{-1}(x) = \frac{1}{19} f(x)$

6.if A and B be symmetric matrices of the same order ,then show that AB-BA is a skew symmetric matrix.

7.   Evaluate 1) $tan^{-1}\{sin(\frac{-\pi}{2})$ 2) $tan^{-1}(\ cos\frac{3\pi}{2})$

8.   Write in simplest form $tan^{-1}\{x + \sqrt{1 + x^2}\}$, x∈ R

9.   Find the value of K ,if area of triangle is 4 square units and whose vertices are (-2,0) , (0,4), (0,k).

10.   If A is square matrix of order 3 and |A| = 8, then find the value of | adjA|.

11.   Determine the values of x from the following $\begin{vmatrix} 6-x & 4 \\ 3-x & 1 \end{vmatrix} = 0$

12.   If $f(x) = x\ sin\frac{1}{x}$, x≠ 0, find the value of f(x) at x=0.

13. $4cos^{-1}x+sin^{-1}x = \pi$,then find the value of x.

14. $[x \quad 1]\begin{bmatrix} 1 & 0 \\ -2 & 0 \end{bmatrix} = 0$, find x.

15.   If det A = 20 , find det(A⁻¹)

16.   If

$$f(x)= \begin{bmatrix} \frac{1-cos2kx}{x^2} & , x \neq 0 \\ \\ 8 & , x = 0 \end{bmatrix}$$ is continuous at x = 0 then write the value of k .

17.   Differentiate x^{sinx} with respect to x.

18.   Find the points on the curve x²+y²-2x-3 =0 at which the tangents are parallel to
1) x axis   2) y axis

19.   find the point on the curve y= 2x2-x+1 at which the tangent parallel to the line y= 3x+4 ?

20: for any 2X2 matrix , if $A(adjA) = \begin{bmatrix} 20 & 0 \\ 0 & 20 \end{bmatrix}$, then find the value of |3A|.

SECTION **B**

21. find equation of tangent to the curve x = sin3t , y= cos2t at t = $\frac{\pi}{4}$.

22. if y = $e^{tan^{-1}x}$, then prove that (1+x²) y₂ + (2x-1)y₁ =0

23. find the matrix A such that $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ A = $\begin{bmatrix} 3 & 3 & 5 \\ 1 & 0 & 1 \end{bmatrix}$

24. find the intervals in which the following function are increasing or decreasing f(x) = [x(x-2)]²

25. differentiate the following with respect to x:

tan⁻¹($\frac{a+x}{1-ax}$)

26.find the intervals in which the following functions are increasing or decreasing

F(x)= log(2+x) - $\frac{2x}{2+x}$

SECTION C

27. find the volume of the largest cylinder that can be inscribed in a sphers of radius r cm.

28. check whether the relation R on R defined by R={(a,b) : a≤ b³} is reflexive ,symmetric or transitive.   .

Q29:- show that the function f : R- {3] → R-{1} given by f(x) = $\frac{x-2}{x-3}$ is a bijection.find the inverse of F .

Q30:- solve for x :

tan⁻¹2x + tan⁻¹ 3x = $\frac{\pi}{4}$

Q31:- if $\begin{bmatrix} 1 & -1 & x \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & -1 \\ 2 & 1 & 3 \\ 1 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$ = 0 , find x

Q32:- the monthly income of Aryan and babbar are in the ratio 3:4 and their monthly expenditure are in the ratio 5 : 7 .if each saves Rs 15000 per month , find their monthly incomes using matrix method .

SECTION D

Q33:- find the equtions of the tangents to the curve 3x²-y² =8 which passes through the point (4/3,0)

Q34:- if x$\sqrt{1+y}$ + y$\sqrt{1+x}$ = 0 , prove that (1+x)² $\frac{dy}{dx}$ +1= 0.

Q35:-a large window has the shape of a rectangle surmounted by an equilateral triangle . if the perimeter of the window is 12 metres find the dimensions of the rectangle that will produce the largest area of the window.

Q 36:- solve the following linear equations by matrix method

$$x+y+z =3$$
$$2x-y+z =-1$$
$$2x +y - 3z = -9$$

ACCOUNTANCY	• Revise syllabus for Revision Test.
	• Solve questions related to Forfeiture of shares.
	• Learn formula for Ratio analysis
BUSINESS STUDIES	• Revise syllabus for Revision Test.
	• Solve case studies related to consumer protection.

Computer Science

Q1. Write all lab assignments in lab book.

Q2. Solve sample question paper.

Q3. What is the difference between input() and raw_input()?

Q 4.What are the two ways of output using print()?

Q.5. Why does the expression $2 + 3*4$ result in the value 14 and not the value 24?

Q.6. How many times will Python execute the code inside the following while loop? You should answer the question without using the interpreter! Justify your answers.

```
i = 0
 while i < 0 and i > 2 :
 print "Hello ..."
 i = i+1
```

Q.7. How many times will Python execute the code inside the following while loop?

```
i = 1
 while i < 10000 and i > 0 and 1:
 print " Hello ..."
 i = 2 * i
```

Q.8. Convert the following for loop into while loop, for i in range (1,100):

```
if i % 4 == 2 :
 print i, "mod", 4 , "= 2"
```
Q.9. Convert the following for loop into while loop.

```
for i in range(10):
 for j in range(i):
 print '$',
 print"
```
Q.10. Rewrite the following for loop into while loop: [CBSE Text Book]

```
for a in range(25,500,25):
 print a
```
Q.11. Rewrite the following while loop into for loop:

```
i = 10
 while i<250:
 print i
 i = i+50
```
Q.12. Write for statement to print the series 105,98,91,… .7

Q. 13. How many times is the following loop executed?

```
for a in range(100,10,-10):
print a
```


Q.14. How many times is the following loop executed? [CBSE Text Book]

```
i = 100
 while (i<=200):
 print i
 i + =20
```


Q.15. State whether the statement is True or False? No matter the underlying data type if values are equal returns true,

```
char ch1, ch2;
 if (ch1==ch2)
 print "Equal"
```

Q.16. What are the logical operators of Python?
Q.17.What is the difference between '/' and '//' ?

Q.18. What are default arguments?
Q19. .What are keyword arguments?

Q.20. What does "slice" do?
Q.21. What is the difference between a tuple and a list?

Q.22.In a database BANK, there are two tables with a sample data given below
TABLE EMPLOYEE

ENo	EName	Salary	Zone	Age	Grade	Dept
1	Mona	70000	East	40	A	10
2	Muktar	71000	West	45	B	20
3	Nalini	60000	East	26	A	10
4	Sanaj	65000	South	36	A	20
5	Surya	58000	North	30	B	30

TABLE DEPARTMENT

Dept	DName	HOD
10	Computers	1
20	Economics	2
30	English	5

Note:
– EName refers to Employee Name
– DName refers to Department Name
– Dept refers to Department Code
– HOD refers to Employee number (ENO) of the Head of the Department
Write SQL queries for the following:

(i) To display ENo, EName, Salary and corresponding DName of all the employees whose age is between 25 and 35 (both values inclusive).
(ii) To display DName and corresponding EName from the tables DEPARTMENT and EMPLOYEE, (Hint' HOD of the DEPARTMENT table

should be matched with ENo of the EMPLOYEE table for getting the desired result).
(iii) To display EName, Salary, Zone and Income Tax
(Note Income Tax to be calculated as 30% of salary) of all the employees with appropriate column headings. (HOTS; Delhi 2013)

Q.23.
TABLE ITEM

Item_Code	Item_Name	Price
111	Refrigerator	90000
222	Television	75000
333	Computer	42000
444	Washing Machine	27000

TABLE BRAND

Item_Code	Brand_Name
111	LG
222	Sony
333	HCL
444	IFB

Write MySQL queries for the following
(i) To display ltem_Code, ltem_Name and corresponding Brand_Name of those items, whose Price is between 20000 and 40000 (both values included).
(ii) To display ltem_Code, Price and Brand_Name of the item which has ltem_Name as "Computer".
(iii) To increase the prices of all the items by 10%.

Q.24.
TABLE ITEM

ID	Item_Name	Company	Price
1001	Moisturiser	rXYZ	0
1002	Sanitizer	rLAC	35
1003	Bath Soap	rCOP	25
1004	Shampoo	rTAP	95
1005	Lrens Solution	rCOP	350

TABLE CUSTOMER

C_ID	CustomerName	City	ID
01	Samridhh Ltd.	New Delhi	1002
05	Big Line Inc	Mumbai	1005
12	97.8	New Delhi	1001
15	Tom N Jerry	Bengaluru	1003

Write MySQL queries for the following:

(i) To display the details of Item, whose Price is in the range of 40 and 95 (both values included).

(ii) To display CustomerName, City from table CUSTOMER and ItemName and Price from table ITEM, with their corresponding matching ID.

(iii) To increase the prices of all the Items by 50%. (Delhi 2011)

Q.25.
Create table CUSTOMER as per following Table Instance Chart

Column_Name	Type	Length
Cust_ID	Integer	
Cust_Name	Varchar	30
Cust_Add	Varchar	20
Pincode	Integer	
Cust_Phone	Varchar	10

Q.26.
Create table STUDENT as per following Table Instance Chart

Column_Name	DataType	Length
Roll_No	Integer	
Name	Varchar	30
Address	Varchar	20
Pincode	Integer	
Phone	Varchar	10

Q.27.
Write an SQL query to create a table STUDENT with the following structure

Field	Type
Roll_No	Integer
Names	Varchar(20)
Stream	Varchar(10)
Date_of_Admission	Date

Q.28.
Write an SQL query to create a table CUSTOMER with the following structure

Field	Type
Cust_ID	Integer
Cust_Name	Varchar(20)
Address	Varchar(20)
Balance	Decimal

Q.29.
Write an SQL query to create a table TEACHER with the following structure

Field	Type
Teacher_ID	Integer
Teacher_Name	Varchar(20)
Qualification	Varchar(20)
Date_of_Appointment	Date

Informatics Practices

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"Submit copy of solution on very first day after reopening of Vidyalaya "
"Wish you very happy holidays"
"Stay Safe"