Delhi Public School, Gandhinagar

Holiday Assignment

Academic Session 2020-21

CLASS: XII-Commerce

SUB: ECONOMICS

Student has to select a topic for the Board Project.

The topic should be from the syllabus or topic related to our economy.

Collect all the information of the topic.

Two students can share one topic, not more than that.

SUB: ACCOUNTANCY

Student has to work on Comprehensive Project as discussed.

Comprehensive Project includes Story, Journal, Ledger – Posting, Trial Balance, Balance Sheet and Ratios.

Each student will have to take a separate product for Comprehensive Project.

SUB: BUSINESS STUDIES

Student has to work on their project work. Discussion on the same is being done in OVC

Before the summer vacation, each student has to select a topic from the following:

1. Principles of Fayol/ Techniques of Taylor
2. Business Environment
3. Stock Exchange
4. Marketing Management.

SUB: ENGLISH CORE

1. Paste pictures of four articles from the newspaper (any date) and then summarize them. Do note-making also for those four articles.
2. Read all the chapters of both the text books thoroughly.
3. Revise the four lessons and two poems done in OVC class.
4. Make a 'BOOK JACKET' for any novel. Write the 'blurb' as well.

SUB: PHYSICAL EDUCATION

Student has to make a PowerPoint Presentation on any one of the following option of Games given below :

Games options : Basketball/Football/Volleyball/Cricket

The PPT should include the following :

1. Rules of the Game
2. Terminologies of the Game
3. Diagram with labels of field and equipment
4. Skills of the Game

SUB: COMPUTER SCIENCE

Write the following Program in Python to be included in Practical file :

1. Write a program in python to check a number whether it is prime or not.
2. Write a program to check a number whether it is palindrome or not.
3. Write a program to calculate compound interest.
4. Write a program to input a character and to print whether a given character is an alphabet, digit or any other character.
5. Write a program to calculate the factorial of an integer using recursion.
6. Write a program to print fibonacci series using recursion.
7. Write a recursive python program to test if a string is palindrome or not.
8. Write a program for binary search.
9. Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
10. Write a program to display ASCII code of a character and vice versa.

SUB: MATHEMATICS

Choose the correct option (Q.1 to Q.10).

1. If $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$, then x equals to

(a) 3 (b) ± 3 (c) ± 6 (d) 6

2. If A is a square matrix such that $A^2 = A$, then $(I + A)^3 - 7A$ is equal to

(a) A (b) $I - A$ (c) I (d) $3A$

3. If A is a matrix of order $m \times n$ and B is a matrix such that AB' and $B'A$ are both defined, then order of matrix B is

(a) $m \times m$ (b) $n \times n$ (c) $n \times m$ (d) $m \times n$

4. If $A = \begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$, then for what value of α, A is an identity matrix ?

(a) $0°$ (b) $90°$ (c) $45°$ (d) $30°$

5. If a matrix has 18 elements, how many possible orders it can have?

(a) 4 (b) 6 (c) 8 (d) 9

6. If $\Delta = \begin{vmatrix} 5 & 3 & 8 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{vmatrix}$, then the minor of the element a_{23} is

(a) 7 (b) 0 (c) 6 (d) 5

7. If A is a skew symmetric matrix of order 3×3, then the value of $|A|$ is

(a) -1 (b) 0 (c) 1 (d) 2

8. If A and B are square matrices of the same order 3, such that $|A| = 2$ and $AB = 2I$, then $|B|$ =

(a) 2 (b) 9 (c) 8 (d) 4

9. The number of possible matrices of order 2×2 with each entry 0, 1 or 2 is

(a) 9 (b) 27 (c) 81 (d) 16

10. If the points $(0, 0)$, $(\lambda, 1)$ and $(8, 1)$ are collinear, then λ =

(a) 2 (b) -8 (c) 8 (d) 0

Fill in the blanks (Q.11 to Q.15).

11. Let A be a matrix of order 3×3 and $k = 3$, then $|kA|$ =_____.

12. If A is a symmetric matrix, then A^3 is a _____ matrix.

13. If $\begin{bmatrix} 15 & x+y \\ 2 & y \end{bmatrix} = \begin{bmatrix} 15 & 8 \\ x-y & 3 \end{bmatrix}$, then the value of x is _____.

14. If $\begin{vmatrix} x & \sin\theta & \cos\theta \\ -\sin\theta & -x & 1 \\ \cos\theta & 1 & x \end{vmatrix} = 8$, then the value of x is_____.

15. If $A = \begin{bmatrix} 2 & 2 \\ -3 & 1 \\ 4 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & 2 \\ 1 & 3 \\ 0 & 4 \end{bmatrix}$, such that $A + B + C$ is a zero matrix, then $C =$ _____.

Answer the following questions (Q.16 to Q.20).

16. Evaluate : $\begin{vmatrix} \cos 15° & \sin 15° \\ \sin 75° & \cos 75° \end{vmatrix}$

17. Find the value of x, if $\begin{bmatrix} 3x+y & -y \\ 2y-x & 3 \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ -5 & 3 \end{bmatrix}$

18. Write the value of the determinant: $\begin{vmatrix} a-b & b-c & c-a \\ b-c & c-a & a-b \\ c-a & a-b & b-c \end{vmatrix}$

19. If $\begin{bmatrix} a+b & 2 \\ 5 & b \end{bmatrix} = \begin{bmatrix} 6 & 5 \\ 2 & 2 \end{bmatrix}'$, then find a.

20. Find the minor of the element of second row and the third column (a_{23}) in the following determinant.

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$$

21. Write A^{-1} for $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$.

22. For what value of x, the matrix $\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$ is singular?

23. Find the product matrix: $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} [2 \quad 3 \quad 4]$.

24. For a 2×2 matrix A = $[a_{ij}]$, whose elements are given by $a_{ij} = \frac{(i+2j)^2}{4}$, write the value of a_{21}

25. If $3A - B = \begin{bmatrix} 5 & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$, then find the matrix A.

26. If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$, then write the value of x.

27. For what value of x, is the matrix A = $\begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$ a skew-symmetric matrix?

28. If $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$, then for any natural number n, find the value of Det(A^n).

29. If matrix A = $\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$ and $A^2 = kA$, then find the value of k.

30. Write the value of the determinant $\begin{vmatrix} p & p+1 \\ p-1 & p \end{vmatrix}$

31. Use elementary column operation $C_2 \rightarrow C_2 - 2C_1$ in the matrix equation

$$\begin{pmatrix} 4 & 2 \\ 3 & 3 \end{pmatrix} = \begin{pmatrix} 1 & 2 \\ 0 & 3 \end{pmatrix} \begin{pmatrix} 2 & 0 \\ 1 & 1 \end{pmatrix}$$

32. What positive value of x makes the following pair of determinants equal?

$$\begin{vmatrix} 2x & 3 \\ 5 & x \end{vmatrix}, \begin{vmatrix} 16 & 3 \\ 5 & 2 \end{vmatrix}$$

33. If area of triangle is 35 sq. units with vertices $(2, -6)$, $(5, 4)$ and $(k, 4)$, then find k.

34. Find the equation of a line joining the points (1, 2) and (3, 6), using determinants.

35. Show that the points $A(a, b+c)$, $B(b, c+a)$ and $C(c, a+b)$ are collinear.

36. If A = $\begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$, then find the value of $A^2 - 3A + 2I$.

37. For the matrices A and B, verify that $(AB)' = B'A'$, if A = $\begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}$ and B = $[-1 \quad 2 \quad 1]$.

38. Find the inverse of the following matrix using elementary row operations:

A = $\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$

39. Using elementary column transformations, find the inverse of the matrix $\begin{bmatrix} 1 & 3 & -2 \\ -3 & 0 & -1 \\ 2 & 1 & 0 \end{bmatrix}$.

40. A total amount of ₹7,000 is deposited in three different savings bank accounts with annual interest rates of 5%, 8% and $8\frac{1}{2}$ % respectively. The total annual interest from these three accounts is ₹550. Equal amounts have been deposited in the 5% and 8% savings accounts. Find the amount deposited in each of the three accounts, with the help of matrices.