Venkateshwar International School

Sector-18, Dwarka, New Delhi-78

Summer Vacations Holiday Homework (2019-2020)

Class – XII

HUMANITIES STREAM

Happy Holidays!

Dear Parents

Holidays are about experiences and people,
and tuning into what you feel like doing at that moment.
It's time to Relax, Reflect and Recharge!

Summer Vacation is a welcome break. A break from studies and explanations. It is about learning new things and engaging children in various scholastics and co-scholastic areas. Keeping this in mind, our teachers have designed and framed interesting project work / assignments to be completed during Summer Vacations to encourage in depth learning, clearing concepts and preparing ground for improved academic output. As parents, kindly motivate and lend support to your children and ensure that they complete the given work well-in-time and to the best of their ability. Your encouragement can actually make a huge difference to the ultimate learning outcome of their projects.

Unit Test-2 for Class XII and Unit Test-1 for Class XI will commence from 24 June, 2019. The date-sheet and syllabus for the same has already been given and is also available on the Shaurya Dashboard.

We at Sri VIS wish you a very Happy 'World Environment Day ', to be celebrated on June 05, 2019. Let's pledge to save the environment and plant more trees!

WISH YOU VERY ENJOYABLE HOLIDAYS!

ENGLISH

I. Writing Skills

1. Due to the invasion of social media, the young generation has become overtly self obsessed. Write an article in not more than 150-200 words on “Millennials are stuck with narcissist label”. You are Anubhav/ Anubha, a social activist.
2. “Indian Democracy and the role of urban youth”. Write a speech to be delivered on the occasion of Student Council Meeting, addressing the newly inducted members to the Council. You are the Head Boy/ Girl of Amrita Vidyalaya, Chennai.(150-200 words.)
3. Draft a poster on the theme, “Choking Cities-A Real Threat” on behalf of SOS Eco Club, Birla Vidya Niketan, Pushp Vhar, Delhi.
4. Amrita Vidyalaya, Chennai had organized a seminar on “Financial Literacy- an essential skill for the youngsters” in their school. The Keynote Speaker on the day was Ex-RBI Governor, Mr. Raghuram Rajan. Write a detailed report of the event for the newspaper. Include all the important happenings of the event. (150-200 words)

II. Read : Journey To the End of the Earth.(Vistas) . Research about contemporary Antarctica Missions undertaken by Indian Scientists. Record the findings (of any ONE)briefly. Paste a few relevant pictures of the mission as well.

III. Read any two books from the list given below. Prepare critical analysis on them for Speaking Activity in class.

a) The Hate you give by Angie Thomas
b) Nineteen Eighty - four by George Orwell
c) The White Tiger by Aravind Adiga
d) Pashmina by Nidhi Chanani
e) Untouchable by Mulk Raj Anand

IV. Revise the syllabus of UT 2. Read all the Literature Texts included in it thoroughly.

NOTE: All written work to be attempted in English Notebooks only.

MATHEMATICS

Complete worksheets attached of the following chapters :

Ch-1 Relations & Functions
Ch-2 Inverse Trigonometric Functions
Ch-3 Matrices
Ch-4 Determinants from NCERT Exemplar.

Do activity 1-6 in the activity file. (Activity sheets distributed in class)

Relation and Function

One/two Mark Questions

Q1. If $f(x) = 2x-3$. Write $f^{-1}(5)$

Q2. Check whether a relation $R = \{(a, b): a< b^3, a, b \in N\}$ is transitive or not. Justify

Q3. Is the function $f : N \to N$ *given by* $f(1) = f(2) = 1$ *and* $f(x) = x - 1$, *for every* $x > 2$ one-one? Justify

Q4. Check whether the relation R on the set $A = \{1, 2, 3\}$ *given by* $R = \{(1, 2), (2, 1)\}$ is transitive or not. Give reasons

Q5. *If* $f : R \to R$ *is given by* $f(x) = (3 - x^3)^{\frac{1}{3}}$, *then find* $fof(x)$.

Q6. If $f(x) = 2x+5$ and $g(x) = x - 1$. Find fog(2)

Q7. If $f(x) = |x|$ and $g(x) = [x-1]$ where [.] denotes greatest integer function. Find fog (-2.5)

Q8. Write the number of one – one functions from {1,2,3} to itself.

Q9. Let * be binary operation defined on N as a*b = H.C.F(a,b). Find 16* 20

Q10. Let R be relation defined on R as (a, b) iff $1+ab > 0$. Is R reflexive ?

Q11. R = {(a,b) : a+b = 6, a,b **Є {1,2,3,4}}. Write range of R.**

Q12. Write the domain of $f(x) = \frac{1}{x^2-4}$.

Q13. Write the range of $f(x) = \frac{x-1}{|x-1|}$.

Four/Six marks questions

Q14. Let R be relation defined on N X N as R = {(a,b)R(c,d) iff a+d= b+c}. Show that R is an equivalence relation. Also write equivalence class of (2, 5)

Q15. Let R be relation defined on R as R = {(a,b): |a-b| is divisible by 5}. Show that R is an equivalence relation.

Q16. Show that f: R→R defined as $f(x) = 7-2x^3$ is bijective.

Q17. Show that f: R→R defined as $f(x) = \frac{3x+5}{2}$ is invertible. Hence find f^{-1}.

Q18. Show that $f(1/x) = -f(x)$, where $f(x) = x^2 – x^{-2}$.

Q19. Let f: N→N be defined as $f(x) = \begin{cases} x + 1, & x \text{ is odd} \\ x – 1, & x \text{ is even} \end{cases}$. Show that f is onto. Hence find f^{-1} .

Q20. Let A = R – {3} and B = R – {1}. Let f: A → B be defined as $f(x) = \frac{x-2}{x-3}$. Define g: B → A such that fog = gof = I

Q21. Show that f: $R_* \to [-5,\infty)$ defined as $f(x) = 9x^2 + 6x – 5$ is invertible. Hence find f^{-1}.
(R_* is set of non negative real numbers)

Q22. If the function f : R→R be defined as f(x) = 2x-3 and g : R→R as g(x) = x^3+5 then Find the value of $(fog)^{-1}(x)$ CBSE 2015

Q14. Let R be set of real numbers and f and g be functions defined from R to R as f(x) = 3x+2 and g(x) = $\frac{x}{x^2+1}$, then find

i) fog ii) gof iii) gog

Q31. Let R be relation defined on A XA (A= {1,2,3-----,9} as R = {(a,b)R(c,d) iff ad(b+c)= bc(a+d}. Show that R is an equivalence relation.

Inverse trigonometric function

One Mark Questions

Q1. Write the principle value of following.

a) $\cos^{-1}\cos\frac{7\pi}{6}$ b) $\sin^{-1}\sin\frac{3\pi}{5}$ c) $\cos^{-1}(\frac{-1}{2})$ d) $\tan^{-1}(-1)$

e) $\sin^{-1}\tan\frac{3\pi}{4}$ f) $\cos^{-1}\cos\frac{-\pi}{4}$ g) $\sec^2(\tan^{-1}2)$ h) $\cot^{-1}\cot\frac{-\pi}{4}$

Q2. If $\sin\{\sin^{-1}\frac{1}{5} + \cos^{-1}x\} = 1$. Find x

Q3. Evaluate : a) $\sin[\frac{\pi}{3} - \sin^{-1}(\frac{-1}{2})]$ b) $\cos^{-1}\cos(\frac{2\pi}{3}) + \sin^{-1}\sin(\frac{2\pi}{3})$

Two Mark Questions

Q4. Draw the graph of $\sin^{-1}x$ and write range of $\sin^{-1}x$ other than principle branch.

Q5. Simplify the following expressions:

a) $\tan^{-1}\frac{\sqrt{1-\cos x}}{\sqrt{1+\cos x}}$ b)* $\cot^{-1}\frac{ab+1}{a-b} + \cot^{-1}\frac{bc+1}{b-c} + \cot^{-1}\frac{ac+1}{c-a}$ $a > b > c > 0$

c) $\tan^{-1}\frac{x}{y} - \tan^{-1}\frac{x-y}{x+y}$ d) $\tan^{-1}\frac{x-1}{x+1} + \tan^{-1}\frac{x+1}{x-1}$

e) $\tan^{-1}\frac{x}{\sqrt{a^2-x^2}}$ f) $\cos\left(2\tan^{-1}\frac{\sqrt{1-x}}{\sqrt{1+x}}\right)$

g) $\sin^{-1}\left(\frac{x}{\sqrt{9+x^2}}\right)$ h) $\text{cosec}^{-1}\frac{\sqrt{a^2+x^2}}{x}$

Four marks questions

Q6. Prove the following:

a) $\cos\left(\tan^{-1}\frac{-4}{3} + \sin^{-1}\frac{12}{13}\right) = \frac{63}{65}$ b) $4\tan^{-1}\frac{1}{5} - \tan^{-1}\frac{1}{70} + \tan^{-1}\frac{1}{99} = \frac{\pi}{4}$

c) $\tan^{-1}1 + \tan^{-1}2 + \tan^{-1}3 = 2(\cot^{-1}1 + \cot^{-1}2 + \cot^{-1}3)$

d) $\sin^{-1}\frac{4}{5} + \sin^{-1}\frac{5}{13} + \sin^{-1}\frac{16}{65} = \frac{\pi}{2}$ e) $\tan^{-1}\frac{1}{4} + \tan^{-1}\frac{2}{9} = \frac{1}{2}\cos^{-1}\frac{3}{5}$

f) $\sin^{-1}\frac{4}{5} + 2\tan^{-1}\frac{1}{3} = \frac{\pi}{2}$ g) $\sin^{-1}\frac{12}{13} + \cos^{-1}\frac{4}{5} + \tan^{-1}\frac{63}{16} = \pi$

Q7. Draw the graph of g(x) = $\text{cosec}^{-1}x$.

Q8. Simplify the following inverse trigonometric expressions:

a) $\cot^{-1}(\sqrt{1+x^2}+x)$

b) $\tan^{-1}\frac{cosx}{1+sinx}$

c) $\tan\left(\frac{\pi}{4}+\frac{1}{2}\cos^{-1}\frac{a}{b}\right) + \tan\left(\frac{\pi}{4}-\frac{1}{2}\cos^{-1}\frac{a}{b}\right)$ CBSE 2017

d) $\sin^{-1}\left(\frac{3x-4\sqrt{1-x^2}}{5}\right)$

e) $\tan^{-1}\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}$

Q9. Solve for x :

a) $\tan(\cos^{-1}x) = \sin(\cot^{-1}\frac{1}{2})$

b) $\tan^{-1}\frac{x-1}{x-2} + \tan^{-1}\frac{x+1}{x+2} = \frac{\pi}{4}$

c) $\cos^{-1}\frac{x^2-1}{x^2+1} + \tan^{-1}\frac{2x}{x^2-1} = \frac{2\pi}{3}$

d) $\tan^{-1}\frac{1+x}{1-x} = \frac{\pi}{4} + \tan^{-1}x$

e) $\sin^{-1}(1-x) - 2\sin^{-1}x = \frac{\pi}{2}$

f) $\tan^{-1}(x+1) + \tan^{-1}(x-1) = \tan^{-1}\frac{8}{31}$

g) $\text{sincot}^{-1}(x+1) = \cos(\tan^{-1}x)$ CBSE 2015

h) $(\tan^{-1}x)^2 + (\cot^{-1}x)^2 = \frac{5\pi^2}{8}$ CBSE2015

Q10. Show that $\frac{1}{2}\tan^{-1}x = \cos^{-1}\left(\sqrt{\frac{\sqrt{1+x^2}+1}{2\sqrt{1+x^2}}}\right)$

Q11. Show that $4\tan^{-1}x = \tan^{-1}\frac{4x(1-x^2)}{1-6x^2+x^4}$

Q12. Show that $2\tan^{-1}\left(\sqrt{\frac{x-y}{x+y}}\tan\frac{\theta}{2}\right) = \cos^{-1}\left(\frac{y+x\cos\theta}{x+y\cos\theta}\right)$

Q13. If $\cos^{-1}\frac{x}{a} + \cos^{-1}\frac{y}{b} = z$. Show that $\frac{x^2}{a^2} - \frac{2xy}{ab}\cos z + \frac{y^2}{b^2} = \sin^2 z$.

Q14. If $y = \cot^{-1}\sqrt{cosx} - \tan^{-1}\sqrt{cosx}$. Prove that $\sin y = \tan^2\frac{x}{2}$

Q15. Find the greatest and least values of $(\sin^{-1}x)^2 + (\cos^{-1}x)^2$ OLYMPIAD 2015

CHAPTER 3
Matrices
One Mark Questions

Q1. If a matrix has 12 elements, write all possible orders.

Q2. What is the number of all possible matrices of order 2 X 3 with each entry -1 or 1?

Q3. If A = [-1 2 -5] and B^T = [2 -1 7]. Find AB

Q4. If A = $\begin{bmatrix} cosx & sinx \\ -sinx & cosx \end{bmatrix}$, Find *x* so that $A^2 = I$

Q5. If A = $\begin{bmatrix} 0 & 0 \\ 2 & 0 \end{bmatrix}$. Find A^{10}.

Q6. If $\begin{bmatrix} 3 & x-1 \\ 12x+3 & x+2 \end{bmatrix}$ is symmetric. Find x

Two Marks Questions

Q7. A = $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$, B = $\begin{bmatrix} -2 & 1 \\ 3 & 2 \end{bmatrix}$ Find X such that 3A - 2B + X = 0

Q8. Find x and y so that $\begin{bmatrix} 2x+1 & y^2+2 \\ 5 & y^2-5y \end{bmatrix} = \begin{bmatrix} x+3 & 3y \\ 5 & -6 \end{bmatrix}$

Q9. Construct a 3 X 2 matrix A in which $a_{ij} = |\underline{i - 3j}|$

Q10. If A = $\begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{pmatrix}$, 2A - B = $\begin{pmatrix} -1 & 5 & 3 \\ 5 & 6 & 0 \end{pmatrix}$. Find B.

Q11. If $[\ 2x \quad 3\ ] \begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix} \begin{bmatrix} x \\ 3 \end{bmatrix} = 0$. Find *x*.

Q12. **If A =** $\begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix}$. Prove that (A – 2I)(A – 3 I) = 0

Q13.If $\begin{bmatrix} 0 & -5 & a \\ b & c & 3 \\ 2 & d & 0 \end{bmatrix}$ is skew symmetric, find a, b, c and d.

Q14. If $\begin{bmatrix} 0 & 2b & -2 \\ 3 & 1 & 3 \\ 3a & 3 & -1 \end{bmatrix}$ is symmetric, find the value of $9a^2 - 4b^2$

Four marks questions

Q15**. If A =** $\begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$. Find x and y so that $A^2 - x\,A + y\,I = 0$

Q16**. If A =** $\begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$ and $f(x) = x^2 - 4x + 7$, show that f(A) = 0 and use it to find A^3.

Q17. If A = $\begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{bmatrix}$, B = $\begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{bmatrix}$. Verify that (AB)' = B'A' .

Q18. Solve for x and y where $\begin{bmatrix} x & y \\ 3y & x \end{bmatrix} \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 3 \\ 5 \end{bmatrix}$

Q19. Find x, If $[1 \quad 2 \quad 1] \begin{bmatrix} 1 & 2 & 0 \\ 2 & 0 & 1 \\ 1 & 0 & 2 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ x \end{bmatrix} = 0$

Q20. Express the following matrices as sum of symmetric and skew symmetric matrices.

i) $\begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$ ii) $\begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$

Q21. Prove by principle of mathematical induction that $A^n = \begin{bmatrix} a^n & na^{n-1} \\ 0 & a^n \end{bmatrix}$ where A = $\begin{bmatrix} a & 1 \\ 0 & a \end{bmatrix}$

Q22. Find the inverse of following by elementary transformations

i) $\begin{bmatrix} 3 & -1 \\ -4 & 2 \end{bmatrix}$ ii) $\begin{bmatrix} 2 & -2 \\ 4 & 3 \end{bmatrix}$

Q23. Find A such that $A\begin{bmatrix} 5 & -7 \\ -2 & 3 \end{bmatrix} = \begin{bmatrix} -16 & -6 \\ 7 & 1 \end{bmatrix}$

Q24. If $\begin{bmatrix} 2 & 1 \\ -3 & 2 \end{bmatrix}A + \begin{bmatrix} -5 & 0 \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} 3 & -9 \\ 7 & 1 \end{bmatrix}$. Find matrix A.

Q25. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$, then show that $A^3 - 23A - 40I = 0$

Q26. $A = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$. Find x and y so that $A^2 + xI = yA$. Hence find A^{-1}.

Q27. If $A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$ find $A^2 - 5A + 4I$ and hence find a matrix X such that $A^2 - 5A + 4I + X = O$

Six marks questions

Q28. Using elementary transformations find the inverse of following matrices:

a) $\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 2 & 1 & 1 \end{bmatrix}$ b) $\begin{bmatrix} -1 & 2 & 3 \\ 2 & 1 & 3 \\ 3 & -1 & 2 \end{bmatrix}$ c) $\begin{bmatrix} 8 & 4 & 3 \\ 2 & 1 & 1 \\ 1 & 2 & 2 \end{bmatrix}$

Q29. For $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$. Show that $A^3 - 6A^2 + 5A + 11I = 0$. Hence find A^{-1}.

CHAPTER 4
Determinants

One Mark Questions

Q1. For what value of x : $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & x \\ 1 & 1 & 1 \end{bmatrix}$ is singular.

Q2. If A is a square matrix of order 3 and |A| = 8, Find |adjA|

Q3. If A(adjA) = 10**I**. Find |adjA| where A is a 3x3 matrix.

Q4. If |k A| = 108, |A| = 4 and A is 3X3 matrix. Find k.

Q5. Given that the following system has non trivial solutions
x + 2y + 3z = 0, 3x + y + λz = 0, x – y + z = 0. Find the value of λ

Q6. If $\begin{vmatrix} 3 & m \\ 4 & 5 \end{vmatrix}$ = 3. Find *m*

Q7. If $\Delta = \begin{vmatrix} cos\theta & sin\theta & 1 \\ -sin\theta & cos\theta & 1 \\ 0 & 0 & 2 \end{vmatrix}$ Find M_{33}.

Two Marks Questions

Q8. Using determinants find λ so that (-1, -1), (5, λ), (8,11) lie on the same line.

Q9. Without expanding evaluate :

i) $\begin{vmatrix} 1 & a & a^2-bc \\ 1 & b & b^2-ac \\ 1 & c & c^2-ab \end{vmatrix}$ ii) $\begin{vmatrix} \frac{1}{a} & a & bc \\ \frac{1}{b} & b & ac \\ \frac{1}{c} & c & ab \end{vmatrix}$ iii) $\begin{vmatrix} 41 & 1 & 5 \\ 79 & 7 & 9 \\ 29 & 5 & 3 \end{vmatrix}$

Q10. If $\begin{vmatrix} 3 & y \\ x & 1 \end{vmatrix} = \begin{vmatrix} 3 & 2 \\ 4 & 1 \end{vmatrix}$. Find possible values of *x* and *y* where x and y **Є N .**

Four marks questions

Q11. Using properties of determinants, prove the following

a) $\begin{vmatrix} a & a+b & a+2b \\ a+2b & a & a+b \\ a+b & a+2b & a \end{vmatrix}$ = $9b^2(a+b)$ b) $\begin{vmatrix} x & y & z \\ x^2 & y^2 & z^2 \\ y+z & z+x & x+y \end{vmatrix}$ = (x+y+z)(x-y)(y-z)(z-x)

c) $\begin{vmatrix} x+y & x & x \\ 5x+4y & 4x & 2x \\ 10x+8y & 8x & 3x \end{vmatrix}$ = x^3. d)* $\begin{vmatrix} a & b & ax+by \\ b & c & bx+cy \\ ax+by & bx+cy & 0 \end{vmatrix}$ = $(b^2-ac)(ax^2+2bxy+cy^2)$

e) $\begin{vmatrix} a+b+c & -c & -b \\ -c & a+b+c & -a \\ -b & -a & a+b+c \end{vmatrix}$ = 2(a+b)(b+c)(c+a)

f) $\begin{vmatrix} 0 & p-q & p-r \\ q-p & 0 & q-r \\ r-p & r-q & 0 \end{vmatrix}$ = 0 g) $\begin{vmatrix} 0 & 99 & -998 \\ -99 & 0 & 997 \\ 998 & -997 & 0 \end{vmatrix}$ = 0 h) $\begin{vmatrix} \frac{a^2+b^2}{c} & c & c \\ a & \frac{c^2+b^2}{a} & a \\ b & b & \frac{a^2+c^2}{b} \end{vmatrix}$ = 4abc

Q12. Solve for x : a) $\begin{vmatrix} 7 & 6 & x \\ 2 & x & 2 \\ x & 3 & 7 \end{vmatrix}$ = 0 b) $\begin{vmatrix} 15-2x & 11-3x & 7-x \\ 11 & 17 & 14 \\ 10 & 16 & 13 \end{vmatrix}$ = 0

c)* $\begin{vmatrix} x-2 & 2x-3 & 3x-4 \\ x-4 & 2x-9 & 3x-16 \\ x-8 & 2x-27 & 3x-64 \end{vmatrix}$ = 0 d) $\begin{vmatrix} x+2 & x+6 & x-1 \\ x+6 & x-1 & x+2 \\ x-1 & x+2 & x+6 \end{vmatrix}$ = 0 CBSE 2015

Q13*.If f(x) = $\begin{vmatrix} a & -1 & 0 \\ ax & a & -1 \\ ax^2 & ax & a \end{vmatrix}$, Using properties evaluate f(x) hence evaluate f(2x) – f(x)

CBSE 2015

Q14. A = $\begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$. Find x and y so that $A^2 + xI = yA$. Hence find A^{-1}

Six marks questions

Q15. Solve using matrices: $\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4, \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1, \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$

Q16*. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$. Find A^{-1} and use it to solve $x + y + 2z = 0$, $x + 2y - z = 9$ and $x - 3y + 3z = -14$.

Q17. Use product AB to solve the system $x - y + 2z = 1$, $2y - 3z = 1$ and $3x - 2y + 4z = 2$ where $A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$.

Q18*. Evaluate using properties : $\begin{vmatrix} a^2 & (b+c)^2 & bc \\ b^2 & (c+a)^2 & ca \\ c^2 & (a+b)^2 & ab \end{vmatrix}$ CBSE 2016

Q19. The management committee of a residential colony decided to award some of its members (say x) for honesty, some (say y) for helping others and some other (say z) for supervising the workers to keep the colony neat and clean. The sum of all the awardees is 12. Three times the sum of awardees for cooperation and supervision added to two times the number of awardees for honesty is 33. If the sum of the number of awardees for honesty and supervision is twice the number of awardees for helping others, using matrix method, find the number of awardees of each category.

Q20. Two schools A and B want to award their selected students on the values of sincerity, truthfulness and helpfulness. The school A wants to award ` x each, ` y each and ` z each for the three respective values to 3, 2 and 1 students respectively with a total award money of ` 1,600. School B wants to spend ` 2,300 to award its 4, 1 and 3 students on the respective values (by giving the same award money to the three values as before). If the total amount of award for one prize on each value is ` 900, using matrices, find the award money for each value.

Q21. The monthly income of Aryan and Babban are in the ratio 3:4 and their monthly expenditures are in the ratio 5:7. If each saves `15000 per month, find their monthly incomes using matrix method. CBSE 2016

SOCIOLOGY

1. Complete Research Project work for board practicals. As per instructions given in the class.
2. Extra question chapter 5 Patterns of Social Exclusion as given in the class.

PSYCHOLOGY

1. Completion of practical file work- Adjustment inventory for school students (AISS) & David's Battery of Differential Abilities (DBDA)
2. Do worksheet 1,2 & 3.
3. Complete question answer of chapter-3 (NCERT).

WORKSHEET-1

1. **"Roma is a 10 years old girl who has an exceptional general ability which can be seen in wide variety of areas"**
   a) Which ability has been discussed here?
   b) Explain its important characteristics in detail.

2. Differentiate between the following

a) Culture Fair and culture bias test
b) Individual and group test
c) Verbal, Non-verbal and performance tests
d) Talent and giftedness. Give Examples

3. Explain the various domains of Psychological attribute that categorizes variety of tests.
4. How is Psychometric approach different from information processing approach?
5. Explain the theory of Primary mental abilities.
6. Differentiate between psychometric and information processing approach to intelligence.
7. Explain Gardner's theory of multiple intelligences.
8. Describe structure-of-intellect model.
9. Describe Jensen's hierarchical model of intelligence.
10. Explain triarchic theory of intelligence.
11. What is cognitive assessment system?
12. Explain the influence of nature and nurture on intelligence.
13. How can we classify intelligence tests?
14. The IQ of a 6 year old boy with MA 8 is…… IQ=MA/CA x 100.
15. The MA of an 8 year old boy with IQ=80 is……. MA=IQ/CA x 100.
16. Define emotional intelligence. Describe the characteristics of emotionally intelligent person
17. Describe PASS model of intelligence.
18. Describe the theory of Primary Mental Abilities.
19. Explain unit factor theory of intelligence.
20. How is creativity and intelligence related? Explain concept of 'Buddhi' in the context of Indian tradition.
21. How are programs aimed at improving emotional intelligence beneficial for the students?
22. How is interest different from aptitude? Which of the two is important in deciding about one's career?
23. Multiple Choice Questions:

a) Rashi is distinct from her classmates and always differs from them in all behavioral patterns. This phenomenon is known as ……..
b) A violent child tends to behave submissively and nicely in front of the principal. This changes in his behavior is due to ……..
c) Charles Spearman prepared a
1. Two Factor Theory
2. Two factor theory
3. Theory of Primary mental abilities

d) Guilford gave a model of
1. 150 Cells 2. 180 Cells 3.170 Cells 4. 120 Cells

e) Spatial Ability refers to
1. Skills in forming visual images and patterns
2. Sensitivity to feature natural world
3. Using the body flexibility and creatively

f) Experimental intelligence refers to
1. Analysis of information
2. Ability to deal with environment
3.Using past experience creatively

g) Simultaneous and successive processing is a part of

1. Triarchic theory
2. PASS model theory
3.Multiple intelligence Theory

h) Binet's first successful attempt to formally measure intelligence took place in the year

1. 1912 2. 1920 3.1905 4. 1910

i) The concept of the intelligence quotient was devised by

1. Alfred Binet
2.Simon
3.Williams Stern
4. Robert Stern Berg

j) People with low average intelligence have an IQ range of

1. 90-109
2. 80-89
3.70-79
4. Above 130

k) The First organized program for retarded was started by Seguin in the year

1. 1947
2. 1837
3.1920
4. 1825

l) …… is an individual test which is made up of variety of subtests

1. WAIS …..Wechsler's Adult Intelligence scale
2. Draw a man test
3. Alexander's pass along

WORKSHEET-2

1. Differentiate between:

a) Personal and Social Identity

b) Self as a subject and an object

2. What are the various types of self? Explain with the help of examples.

3. "Reema is a 17 yrs old girl who is obese and not able to have a control over her diet." What tips would you give her to monitor her behavior for self-control?

4. What are the variations that exist between the western and the Indian cultural perspective about self?

5. "Personality characterizes individuals as they appear in most circumstances". Justify by explaining its characteristics in detail.

6. How does the Indian concept of Ayurveda classify people and their Personality?

7. "Ravi is a 25 years old youth who possesses high motivation, lacks patience, feels short of time & is always pressured by work".

a) Which type of personality do you think Ravi is possessing?

b) What are the other types of personality that may exist?

c) Name the psychologists who have given these types of Personality.

8. How are traits different from types? Give examples.

9. Using Allport's theory, identify the various types of traits in the given situation. Explain them in detail."Supriya is a very warm and friendly girl who is often known as the FLORENCE NIGHTINGALE of the class. She is a very traditional girl who always prefers to wear Indian or ethnic clothes. She hates the western culture especially the trend of going to parties and discotheque."

10. Explain Paul Coasta's and Robert Mc Crae's personality theory?

11. "According to Freud ,structural elements of personality reside in the unconscious as forces and can be inferred from the way people behave" Justify

12. Name the psychologists who have worked with Freud but later separated and developed their own theories.

13. Explain the Psychosexual development theory given by Freud?

14. "Rahima is a 7 years old girl who lives in an orphanage. She is very clear with the abstract concepts like religion, god, unity and oneness without anyone's guidance or teaching."

a) Which personality theory do you think relates to such experiences?

b) Name the psychologist who gave this theory.

c) Explain the theory and its concepts in detail.

15. Distinguish between the Source and surface traits given by Raymond Cattell? Give examples.

16. Identify and define the Defense mechanisms given below:

a) "A student having a strong desire to cheat in the exam and is not able to do so because of the strong revolt by the conscious within. So he suspects that the other classmates might be cheating.

b) A boy who was reared to believe that sex is evil and dirty may become anxious every time sexual feelings surge to the surface. So in order to defend against the anxiety, he joined the groups against sex in media.

c) A tense father who had troubles in office gave a harsh beating

17. "Psychodynamic theories have faced a lot of challenges and criticism from the Neo and Post Freudians". Explain these criticisms by picking up examples from the Freudian theory.

18. How is Horney's theory different from that of Freud's .

19. What are the common characteristics of Humanistic theories?

20. Differentiate between Oedipus and Electra complex?

21. How does Rosenweig's P-F study & draw –a – man test helps a psychologist to know more about the person?

22. Name any five disorders that can be diagnosed with the help of MMPI.

23. "A healthy person not only adjusts to the society but also has a quest to know oneself deeply". Explain in the context of Humanistic approach.

24. Varied types of Projective techniques have been developed for Personality testing but still they are similar in many ways". Justify the statement.

25. Give a detailed description of the following tests:

a) 16 P.F Questionnaire

b) The Rorschach Inkblot Test

c) Sentence Completion Test

26. "A clinical psychologist wants to understand the client's relationship with his family members and home visitors".

a) Which assessment technique would the psychologist use to gain more information about the client?

b) Give reasons in support of your answers.

WORKSHEET-3

1. "Stress is an integral part of our lives and has become a buzz word with every one living". Define stress and quote various examples that have created stressful situations in your life. (At least three)

2. How is Eustress different from Distress?

3. According to Lazarus, "An individual's response to a stressful situation largely depends on the perceived events and how they are interpreted". Comment

4. What do you understand by Burnout syndrome?

5. Her parents on having alcohol with her friends scolded Ashmita of 15yrs.She could not take it and ran away from home.

a) What is the coping strategy that Ashmita is using here?

b) Which strategy according to you will be the best suited in dealing with such a situation?

c) What are the other strategies that Lazarus has given and how would these strategies help in such a situation?

6. a) How are social and psychological stressors related to each other? Give examples

b) What effects would it have on the psychological functioning of the person?

7. "Examination stress can cause test anxiety which can adversely affect stress performance". Explain with help of examples.

8. Explain the techniques developed by Donald Meichenbaum in management of stress.

9. "While traveling in a train the passengers got to know that the engine has collapsed and the train is on fire. How does Selye's theory of bodily responses apply to this situation?

10. "Stress is an integral part of individual's living. Little bit of it is required to ignite an individual's performance." Comment.

11. Discuss the various factors that help in promoting positive health and well being.

12. "According to the various psychologists stress is generated by our own selves in our minds. These are personal and unique to the person experiencing them."

a) Which kind of stress has being discussed here?

b) What are the various sources of such kind of stress? Give a detailed explanation with examples.

13. "Resilience" has become a buzzword in today's life. Explain how it can be used to "bounce back" upon the stress one faces in daily life.

14. "Stress is a silent killer. It plays a significant role in deteriorating individual's health." Explain its adverse effects on the immune system with the help of a diagram.

15. With the help of a model, explain the various reactions that may take place due to stress.

ECONOMICS

1. Complete the worksheets of Unit – 1 of Macro Economics and chapter-2 of Indian Economic Development.
2. Complete the Project file on Economics issues. (As per instructions given in the class)

POLITICAL SCIENCE

1. Do the research on the topic given for project work and make project file.
2. Do the following assignments in your notebook.

ASSIGNMENT- 6

Chapter 6:-International Organizations

1. Why are international organizations important?
2. In its initial years why was the UN a largely described as a talking shop?
3. Name the international organization that that draws attention to Human Rights abuse.
4. What is the role of the IMF and the World Bank?
5. Write a short note on Security Council.
6. Correct the following statement – In the Security Council the five permanent members are China Australia Russia USA and UK.
7. What are the functions of the 1.I.A.E.A, 2.W.T.O., 3.ECOSOC, 4.General Assembly 5. Amnesty International.
8. Mention two aims of the UN. What is the Veto power?
9. Discuss the structure of the UN.
10. What are the functions of the Secretary General of UN?
11. What are the four criteria that have been proposed for permanent and non permanent membership of the Security Council members?
12. Critically evaluate the difficulties involved in implementing the suggested reforms to reconstruct the UN.
13. Though the UN has failed in preventing wars and related miseries, nations prefer its continuation. What makes the UN an indispensable organization?
14. Reforming the UN means restructuring of the Security Council'. Do you agree with this statement? Give arguments for or against this position.
15. What are the factors that have contributed to the UNO still being a relevant in the unipolar world.
16. How has the US hegemony come in the way of the UNO functioning?
17. Jaw- Jaw is better than War- War. What do you mean by the statement?

ASSIGNMENT- 7

Chapter : Security in the contemporary world

1. What is human security?
2. What are health epidemics name a few?
3. What are confidence building measures?
4. What are BWC's and CWC's?
5. Who are Migrants and Refugees?
6. Define the following
   (a) Confidence Building Measures (CBMs) (b) Arms Control
   (c) Alliance (d) Disarmament
7. What are the four components of Traditional security?
8. How can a problem qualify as a threat?
9. Is terrorism a traditional or non-traditional threat to security?
10. What are the choices available to a state when its security is threatened, according to the traditional security perspective?

11. What are the objectives of military alliances? Give an example of a functioning military alliance with its specific objectives.
12. How has Global poverty contributed to insecurity in the world?
13. Looking at the Indian scenario, what type of security has been given priority in India, traditional or non-traditional? What examples could you site to substantiate the argument

LEGAL STUDIES

1. **Do the research on the topic given for project work and make project file.**
2. **Do the following assignment in your notebook.**

1. A crime is said to exist usually when _____ and _____ elements are present.
2. Which latin maxim means ' An act does not make one guilty unless the mind is also legally blameworthy'?
3. What do you mean by :
   a. Actus reus b. Mens rea
4. What are the 3 constituent parts of Actus reus?
5. What are the constituent parts of Mens rea?
6. In which section of the IPC is it mentioned that moral ommissions of not doing something would not complete the requirement of Actus reus?
7. Give 2 examples of when Actus reus does not take place and why it cannot be considered as Actus reus?
8. When and where did the act of Mens rea evolve?
9. Explain in brief the State of Maharashtra vs. Mayor Hans George case.
10. In which case did the supreme court hold that 'the element of mens rea must be read into a statutory penal provision unless a statute either expressly or by necesssary implication rules it out'?
11. What does the term crime denote?
12. What are white collar crimes? Give examples.
13. Give examples of organized crimes?
14. Mention the stages of crime.
15. Which two stages of crime does not give rise to criminal liability?
16. Explain crime against morality with examples.
17. Give examples of crime against person?
18. What is CrPC? What is its objective?
19. Which offences are covered by CrPC?
20. Differentiate between the following:
    (a) Bailable and non-bailable offences. (b) Cognizable and non-cognizable offences.
21. What are compoundable offences? Give an example.
22. Are all offences compoundable? Why or why not?
23. The CrPC lists various offences under the Indian Penal Code which are compoundable. How many offences may be compounded by specific aggrieved party without the permission of court and how many can be compounded after securing permission of court?
24. When was IPC passed and when did it come into force?
25. Name the 2 criminal codes consulted while drafting the IPC.
26. IPC is uniformly applicable in all the states except the state of _____.
27. The IPC is divided into _____ chapters and it comprises of _____ sections.
28. Name the 6 broad classification of crimes under the IPC.
29. What is the way in which IPC is organised? Explain them.
30. What does section 378 of the IPC state?

31. What does section 379 of the IPC state?
32. In which year was the CrPC formulated?
33. Depending on the nature and gravity of an offence, how does the CrPC classify these offences?
34. Which section defines bailable and non-bailable offences?
35. Give 3 distinguishing points between bailable and non- bailable offences.
36. Mention some offences that are classifed as non-bailable.
37. How many types of compoundable offences are there? Name them.
38. State the meaning of section 154 of the CrPC.
39. What are the objectives of CrPC?

FINE ARTS

Prepare 5 posters on any social /commercial topics.

COMPUTER SCIENCE

Solve question paper of CBSE 2018, 2017 & 2016 in the notebook on chapters discussed in the class (chapters 1-6).

PHYSICAL EDUCATION

1. Writing of AAHPER IN Practical File
2. Revising of Yoga Chapter.

FRENCH

Make a powerpoint presentation on “Les Alpes” and “La Provence”.

PROJECT ON FINANCIAL LITERACY SKILLS

1. What are the different types of ITR?
2. Consider yourself to be an individual (salaried or business man) and determine which type of ITR form will be used to file ITR. File returns using hypothetical figures to see how much revenue your services or business generates for the ex-Chequer.
3. Explain in brief the sections for different types of Tax Exemptions for salaried/business person.