Mount Abu Public School
SUMMER HOLIDAYS HOMEWORK
CLASS – XII (COMMERCE)

Dear Parent

Should we judge a dolphin by its ability to climb a tree?

We do not wear the Board exam marks on our sleeves? Right. But ….   they do signify a simp **thing: it quantifies the level of sincerity and sense of responsibility of a student as per the lev** **of the complexity of the subjects each one studies. This sense of sincerity and responsibili** **should begin from the time the student steps in XII.**

With mercury rising to unprecedented heights, it is that time of the year where Summer Vacatic *provide us a little respite from the scorching heat. At the same time it also allows studer* *enough time for introspection, reviewing past performances, learning from mistakes, goal settir* *planning strategically and tactically, identifying obstacles to success. Gearing up for this wonder* *period of rejuvenation, let us prepare ourselves to utilize our time in many constructive ways. S* *with the idea of fostering new learning experiences and to enhance individual inquisitiveness, t* *school has planned some to channelize the energies of the young MAPIANS.*

Here are some guidelines for you to invigorate your ward while giving him the chance to enjoy *this period of unrestrained fun.*

- Learning doesn't stop when school is out.
- Work smart, not hard.
- For every hour of electronics time, you owe an hour of outside playtime.
- Reading is a must.
- Before you ask for a favor, do a chore.
- There's no sleeping all day or staying up all night.
- Be honest to a fault.
- Question every fact
- Do better today than you did yesterday.

Holiday Homework (for all subjects) must be submitted as per the mentioned dates.
- 5th July, Physics / Accountancy
- 8th July, B.Studies / Chemistry
- 10th July, English
- 12th July, Mathematics/ I.P
- 15th July, Optional/ Economics

ENGLISH

❖ *__The following homework to be done on A4 size sheets and must be submitted in a transparent folder__*

1. Read "CHIEF SEATTLE 'S SPEECH " and write the analysis for the same in not more than 100 words.

2. Read the prose 'The old man and the bridge" by Earnest Hemingway and critically analyze the character of the old man in not more than 100 words.

The following homework to be done in your CLASS WORK REGISTER itself

1. Read the following poem and write down the message that the poem tries to put forth in not more than 100 words.

Nine Gold Medals

- (David Roth)
  The athletes had come from so many the countries
  To run for the gold and the silver and bronze
  Many weeks and months in training
  All building up to the games

  All round the field spectators were gathered
  Cheering on all the young women and men
  Then the final event of the day was approaching
  The last race about to begin

  The loudspeakers called out the names of the runners
  The one hundred metres the race to be run
  And nine young athletes stood there determined
  And poised for the sound of the gun

  The signal was given, the pistol exploded
  And so did the runners on hearing the sound
  But the youngest among them stumbled and staggered
  And he fell on his knees to the ground

  He gave out a cry of frustration and anguish
  His dreams and his efforts dashed in the dirt
  But as sure as I'm standing here telling the story
  Now it's a strange one, but here's what occurred

  The eight other athletes stopped in their tracks
  The ones who had trained for so long to compete

One by one they turned round and came back to help him
And lifted the lad to his feet

Then all nine runners joined hands and continued
The one hundred metres reduced to a walk
And the banner above that said "Special Olympics"
Could not have been nearer the mark

That's how the race ended, nine gold medals
They came to the finish line holding hands still
And the banner above and nine smiling faces
Said more than these words ever will
Said more than these words ever will

2. Draw a poster on the CONSERVATION OF WATER and SAVING OUR SPARROWS
3. **PRACTICE MANNUAL**- Attempt Q1 and Q2 of ADVERTISEMENTS, NOTICE, and LETTER TO THE EDITOR
4. Write down the notes and summary of the chapter **'INDIGO'**

ACCOUNTANCY

Q1   Prepare the questions as per directions:-

Ch-NON FOR PROFIT ORGANISATION

XII C TRUE/FALSE	Roll No. -1-3
Fill in the blanks	Roll No. -4-6
MCQ	Roll No. -7-9
Application Based	Roll No.-10

Ch- Fundamentals OF partnership

XII C TRUE/FALSE	Roll No. -11-13
Fill in the blanks	Roll No. -14-16
MCQ	Roll No. -17-19
Application Based	Roll No.-20

Ch- Goodwill

XII C TRUE/FALSE	Roll No. -21
Fill in the blanks	Roll No. -22
MCQ	Roll No. -23

Ch- Admission Of a Partner

XII C TRUE/FALSE	Roll No. -24-26
Fill in the blanks	Roll No. -27-28
MCQ	Roll No. -29
Application Based	Roll No.-30

Ch- Retirement of a Partner

XII D TRUE/FALSE	Roll No. -1-3
Fill in the blanks	Roll No. -4-6
MCQ	Roll No. -7-9
Application Based	Roll No.-10

Ch- Death of a Partner

XII D TRUE/FALSE	Roll No. -11-12
Fill in the blanks	Roll No. -13-14
MCQ	Roll No. -15-16
Application Based	Roll No.-17

Ch-Dissolution Of Partnership Firm

XII D TRUE/FALSE	Roll No. -18-21
Fill in the blanks	Roll No. -22-23
MCQ	Roll No. -24-25
Application Based	Roll No.-26

Ch- Ratio

XII D TRUE/FALSE	Roll No. -27
Fill in the blanks	Roll No. -28
MCQ	Roll No. -29-30

Q2.   Do Practice Sheet No.-2,5 and 6 of Practice Manual.

Q3.   Prepare the following Sheets for the project work

- o   Acknowledgement
- o   Certificate
- o   Tittle Sheet
- o   Introduction of the Company

Bring the Balance Sheet of Company selected for further project.

All Holiday homework to be done in separate notebook

Prepare for July Test Series

Practice NCERT illustrations of Ch:1-4

BUSINESS STUDIES

1. Prepare the project work on the topic allotted-

- ❖ **Project A : MARKETING MANAGEMENT**
- ❖ **Project B :BUSINESS ENVIRONMENT**
- ❖ **Project C :- STOCK EXCHANGE**
- ❖ **Project D :- PRINCIPLES OF MANAGEMENT**

Guidelines to be followed:-

Project A: MARKETING MANAGEMENT

(A.) On the basis of the work done by the students the project report should include the following

1. Why have they selected this product/service?
2. Find out '5' competitive brands that exist in the market.
3. What permission and licenses would be required to make the product?
4. What are your competitors Unique Selling Proposition [U.S.P.]?
5. Does your product have any range give details?
6. What is the name of your product?
7. Enlist its features.
8. Draw the 'Label' of your product.
9. Draw a logo for your product.
10. Draft a tag line.
11. What is the selling price of your competitor's product?
(i) Selling price to consumer
(ii) Selling price to retailer
(iii) Selling price to wholesaler

What is the profit margin in percentage to the
a. Manufacturer.
b. Wholesaler.
c. Retailer.
12. How will your product be packed?
13. Which channel of distribution are you going to use? Give reasons for selection?
14. Decisions related to warehousing, state reasons.
15. What is going to be your selling price?
(i) To consumer (ii) To retailer (iii) To wholesaler
16. List 5 ways of promoting your product.
17. Any schemes for
(i) The wholesaler (ii) The retailer (iii) The consumer
18. What is going to be your 'U.S.P?
19. What means of transport you will use and why?
20. Draft a social message for your label.
21. What cost effective techniques will you follow for your product.
22. What cost effective techniques will you follow for your promotion plan.

At this stage the students will realize the importance of the concept of marketing mix and the necessary decision regarding the four P's of marketing.

A. PRODUCT   B. PLACE   C. PRICE   D. PROMOTION

Project B: BUSINESS ENVIRONMENT
1. Changes witnessed over the last few years on mode of packaging and its economic impact. I may include the following changes:
a) The changes in transportation of fruits and vegetables such as cardboard crates being used in pla of wooden crates, etc. Reasons for the above changes.

b) Milk being supplied in glass bottles, later in plastic bags and now in tetra pack and through vendi machines.

c) Plastic furniture [doors and stools] gaining preference over wooden furniture.

d) The origin of cardboard and the various stages of changes and growth.

e) Brown paper bags packing to recycled paper bags to plastic bags and cloth bags.

f) Re use of packaging [bottles, jars and tins] to attract customers for their products.

g) The concept of pyramid packaging for milk.

h) Cost being borne by the consumer/manufacturer.

i) Packaging used as means of advertisements.

2. The reasons behind changes in the following:

Coca – Cola and Fanta in the seventies to Thums up and Campa Cola in the eighties to Pepsi and Coke nineties.

The teacher may guide the students to the times when India sold Coca Cola and Fanta were bei manufactured in India by the foreign companies.

The students may be asked to enquire about

a. Reasons of stopping the manufacturing of the above mentioned drinks in India THEN.

b. The introduction of Thums up and Campa cola range.

c. Re entry of Coke and introduction of Pepsi in the Indian market.

d. Factors responsible for the change.

e. Other linkages with the above.

f. Leading brands and the company having the highest market share.

g. Different local brands venturing in the Indian market.

h. The rating of the above brands in the market.

i. The survival and reasons of failure in competition with the international brands.

j. Other observations made by the students

3. Changing role of the women in the past 25 years relating to joint families, nuclear families, wom as a bread earner of the family, changes in the requirement trend of mixers, washing machines, mic wave and standard of living.

4. The changes in the pattern of import and export of different Products.

5. The trend in the changing interest rates and their effect on savings.

6. A study on child labour laws, its implementation and consequences.

7. The state of 'anti plastic campaign,' the law, its effects and implementation.

8. The laws of mining /setting up of industries, rules and regulations, licences required for runni that business.

9. Social factors affecting acceptance and rejection of an identified product. (Dish washer, At maker, etc)

10. What has the effect been on the types of goods and services? The students can take exampl like:

a. Washing machines, micro waves, mixers and grinder.

b. Need for crèche, day care centre for young and old.

c. Ready to eat food, eating food outside, and tiffin centres.

11. Change in the man-machine ratio with technological advances resulting in change of cost structu

12. Effect of changes in technological environment on the behaviour of employee.

Project C :- STOCK EXCHANGE

Project D: PRINCIPLES OF MANAGEMENT : The students are required to visit any one of the following:

1. A departmental store.

2. An Industrial unit.

3. A fast food outlet.

4. Any other organisation approved by the teacher.

They are required to observe the application of the general Principles of management advocated by Fayol. Fayol's principles are:

1. Division of work
2. Unity of command.
3. Unity of direction.
4. Scalar chain
5. Espirit de corps
6. Fair remuneration to all
7. . Order
8. Equity
9. . Discipline
10. . Subordination of individual interest to general interest.
11. Initiative.
12. Centralisation and decentralisation.
13. Stability of tenure.

     OR

They may enquire into the application of scientific management techniques by F.W. Taylor in the unit visited.

Scientific techniques of management.

1. Functional foremanship. 2. Standardization and simplification of work. 3. Method study. Motion Study. 5. Time Study. 6. Fatigue Study 7. Differential piece rate plan. Tips to teach (i) The teacher may organize this visit. (ii) The teacher should facilitate the students identify any unit of their choice and guide them to identify the principles that are bei followed. (iii) Similarly they should guide the students to identify the techniques of scientific management implemented in the organization. (iv) It may be done as a group activity. (v) T observations could be on the basis of The different stages of division of work resulting specialization. Following instructions and accountability of subordinates to higher authoriti Visibility of order and equity in the unit. Balance of authority and responsibility.

(B.) PRESENTATION AND SUBMISSION OF PROJECT REPORT OF PROJECT A ,B AND C

The following essentials are required to be fulfilled for its preparation and submission.

1. The total length of the project will be of 25 to 30 pages.

2. The project should be handwritten.

3. The project should be presented in a neat folder.

4. The project report should be developed in the following sequence-

     b)   The cover page should include the title of the Project, student information, school an year.

     c)   List of contents.

     d)   Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).

     e)   Introduction.

     f)   Topic with suitable heading.

     g)   Planning and activities done during the project, if any.

     h)   Observations and findings of the visit.

     i)   Conclusions (summarised suggestions or findings, future scope of study).

     j)   Photographs (if any).

     k)   Appendix.

     l)   Teacher's observation.

     m)   Signature of the teacher.

Instructions:

1. The work has to be done on A4 size interleaf sheets.
2. It should be written in neat handwriting.
3. The file should not be spiraled.
4. The project should be hand written and no print-outs to be used for content writing.

2. Revise Chapter 9,10 ,11 and 12 and while revising follow the Practice Manual and solve the questions in the Practice Manual Registers:-

a) Ch- 9 Financial Management (Q1 to 13 Case study based questions)

b) Ch- 10 Financial Market (Q1 to 10 Case study based questions)

c) Ch – 2 Principles of Management (Q1 to 10 Case study based questions)

3. Prepare either 20 MCQs / True or false / Fill in the blanks from each chapter (2,9, 10, 12) . Submit in the form of hard copy.

MATHEMATICS

"There is no end to education. It is not that you read a book, pass an examination, and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning."

Do the following activities in the lab manual Mathematics by

(Goyal Brothers Prakashan)   (not yet final)

Activity 1: To draw the graph of sin⁻¹x, using the graph of sinx and demonstrate the concept of mirror reflection about the line y=x

Activity 2: To explore the principal value of the function sin-1x using a unit circle.

Activity 3: To find the analytically the limit of the function f(x) at x=c and also to check the continuity of the function at that point.

Activity 4: To verify Rolle's Theorem.

Activity 5: To verify Lagrange's Mean value theorem

Activity 6: To construct an open box of maximum volume from a given rectangular sheet by cutting square from each corner.

Activity 7: to verify that amongst all the rectangles of the same perimeter, the square has the maximum area.

<u>ASSIGNMENT FROM NCERT EXEMPLAR</u>
<u>CHAPTER - 2</u>

<u>INVERSE TRIGONOMETRIC FUNCTIONS</u>

1. Evaluate : $\tan^{-1}\left(sin\left(\frac{\pi}{2}\right)\right)$.

2. Find the value of $\tan^{-1}\left(tan\ \frac{9\,\pi}{8}\right)$.

3. Evaluate : $\sin^{-1}\left[cos\left(\sin^{-1}\frac{\sqrt{3}}{2}\right)\right]$.

4. Find the value of sin $\left[2\ \cot^{-1}\left(\frac{-5}{12}\right)\right]$.

5. Evaluate : cos $\left[\sin^{-1}\frac{1}{4}+\ \sec^{-1}\frac{4}{3}\right]$.

6. Prove that: $2\ \sin^{-1}\frac{3}{5}-\ \tan^{-1}\frac{17}{31}=\ \frac{\pi}{4}$.

7. Prove that cot⁻¹7 + cot⁻¹ 8 + cot⁻¹ 18 = cot⁻¹ 3.

8. Find the value of $\sin\left(2\ \tan^{-1}\frac{2}{3}\right)+cos\ (\tan^{-1}\sqrt{3}\ )$.

9. Find the value of x which satisfy the equation sin⁻¹ x + sin⁻¹ (1 – x) = cos⁻¹ x.

10. Solve the equation sin⁻¹ 6x + sin⁻¹ 6√3 x = - $\frac{\pi}{2}$.

11. Find the value of $\tan^{-1}\left(tan\ \frac{5\pi}{6}\right)+\ cos^{-1}\left(cos\ \frac{13\pi}{6}\right)$.

12. Prove that cot $\left(\frac{\pi}{4}-2\ \cot^{-1}3\right)$ = 7.

13. Solve the following equation cos (tan⁻¹ x) = sin (cot⁻¹ $\frac{3}{4}$).

14. Prove that $\tan^{-1}\left(\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right)=\ \frac{\pi}{4}+\ \frac{1}{2}\ \cos^{-1}x^2$.

15. Prove that $\sin^{-1}\frac{8}{17} + \sin^{-1}\frac{3}{5} = \sin^{-1}\frac{77}{85}$.

16. Show that $\tan\left(\frac{1}{2}\sin^{-1}\frac{3}{4}\right) = \frac{4-\sqrt{7}}{3}$ and justify why the other value $\frac{4+\sqrt{7}}{3}$ is ignored?

CHAPTER – 3
MATRICES

1. If $[2x \quad 3]\begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix}\begin{bmatrix} x \\ 8 \end{bmatrix} = 0$, find the value of x.

2. If $A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 0 & -1 \\ 1 & 2 & 3 \end{bmatrix}$, then show that A satisfies the equation $A^3 - 4A^2 - 3A + 11I = 0$.

3. Let $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$. then show that $A^2 - 4A + 7I = 0$. Using this result calculate A^5 also.

4. If a matrix has 28 elements, what are the possible orders it can have? What if it has 13 elements?

5. If possible, find BA and AB, where $A = \begin{bmatrix} 2 & 1 & 2 \\ 1 & 2 & 4 \end{bmatrix}, B = \begin{bmatrix} 4 & 1 \\ 2 & 3 \\ 1 & 2 \end{bmatrix}$.

6. Show that A′A and AA′ are both symmetric matrices for any matrix A.

7. If $A = \begin{bmatrix} 0 & -x \\ x & 0 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ and $x^2 = -1$, then show that $(A + B)^2 = A^2 + B^2$.

8. If $A = \begin{bmatrix} \cos\alpha & \sin\alpha \\ -\sin\alpha & \cos\alpha \end{bmatrix}$, and $A^{-1} = A'$, find the value of α .

CHAPTER – 4
DETERMINANTS

1. If $\Delta = \begin{vmatrix} 1 & x & x^2 \\ 1 & y & x^2 \\ 1 & z & x^2 \end{vmatrix}$, $\Delta_1 = \begin{vmatrix} 1 & 1 & 1 \\ yz & zx & xy \\ x & y & z \end{vmatrix}$, then prove that $\Delta + \Delta_1 = 0$.

2. If x = -4 is a root of $\Delta = \begin{vmatrix} x & 2 & 3 \\ 1 & x & 1 \\ 3 & 2 & x \end{vmatrix} = 0$, then find the other two roots.

3. Evaluate : $\begin{vmatrix} 3x & -x+y & -x+z \\ x-y & 3y & z-y \\ x-z & y-z & 3z \end{vmatrix}$.

4. Evaluate: $\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix}$

5. Prove that: $\begin{vmatrix} a^2+2a & 2a+1 & 1 \\ 2a+1 & a+2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a-1)^3$.

6. If $A = \begin{bmatrix} 4-x & 4+x & 4+x \\ 4+x & 4-x & 4+x \\ 4+x & 4+x & 4-x \end{bmatrix}$ and |A|=0 Then find values of x.

7. If $A = \begin{vmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{vmatrix}$, find A^{-1}.

8. Using matrix method, solve the system of equations $3x + 2y - 2z = 3$, $x + 2y + 3z = 6$, $2x - y + z = 2$.

9. Given $A = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$, find BA and use this to solve the system of equation

   $y + 2z = 7$, $x - y = 3$, $2x + 3y + 4z = 17$.

10. If $A = \begin{bmatrix} x & 5 & 2 \\ 2 & y & 3 \\ 1 & 1 & z \end{bmatrix}$, xyz = 80, 3x + 2y + 10z = 20, then A adj. A = $\begin{bmatrix} 81 & 0 & 0 \\ 0 & 81 & 0 \\ 0 & 0 & 81 \end{bmatrix}$.

CHAPTER – 5
CONTINUITY AND DIFFERENTIABILITY

1. If $f(x) = \begin{cases} \frac{x^3 + x^2 - 16x + 20}{(x-2)^2}, & x \neq 2 \\ k & x = 2 \end{cases}$ is continuouse at x = 2, find the value of k.

2. Differentiate $\sqrt{\tan \sqrt{x}}$ w.r.t x.

3. Find $\frac{dy}{dx}$, if y = $\tan^{-1} \left(\frac{3x - x^3}{1 - 3x^2}\right)$, $-\frac{1}{\sqrt{3}} < x < \frac{1}{\sqrt{3}}$.

4. If y = $\sin^{-1} \{x \sqrt{1-x} - \sqrt{x} \sqrt{1 - x^2}\}$ then find $\frac{dy}{dx}$.

5. If $x = a \sec^3 \theta$ and $y = a \tan^3 \theta$, find $\frac{dy}{dx}$ at $\theta = \frac{\pi}{3}$.

6. If $x^y = e^{x-y}$, prove that $\frac{dy}{dx} = \frac{\log x}{(1 + \log x)^2}$.

7. Verify Rolle's theorem for the function, f(x) = sin 2x in [0, $\frac{\pi}{2}$].

8. Let $f(x) = \begin{cases} \frac{1 - \cos 4x}{x^2}, & if\ x < 0 \\ a, & if\ x = 0 \\ \frac{\sqrt{x}}{\sqrt{16 + \sqrt{x} - 4}}, & if\ x > 0 \end{cases}$, for what value of a, f is continuous at x = 0?

9. Find $\frac{dy}{dx}$, if y = $x^{tanx} + \sqrt{\frac{x^2 + 1}{2}}$.

10. If x = sint and y = sin pt, prove that $(1 - x^2) \frac{d^2y}{dx^2} - x\frac{dy}{dx} + p^2 y = 0$.

11. If $x^m . y^n = (x + y)^{m+n}$, prove that:- (i) $\frac{dy}{dx} = \frac{y}{x}$ and (ii) $\frac{d^2y}{dx^2} = 0$.

12. Differentiate $\tan^{-1} \frac{\sqrt{1 - x^2}}{x}$ with respect to $\cos^{-1} (2x \sqrt{1 - x^2})$

13. find the value of k so that the function f is continuous at the indicated point:

   $f(x) = \begin{cases} \frac{\sqrt{1 + kx} - \sqrt{1 - kx}}{x}, & if\ -1 \leq x < 0 \\ \frac{2x + 1}{x - 1}, & if\ 0 \leq x \leq 1 \end{cases}$ at x = 0

14. find the values of a and b such that the function f defined by $f(x) = \begin{cases} \frac{x-4}{|x-4|} + a, & if\, x < 4 \\ a + b, & if\, x = 4 \\ \frac{x-4}{|x-4|} + b, & if\, x > 4 \end{cases}$ i

a continuous function at x = 4.

CHAPTER – 6

APPLICATION OF DERIVATIVES

1. For the curve y = 5x – 2x^3 , if x increase at the rate of 2 units/sec, then how fast is the slop of curve changing when x = 3?

2. Determine for which values of x, the function $y = x^4 - \frac{4x^3}{3}$ is increasing and for which values it is decreasing.

3. Show that the function f(x) = 4x^3 - 18x^2 + 27x – 7 has neither maxima nor minima.

4. Using differentials, find the approximate value of $\sqrt{0.082}$.

5. Find all the points of local maxima and local minima of the

   function $f(x) = -\frac{3}{4} x^4 - 8x^3 - \frac{45}{2} x^2 + 105$.

6. Find the equation of all the tangents to the curve y = cos (x + y), -2π ≤ x ≤ 2π, that are paral to the line x + 2y = 0.

7. Show that the equation of normal at any point on the curve x = 3cosθ - cos^3 θ , y = 3sinθ - s θ is 4 (y cos^3 θ -xsin^3 θ) = 3 sin 4θ .

8. Find the area of greatest rectangle that can be increased in an ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2}$ = 1.

9. An isosceles triangle of vertical angle 2θ is inscribed in a circle of radius a. show that the area of triangle is maximum when $\theta = \frac{\pi}{6}$.

10. If the area of a circle increases at a uniform rate, then prove that perimeter varies inversely as the radius.

11. The volume of a cube increases at a constant rate. Prove that the increase in its surfac area varies inversely as the length of the side.

12. Find the condition that the curves 2x = y^2 and 2xy = k intersect orthogonally.

13. At what points on the curve x^2 + y^2 - 2x – 4y + 1 =0 , the tangents are parallel to the y – axis?

14. Show that f(x) = tan^{-1} (sin x + cos x) is an increasing function in $\left(0, \frac{\pi}{4}\right)$.

15. If the sum of the lengths of the hypotenuse and a side of a right angled triangle is giver show that the area of the triangle is maximum when the angle between them is $\left(\frac{\pi}{3}\right)$

16. An open box with square base is to be made of a given quantity of card board of area c^2. show that the maximum volume of the box is $\frac{c^3}{6\sqrt{3}}$ cubic units.

17. If the sum of the surface areas of cube and a sphere is constant, what is the ratio of an edge of the cube of the diameter of the sphere, when the sum of their volumes is minimum?

MULTIPLE QUESTIONS (NCERT EXEMPLAR PROBLEMS)

1. The principal value branch of $\sec^{-1}$ is

    a. $\left[-\frac{\pi}{2},\frac{\pi}{2}\right] - \{0\}$ b. $[0, \pi] - \left\{\frac{\pi}{2}\right\}$ c. $(0, \pi)$ d. $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$

2. The principal value of the expression $\cos^{-1}[\cos(-680^0)]$ is

    a. $\frac{2\pi}{9}$ b. $\frac{-2\pi}{9}$ c. $\frac{34\pi}{9}$ d. $\frac{\pi}{9}$

3. If $\tan^{-1} x = \frac{\pi}{10}$ for some $x \in R$, then the value of $\cot^{-1} x$ is

    a. $\frac{\pi}{5}$ b. $\frac{2\pi}{5}$ c. $\frac{3\pi}{5}$ d. $\frac{4\pi}{5}$

4. The principal value of $\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$ is

    a. $-\frac{2\pi}{3}$ b. $-\frac{\pi}{3}$ c. $\frac{4\pi}{3}$ d. $\frac{5\pi}{3}$

5. The greatest and least values of $(\sin^{-1} x)^2 + (\cos^{-1} x)^2$ are respectively

    a. $\frac{5\pi^2}{4}$ and $\frac{\pi^2}{8}$ b. $\frac{\pi}{2}$ and $\frac{-\pi}{2}$ c. $\frac{\pi^2}{4}$ and $\frac{-\pi^2}{4}$ d. $\frac{\pi^2}{4}$ and 0.

6. If $\sin^{-1} x + \sin^{-1} y = \frac{\pi}{2}$, then value of $\cos^{-1} x + \cos^{-1} y$ is

    a. $\frac{\pi}{2}$ b. π c. 0 d. $\frac{2\pi}{3}$

7. The value of the expression $\sin[\cot^{-1}(\cos(\tan^{-1} 1))]$ is

    a. 0 b. 1 c. $\frac{1}{\sqrt{3}}$ d. $\sqrt{\frac{2}{3}}$

8. Which of the following is the principal value branch of $\csc^{-1} x$?

    a. $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]$ b. $(0, \pi) - \left\{\frac{\pi}{2}\right\}$ c. $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$ d. $\left[-\frac{\pi}{2},\frac{\pi}{2}\right] - \{0\}$

9. If $3\tan^{-1} x + \cot^{-1} x = \pi$, then x equals

    a. 0 b. 1 c. -1 d. $\frac{1}{2}$

10. If $\cos\left(\sin^{-1}\frac{2}{5} + \cos^{-1} x\right) = 0$, then x is equal to

    a. $\frac{1}{5}$ b. $\frac{2}{5}$ c. 0 d. 1

11. The value of $\cos^{-1}\left(\cos\frac{3\pi}{2}\right)$ is equal to

    a. $\frac{3\pi}{2}$ b. $\frac{5\pi}{2}$ c. $\frac{\pi}{2}$ d. $\frac{7\pi}{2}$

12. The value of the expression $2 \sec^{-1} 2 + \sin^{-1}\left(\frac{1}{2}\right)$ is

    a. $\frac{\pi}{6}$ b. $\frac{5\pi}{6}$ c. 1 d. $\frac{7\pi}{6}$

13. If $\sin^{-1}\left(\frac{2a}{1+a^2}\right) + \cos^{-1}\left(\frac{1-a^2}{1+a^2}\right) = \tan^{-1}\left(\frac{2x}{1-x^2}\right)$, where a, x $\in$] 0, 1, then the value of x is

    a. 0   b. $\frac{a}{2}$ c. a   d. $\frac{2a}{1-a^2}$

14. The value of the expression $\tan\left(\frac{1}{2}\cos^{-1}\frac{2}{\sqrt{5}}\right)$ is

    a. $2 + \sqrt{5}$ b. $\sqrt{5} - 2$ c. $5 + \sqrt{2}$ d. $\frac{\sqrt{5}+2}{2}$

15. If A and B are two matrices of the order 3 × m and 3 × n. respectively, and m = n, then the order of matrix (5A – 2B) is

    a. m × 3   b. 3 × 3   c. m × n   d. 3 × n

16. if $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, then A^2 is equal to

    a. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ b. $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$ c. $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$ d. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

17. If A is matrix of order m × n and B is a matrix such that AB' and B'A are both defined, then order of matrix B is

    a. m × m   b. n × n   c. m × n   d. n × m

18. if A and B are matrices of same order, then (AB' - BA') is a

    a. skew symmetric matrix

    b. null matrix

    c. symmetric matrix

    d. unit matrix

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

    a. A   b. I – A   c. I + A   d. 3A

20. For any two matrices A and B, we have

    a. AB = BA   b. AB ≠ BA   c. AB= 0   d. none of thes

21. If x , y $\in$ R, then the determinant $\Delta = \begin{vmatrix} \cos x & -\sin x & 1 \\ \sin x & \cos x & 1 \\ \cos(x+y) & -\sin(x+y) & 0 \end{vmatrix}$ lies in the interval

    a. $[-\sqrt{2}, \sqrt{2}]$ b. $[-1, 1]$ c. $[-\sqrt{2}, 1]$ d. $[-1. -\sqrt{2}]$

22. The value of determinant $\begin{vmatrix} a-b & b+c & a \\ b-a & c+a & b \\ c-a & a+b & c \end{vmatrix}$

    a. $a^3 + b^3 + c^3$ b. 3 bc   c. $a^3 + b^3 + c^3 - 3abc$ d. none of thes

23. The value of determinants $\begin{vmatrix} b^2 - ab & b - c & bc - ac \\ ab - a^2 & a - b & b^2 - ab \\ bc - ac & c - a & ab - a^2 \end{vmatrix}$ equals

    a. abc(b-c) (c-a) (a-b) b. (b-c) (c-a) (a-b)   c. (a+b+c)(b-c) (c-a) (a-b)   d. None of these

24. The maximum value of $\Delta = \begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 + sin\theta & 1 \\ 1 + cos\theta & 1 & 1 \end{vmatrix}$ is (θ is a real number)

    a. $\frac{1}{2}$ b. $\frac{\sqrt{3}}{2}$ c. $\sqrt{2}$ d. $\frac{2\sqrt{3}}{4}$

25. If A = $\begin{bmatrix} 2 & \lambda & -3 \\ 0 & 2 & 5 \\ 1 & 1 & 3 \end{bmatrix}$, then A^{-1} exists if

    a. λ = 2   b. $\lambda \neq$ 2   c. $\lambda \neq$ -2   d. none of these

26. If x, y, z are all different from zero and $\begin{vmatrix} 1 + x & 1 & 1 \\ 1 & 1 + y & 1 \\ 1 & 1 & 1 + z \end{vmatrix}$ = 0, then value of

    $x^{-1} + y^{-1} + z^{-1}$ is

    a. x y z   b. x^{-1} y^{-1} z^{-1} c. -x-y-z   d. -1

27. The function f(x) = $\begin{cases} \frac{sinx}{x} + cos\ x, & if\ x \neq 0 \\ k, & if\ x = 0 \end{cases}$ is continuous at x = 0, then the value of

    k is

    a. 3   b. 1   c. 2   d. 1.5

28. The function f(x) = [x] denotes the greatest integer function, continuous at

    a. 4   b. -2   c. 1   d. 1.5

29. The function f(x) = $|x| + |x + 1|$ is

    a. Continuous at x = 0 as well as x = 1

    b. Continuous at x = 1 but not at x = 0

    c. Discontinuous at x = 0 as well as at x = 1

    d. Continuous at x = 0 but not at x = 1

30. The value of k which makes the function defined by f(x) = $\begin{cases} sin\ \frac{1}{x}, & if\ x \neq 0 \\ k, & if\ x = 0 \end{cases}$, continuose c

    x = 0 is

    a. 8   b. 1   c. -1   d. none of these

31. If u = $sin^{-1}\left(\frac{2x}{1 + x^2}\right)$ and y = $tan^{-1}\left(\frac{2x}{1 - x^2}\right)$, then $\frac{du}{dv}$ is

    a. $\frac{1}{2}$ b. x   c. $\frac{1 - x^2}{1 + x^2}$ d. 1

32. The value of c in Mean value theorem for the function f(x) = x(x – 2), x $\in$ [1. 2] is

a. $\frac{3}{2}$ b. $\frac{2}{3}$ c. $\frac{1}{2}$ d. $\frac{3}{2}$

33. The set of points where the function f given by f(x) = |2x − 1| sinx is differentiable is

    a. R   b. R - $\left\{\frac{1}{2}\right\}$ c. (0, ∞)   d. none of these

34. If y = log $\left(\frac{1-x^2}{1+x^2}\right)$, then find $\frac{dy}{dx}$ is equal to

    a. $\frac{4x^3}{1-x^4}$ b. $\frac{-4x}{1-x^4}$ c. $\frac{1}{4-x^4}$ d. $\frac{-4x^3}{1-x^4}$

35. If x = t^2 , y = t^3 , then $\frac{d^2y}{dx^2}$ is

    a. $\frac{3}{2}$ b. $\frac{3}{4t}$ c. $\frac{3}{2t}$ d. $\frac{3}{2t}$

36. The value of c on Rolle's theorem for the function f(x) = x^3 - 3x in the interval [0, $\sqrt{3}$] is

    a. 1   b. -1   c. $\frac{3}{2}$ d. $\frac{1}{3}$

37. For the function f(x) = x + $\frac{1}{x}$, x ∈ [1, 3], the value of c for mean value theorem is

    a. 1   b. 2   c. $\sqrt{3}$ d. none of these

38. The tangent to the curve given by x = e^t . cost, y =e^t . sin t at t = $\frac{\pi}{4}$ makes with xc – axis an

    angle :

    a. 0   b. $\frac{\pi}{4}$ c. $\frac{\pi}{3}$ d. $\frac{\pi}{2}$

39. The equation of the normal to the curve y = sin x at (0, 0) is:

    a. x = 0   b. y = 0   c. x + y = 0   d. x – y

    0

40. The sides of an equilateral triangle are increasing at the ratio of 2 cm/sec. the rate at whicl

    the area increases, when side is 10 cm is:

    a. 10 cm² /s   b. $\sqrt{3}$ cm² /s   c. 10 $\sqrt{3}$ cm² /s   d. $\frac{10}{3}$ cm² /s

41. The equation of normal to the curve $3x^2$ - y^2 = 8 which is parallel to the line x + 3y = 8 is

    a. 3x – y = 8   b. 3x + y + 8 = 0   c. x + 3y ±8 = 0   d. x + 3y = 0

42. If y = x^4 – 10 and if x changes from 2 to 1.99, what is the change in y

    a. .32   b. .032   c. 5.68   d. 5.968

43. The points at which the tangents to the curve y = x^3 - 12x + 18 are parallel to x – axis are:

    a. (2, -2), (-2, -34)   b. (2, 34), (-2, 0)   c. (0, 34), (-2, 0) d. (2,2), (-2, 34)

44. The two curves x^3 - 3xy² + 2 = 0 and 3x² y – y³ - 2= 0 intersect at an angle of

    a. $\frac{\pi}{4}$ b. $\frac{\pi}{3}$ c. $\frac{\pi}{2}$ d. $\frac{\pi}{6}$

45. y = x (x – 3)² decreases for the values of x given by :

a.   1 < x < 3   b. x < 0   c. x > 0   d. 0 < x < $\frac{3}{2}$

46. Which of the following functions is decreasing on $\left(0, \frac{\pi}{2}\right)$

a.   sin 2x   b. tan x   c. cos x   d. cos 3x

47. if x is real, the minimum value of $x^2 - 8x + 17$ is

a.   -1   b. 0   c. 1   d. 2

48. The smallest value of the polynomial $x^3 - 18x^2 + 96x$ in [0,9] is

a.   126   b. 0   c. 135   d. 160

Note: Do all the Exemplar questions neatly in separate school notebook

ACCOUNTANCY

Q. Prepare the questions as per directions: -

Ch-NON FOR PROFIT ORGANISATION

XII C TRUE/FALSE	Roll No. -1-3
Fill in the blanks	Roll No. -4-6
MCQ	Roll No. -7-9
Application Based	Roll No.-10

Ch- Fundamentals of partnership

XII C TRUE/FALSE	Roll No. -11-13
Fill in the blanks	Roll No. -14-16
MCQ	Roll No. -17-19
Application Based	Roll No.-20

Ch- Goodwill

XII C TRUE/FALSE	Roll No. -21
Fill in the blanks	Roll No. -22
MCQ	Roll No. -23

Ch- Admission Of a Partner

XII C TRUE/FALSE	Roll No. -24-26
Fill in the blanks	Roll No. -27-28
MCQ	Roll No. -29
Application Based	Roll No.-30

Ch- Retirement of a Partner

XII D TRUE/FALSE	Roll No. -1-3
Fill in the blanks	Roll No. -4-6

MCQ	Roll No. -7-9
Application Based	Roll No.-10

Ch- Death of a Partner

XII D TRUE/FALSE	Roll No. -11-12
Fill in the blanks	Roll No. -13-14
MCQ	Roll No. -15-16
Application Based	Roll No.-17

Ch-Dissolution Of Partnership Firm

XII D TRUE/FALSE	Roll No. -18-21
Fill in the blanks	Roll No. -22-23
MCQ	Roll No. -24-25
Application Based	Roll No.-26

Ch- Ratio

XII D TRUE/FALSE	Roll No. -27
Fill in the blanks	Roll No. -28
MCQ	Roll No. -29-30

Q. Do Practice Sheet No.-2,5 and 6 of Practice Manual.

Q. Prepare the following Sheets for the project work

- Acknowledgement
- Certificate
- Tittle Sheet
- Introduction of the Company

Bring the Balance Sheet of Company selected for further project.

All Holiday homework to be done in separate notebook

Prepare for July Test Series

Practice NCERT illustrations of Ch:1-4

ECONOMICS

1. Read following chapters of Indian Economic development and Frame 15 MCQs, Fill in the blanks and True/False with reasons as per the instructions below.

Ch- POVERTY

XII C TRUE/FALSE	Roll No. -7,8,9

Fill in the blanks   Roll No. -1,2,3

MCQ   Roll No. 4,5,6

Ch- HUMAN CAPITAL FORMATION

XII C TRUE/FALSE   Roll No. – 16,17,18

Fill in the blanks   Roll No. -10, 11, 12

MCQ   Roll No. -13,14,15

Ch- RURAL DEVELOPMENT

XII C TRUE/FALSE   Roll No. -25,26,27

Fill in the blanks   Roll No. -19,20,21

MCQ   Roll No. -22,23,24

Ch- EMPLOYMENT

XII C TRUE/FALSE   Roll No. -28,29,30

 XII D   Fill in the blanks   Roll No. -1,2,3

MCQ   Roll No. – 4,5,6

Ch- INFRASTRUCTURE

XII D TRUE/FALSE   Roll No. – 13,14,15

Fill in the blanks   Roll No. -7,8,9

MCQ   Roll No. -10,11,12

Ch- SUSTAINABLE DEVELOPMENT

XII D TRUE/FALSE   Roll No. – 16,17,18

Fill in the blanks   Roll No. -19,20,21

MCQ   Roll No. -22,23,24

Ch- COMPARATIVE DEVELOPMENT EXPERIENCE OF INDIA AND ITS NEIGHBOURS

XII D TRUE/FALSE   Roll No. – 25,26,27

Fill in the blanks   Roll No. -28,29

   XII E   MCQ   Roll No. -1 ,2,3

Ch- INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

XII E TRUE/FALSE   Roll No. -4,5,6

Fill in the blanks   Roll No. -7,8,9

MCQ   Roll No. -10,11,12

Ch- LPG: AN APPRAISAL

XII E TRUE/FALSE   Roll No. -13,14,15

Fill in the blanks   Roll No. -16,17,18

MCQ   Roll No. -19.

2. Write the synopsis of the discussed CBSE projects in the class e.g.

Class XII	
• Micro and Small Scale Industries	• Food Supply Channel in India
• Contemporary Employment situation in India	• Disinvestment policy of the government
• Goods and Services Tax Act and its Impact on GDP	• Health Expenditure (of any state)
• Human Development Index	• Inclusive Growth Strategy
• Self-help group	• Trends in Credit availability in India
• Monetary policy committee and its functions	• Role of RBI in Control of Credit
• Government Budget & its Components	• Trends in budgetary condition of India
• Exchange Rate determination – Methods and Techniques	• Currency War – reasons and repercussions
• Livestock – Backbone of Rural India	• Alternate fuel – types and importance
• Sarwa Siksha Abhiyan – Cost Ratio Benefits	• Golden Quadrilateral- Cost ratio benefit
• Minimum Support Prices	• Relation between Stock Price Index and Economic Health of Nation
• Waste Management in India – Need of the hour	• Minimum Wage Rate – approach and Application
• Digital India- Step towards the future	• Rain Water Harvesting – a solution to water crises
• Vertical Farming – an alternate way	• Silk Route- Revival of the past
• Make in India – The way ahead	• Bumper Production- Boon or Bane for the farmer
• Rise of Concrete Jungle- Trend Analysis	• Organic Farming – Back to the Nature
• Any other newspaper article and its evaluation on basis of economic principles	• **Any other topic**

<u>**Scope of the project:**</u>

Learners may work upon the following lines as a suggested flow chart:

Choose a title/topic

↓

Collection of the research material/data

↓

Organization of material/data

↓

Present material/data

↓

Analysing the material/data for conclusion

↓

Draw the relevant conclusion

↓

Presentation of the Project Work

3. Do "level 2" questions of Chapter-1 (National Income) from practice annual.

4. Prepare for July Test Series.

INFORMATICS PRACTICES

Q1. Choose any one topic for the project from the list given below:

- Player Information System
- Payroll System
- Hospital Management
- Student Management System
- Mobile Billing System
- Billing System(Any)
- Student Fee Management System
- Banking
- Library Management System
- Hotel Management System
- School Information System etc.

Complete the Project and submit the CD along with the proper project report.

Layout of the project:

- Cover Page (including name of the project, name of the student, roll no and class)
  - Index
  - Acknowledgement
  - Content
  - Output
  - Bibliography

Assessment Criteria: Content, Originality, & Presentation

Q2. Make 20 programs using Java Swings (NetBeans)

Q3. Create any HTML website. Containing 5 pages (Interlinked) (other than those done in the class)

Q4. Revise class - XI MySQL Part

PHYSICAL EDUCATION

- Write 2 practical's in Physical Education Practical File (Samar Publication).
  Practical 1. American Alliance for Health, Physical Education, Recreation & Dance (*AAHPERD*
  Practical 2. Any one team game (Football, Basketball and Cricket)

- **Project Work**
  Perform 10 asanas given in your book (chapter 3). From every disease perform two asanas an
  make sure there should not be any repetition of asana. Take your own picture, print it and
  paste it in your project file.