English
SECTION –A: READING (20 Marks)

Q1. Read the passage given below and answer the questions that follow:

1. Cricket is a global passion, played everywhere from Test match arenas to village greens, tropical beaches and dusty back lots. Cricket is the world's second most popular spectator sport after football.

2. The origin of cricket is somewhere in the Dark Ages. All research concedes that the game derived from a very old, widespread and uncomplicated pastime by which one player served up an object, be it a small piece of wood or a ball, and another hit it with a suitably fashioned club. Cricket was first recorded in 16th-century England, and it was played in grammar schools, farm communities and everywhere in between. But things really took off when 18th-century nobles realised it was a great sport.

3. The oldest surviving set of cricket laws date from 1744 – printed on a handkerchief, naturally. It's now in the MCC Museum at Lord's in London. The oldest permanent fixture is the annual Eton v Harrow match, played since 1805. A young Lord Byron turned out for Harrow in the first match, though history doesn't record how poetic – or "mad, bad and dangerous" – his bowling was.

5. The first international match was in 1877 when Australia beat England in Melbourne. The match was dubbed a "Test", since the gruelling nature of playing over five days was deemed the ultimate "test" for any side. But it was Australia's first win on English soil – in 1882 at The Oval in London – that led to matches between the two nations being christened the Ashes. Following the defeat, newspapers published an obituary mourning "the death of English cricket", adding that "the body will be cremated and the ashes taken to Australia".

6. A One Day International (ODI) is a form of limited overs cricket, played between two teams with international status, in which each team faces a fixed number of overs, usually 50. The Cricket World Cup is played in this format. The international one-day game is a late twentieth-century development. The first ODI was played on 5 January 1971 between Australia and England at the Melbourne Cricket Ground.

1.1 Attempt any eight of the following questions on the basis of the passage you have read.

   i. According to the passage, how did the game of Cricket originate?

   ii. Where can we find the oldest sets of Cricket laws?

   iii. Which match did Lord Byron play?

   iv. When was the first international match played?

   v. Which countries played that match?

   vi. Why were the matches between Australia and England titled The Ashes?

   vii. In which format is the Cricket world cup played ?

   viii. When did the ODIs begin?

   ix. Which word in paragraph no.5 means the same as 'exhausting'?

Q2.Read the passage given below and answer the questions that follow:

1. Politeness has been well defined as benevolence in trifles. It is the desire to put those whom we meet perfectly at their ease, and save them from every kind of petty discomfort and annoyance. The limited part of benevolence called politeness requires only an inclination to make them happy temporarily, while they are in our presence, and when this

can be done without any sacrifice on our part or only with a slight sacrifice of personal comfort.

2. Politeness is said to be one of the important characteristics of civilised person. Politeness is the art of choosing among your thoughts. It must be implemented in every walk of life. When we deal with people elder to us we are polite. But, an honest polite person is polite with everyone, people of lower status, workers and even children. Not only with humans but also with animals we must be polite as they are our helpers.

3. Politeness is a skill. Like any other skill, you can master it with practice. The greatest enemy of politeness is ego. To be a polite person, you have to sacrifice your ego. It is difficult for an egoist to be polite. You have to imply politeness in your thinking, speech and actions. Actions work more than words. Polite actions will give fine results. Politeness will reduce your stress and boost you to be productive. Apart from your present benefits, you protect your future. Being polite makes you mentally healthy. In our daily life we come across many incidents with people nearby and ourselves.

4. Different rules of behaviour have to be observed, accordingly as we are in the street or in the drawing- room, at home or at school, in the company of friends or of strangers. There is also to be considered the great diversity of social etiquette which distinguishes one country from another.

5. Politeness, besides being a duty that we owe to others, is a valuable possession for ourselves. It costs nothing, and yet may in many cases bring much profit. The great advantage of this excellence of conduct was very clearly expressed by Dr. Johnson, when he said that the difference between a well-bred and an ill- bred man is that one immediately attracts your liking, the other your dislike.

2.1   On the basis of your reading of the passage, answer any four of the following questions in about 30-40 words each .
i. Why is politeness called as limited part of benevolence?
ii. List some of the persons we should be polite to?
iii. Why is it difficult for an egoist to be polite?
iv. What are the benefits of being polite?
v. Which rules of behaviour are to be observed?

2.2   On the basis of your reading of the passage, fill in any two of the following blanks with appropriate
words/phrases.
i. Politeness is an art of choosing_____.
ii. An honest polite person is polite with _____.
iii. To others, we _____.

2.3.   Attempt any two of the following. Find out the words that mean the same as under:
i. 'insignificant' (Paragraph 1)
ii. 'manners' (Paragraph 4)
iii. 'civil'(Paragraph 5)

SECTION B: WRITING AND GRAMMAR (30 Marks)

Q3.   (a) You are Sonal/ Samkit of Vidyanjali Public School , Lucknow . You have seen an advertisement in 'The Times of India ' related to new batches of 'Astronomy Club' initiated by National Science Centre , Lucknow starting from the coming fortnight .You wish to join the Club. Write a letter to the Director, enquiring about the venue , duration ,fee- structure , activities ,transportation etc. Invent other necessary details. (100-120 words)

OR

(b) You are the In-charge of the Medical Section of Gyanodaya Public School , Nehru Vihar , Alwar .Your stock of medicines is about to finish .Write a letter to the Director of Jambo Medicare ,Delhi , ordering medical items like glucose , crocin , bandages, tincture ,

pain-healers, ointments etc. Ask for discount on bulk order. Invent other necessary details. (100-120 words)

Q4 **Write a short story, in about 200-250 words, with any one set of the cues given in the boxes below. Give a suitable title to the story.**

On October 4, we all were decorating our house to celebrate the most long awaited festival, Diwali. My heart was filled with excitement to meet my father after a long gap of six years. But a call from the army headquarter, left us stunned...

OR

Two teams – in the playground – whistle blew – match about to begin - the two captains looked tense – suddenly there was a commotion.

Q5. **Fill in any four of the following blanks choosing the most appropriate option from the ones given**
below. Write the answers in your answer –sheet against the correct blank numbers.

A.Sanitation and hygiene are also important (a) _____the well – being of society and biodiversity conservation.

B. The government has (b)_____ a programme.

C. It aims to develop (c) _____river fronts.

D. It will solve the problem of pollution (d) _____ the rivers.

E. The need has been (e) _____for a long time.

(a) (i) by (ii) from (iii) for (iv) into

(b) (i) initiates (ii) initiated (iii) initiate (iv)initiating

(c) (i) an (ii) a (iii) in (iv) the

(d) (i) in (ii) on (iii) onto (iv)by

(e) (i) feeling (ii) feel (iii) felt (iv) have felt

Q6. **In the following passage one word has been omitted in each line .Write the missing word, in any four sentences of the given paragraph, along with the word that comes before and the word that comes after it in the space provided .**

	Missing Word	After	Before
Himachal Pradesh a good place for Eco Camp Eg. Pradesh is a			
Pine Hill Eco Camp one of the ecotourism resorts	(a) _____	_____	_____
near Barog Himachal Pradesh . Ecotourism is	(b) _____	_____	_____
gaining popularity each passing day as more	(c) _____	____	_____
and more people want get away from the	(d) _____	_____	_____
hectic schedules . This become a favourite tourist spot.(e) _____		_____	_____

Q7. **Rearrange any four of the following word clusters to make meaningful sentences.**

(a) rain water / flooding / helps/ harvesting / in / chances of / reducing

(b) storm / helps/ also/better/ water/ it / water management / in

(c) plant growth / in/storing /rainwater / can/ help / improving

(d) is/ from / stored/ natural and/ pollutants /rain water /free/ man- made

(e) out/ the/street/ earthquake/another/on/people/ came/ fearing/

SECTION C LITERATURE (30 Marks)

Q8 **Read the extract given below and answer the questions that follow. Write the answer in your answer sheet in one or two lines only.**

(a) "Tortured by doubt and remorse, he sat down by the glow of the charcoal sigri to wait."

i. Who sat by the charcoal sigri?

ii. Why was he tortured by doubt and remorse?

iii. What was he waiting for?

iv. Name the chapter.

Or

(b) CAESAR :   Cowards die many times before their deaths;
                     The valiant never taste of death but once.
                     Of all the wonders that I yet have heard.
                     It seems to me most strange that men should fear;
                     Seeing that death, a necessary end,
                     Will come when it will come.

i. Whom does Caesar console and why?

ii. Which quality of the speaker is revealed here?

iii. Explain: Cowards die many times before their deaths.

iv. Give the synonym of 'Gallant'.

Q9   Answer any four of the following Questions in 30-40 words each.

i. Although Calpurnia revealed her fear after the nightmare yet, Caesar decided to go to the senate house. Why?

ii. "Pen is mightier than sword". Elucidate with reference to the poem 'Not Marble Nor The Gilded Monuments'.

iii. What does the expression on the shattered visage tell you about the sculptor's skills in the poem Ozymandias?

iv. What message is conveyed through the play 'Dear Departed'?

v. What is your impression of the postmen and the postmaster in the story, The Letter?

Q10   Attempt any one out of the two following long answer type questions in 100-200 words.

(a) 'Pride goes before a fall.' Justify the statement on the basis of the chapter Ozymandias.

OR

(b) 'Only the bearer knows where the shoe pinches.' Elucidate the statement with reference to the story 'The Letter'.

11.   Answer the following question in 200-250 words.

What does Anne's diary reveal about the steadily worsening economic and social conditions during the war?

OR

What is your impression of Peter?

OR

Helen's illness at the age of nineteen months made her a prisoner in a totally dark and silent world. Yet, she overcame all the problems and became a role model for many. Discuss Helen's life in the light of the statement.

OR

Describe Ms. Sullivan's teaching methods.

PHYSICS
MAGNETIC EFFECT OF CURRENT

1. Name any two appliances which are based on the application of heating effect of electric current.

2. Name the type of current (a) used in household supply (b) given in cell.

3. Explain the role of fuse in series with any electrical appliance in an electric circuit. Why should a fuse with defined rating for an electric circuit not be replaced by one with a larger rating?

4. What is meant by the term frequency of an alternating current? What is the value in India? Why is an alternating current considered to be advantageous over direct current for long range transmission of electric energy?

5. What is an electromagnet? Draw a circuit diagram to show how a soft iron piece can be transformed into electromagnet.

6. With the help of neat diagram describe how you can generate induced current in the circuit.

   a. Mention effect of electric current on which the working of an electrical fuse is based.
   b. Draw a schematic labeled diagram of a domestic circuit which has a provision of a main base, meter, one light bulb and a socket.
   c. Explain the term overloading of an electric circuit.
7. a. Describe an activity to demonstrate the pattern of magnetic field lines around a straight conductor carrying current.
   b. State the rule to find the direction of magnetic field associated with a current carrying conductor?
   c. What is the shape of a current carrying conductor whose magnetic field pattern is circular.
8. List the properties of magnetic lines of force. Why don't two magnetic lines of force intersect each other?

CHEMISTRY
METALS AND NONMETALS

1. What is an amphoteric oxide? Explain with the help of an example.
2. What is meant by anodising?
3. What happens when an acidic oxide reacts with a base? Explain with the help of a reaction.
4. How is refining of copper done? Explain with the help of a well labeled diagram.
5. Write the differences between metals and non metals on the basis of their chemical properties.
6. What is meant by smelting? Why is sodium obtained by electrolytic reduction?
7. Explain thermite reaction .Give one use of this reaction.
8. What is meant by auto-reduction. Explain with the help of a chemical reaction.
9. What happens when

   (i) Zn s is treated with excess oxygen?   (ii) Hgo is being heated?

10. Write one activity to show oxygen & moisture is required for rusting to take place.

CARBON AND ITS COMPOUNDS
1. Why is pure ethanoic acid called glacial acetic acid?
2. Why does carbon form large number of compounds?
3. Explain the difference between saturated and unsaturated compounds with the help of suitable examples.
4. Alcohols constitute a homologous series? Give four example of it.
5. Draw electron dot structure for the following:
   i)ethanol   ii)Hydrogen sulphide   iii) propanone
6. Why are soaps not suitable for washing clothes with hard water?
7. What is meant by the following:
   i)Esterification
   ii)Hydrogenation
   iii)Saponification
8. How are carboxylic acids different from mineral acids from ionization point of view?
9. An ester having molecular formula $C_5H_{10}O_2$ on treating with NaoH produce ethyl alcohol, which on treating with conc H_2SO_4 produce an unsaturated hydrocarbon B, identify A&B.
10. Write chemical composition of soap and detergent. Write chemical reaction for removing hardness of water by treating with washing soda.

BIOLOGY
SOURCES OF ENERGY

1. What are fossil fuels? How are they formed?
2. What is biomass?
3. How are conventional sources of energy different from non-conventional sources of energy?
4. What is the difference between a thermal power plant and a hydropower plant?
5. What are the limitations of harnessing wind energy?
6. State two advantages and two disadvantages of geothermal energy.
7. Which of the two is a cleaner fuel hydrogen or CNG? Why?
8. What are the advantages and disadvantages of solar cooker?
9. What are the disadvantages of constructing dams for harnessing   power energy.
10. Why biogas considered an ideal fuel for domestic use? Give three reasons.

Control and Coordination Assignment

1. What is the function of receptors ? State the function of gustatory and olfactory receptors.
2. Why is it advisable to take iodised salt in our diet?
3. What is a synapse? In a neuron cell, how is an electrical impulse created and what is the role of synapse in this context?
4. What is geotropism? How does it occur? Describe an activity to demonstrate phototropism.
5. What is a reflex arc? Why do impulses flow only in one direction in a reflex arc?
6. Why pituitary is called the master gland?
7. Which part of the brain controls blood pressure and temperature?
8. Define hormones. Name any four hormones secreted in plants and mention their functions.
9. Neha's father has been advised by a doctor to reduce his sugar intake.
      (a) Name the disease he is suffering from and name the hormone whose deficiency causes it.
      (b) Identify the gland that secrets it and mention the function of this hormone.
      (c) Explain how the time and amount of secretion of this hormone is regulated in human system.
10. Why do leaves fall seasonally?

How do Organism Reproduce   Assignment

1. What is vegetative propagation? List any four advantage of growing plant through vegetative propagation.
2. What is regeneration? Give two examples.
3. List any three distinguishing feature between sexual and asexual type of reproduction.
4. Differentiate between self pollination and cross pollination.
5. What is fertilization? Which is the site of fertilization in human being?
6. Suggest the contraceptive methods to control the size of human population?
7. How does growing embryo get nutrition from the mother's blood?
8. Differentiate between Gamete and Zygote.
9 Draw the structure of a Germinating seed?
10 What is double fertilization in plants?

HISTORY /POLITICAL SCIENCE

1. Mention the arguments in favour of the view that print culture created the conditions for the occurrence of French Revolution.

2. Mention any three factors that helped creating reading mania in the Seventeenth-eighteenth century in Europe.

3. Explain the common conviction about the power of print in the Mid-Nineteenth century in Europe.

4. How did the knowledge of wood-block printing come to Europe? Explain.

5. Examine the role of Missionaries in the growth of press in India.

6. "Printing press played a major role in shaping the life style of Indian women".
    Analyse the statement.

7. Every social difference does not lead to social division. Do you agree with the statement? Justify your answer

8. Explain with examples different forms of social differences.

9. What were the reasons for conflict in Northern Ireland? How was the problem solved?

10. What do you mean by gender division? How is it linked with division of labour in most of the societies?

11. Explain communalism. How is it different from the gender division?

12. What is meant by caste inequality? What makes the caste system in India different from other societies?

GEOGRAPHY

1. Describe the three cropping seasons of India.

2. "Wheat and rice farming in India are fairly different from each other". Support the statement with five suitable examples.

3. Name one important beverage crop and specify the geographical conditions required for its growth.

4. Describe four geographical conditions required for the growth of sugarcane. Name two major sugarcane producing states of North India.

5. Explain any three factors which determine the economic viability of a reserve.

6. Name the non-metallic mineral which can split easily into thin sheets. Why is it one of the most indispensable minerals used in electric and electronic industries?

7. Why is there a pressing need for using renewable energy resources in India? Explain any three reasons.

ECONOMICS

1. How is tertiary sector different from the other two sectors of the economic activities? Explain with an example.

2. "All of the service sector is not growing equally well in India." Justify the statement with three arguments.

3. Suggest any five ways and means to create more employment in rural areas.

4. Why is modern currency accepted as a medium of exchange? Explain.

5. How do banks play an important role in the economy of India? Explain.

6. 'Cheap and affordable credit is crucial for the country's development'. Explain the statement with three points.

STATISTICS

1. The median of the following data is 52.5. Find the value of X and Y if the total frequency is 100.

C.I.	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	2	5	x	12	17	20	y	9	7	4

2. If the mean of following distribution is 50, find the value of f.

Class	0-20	20-40	40-60	60-80	80-100
Frequency	17	28	32	f	19

3. Find the missing frequency if the mean of frequency table is 50.

Age	0-20	20-40	40-60	60-80	80-100
People	17	F1	32	F2	19

4. The median of the following data is 525. Find the value of x and y if total frequency is 100.

C .I.	Frequency
0-100	2
100-200	5
200-300	x
300-400	12
400-500	17
500-600	20
600-700	y
700-800	9
800-900	7
900-1000	4
	100

5. Draw a 'less than type ogive' and 'more than type ogive' for the given data and obtain the median weight from the graph.

Weight (kg)	No. Of students
Less than 38	0
Less than 40	3
Less than 42	5
Less than44	9
Less than46	14
Less than48	28
Less than50	32
Less than52	35

6. If the mean of the data is 18, find the missing frequency p.

Marks	10	15	20	25
No. of students	5	10	p	8

7. Change the distribution to a 'more than type distribution' and draw its ogive.

Production	40-45	45-50	50-55	55-60	60-65	65-70
No. of farms	4	6	16	20	30	34

8. Find the modal class

Marks	Frequency
Less than 20	4
Less than 40	12
Less than 60	25
Less than 80	56
Less than 100	74
Less than 120	80

9. Find the mean , median and mode of the following data :-

Classes	0-20	20-40	40-60	60-80	80-100
Frequency	6	8	10	12	6

10. If the mean of six numbers :

X-5, X-1, X, X+2, X+4 and X+12 is 15, then find the mean of the first four numbers.

REAL NUMBERS

1. For any positive integer n, prove that $n^3 - n$ is a multiple of 6.
2. Show that the square of any positive integer is of the form 6m+2 or 6m+5 for any integer m.
3. Find the HCF of 65 and 117 and express it in the form 65m+117n.
4. Find the greatest number which divides 2011 and 2623 leaving remainders 9 and 5 respectively.
5. Prove that $3+2\sqrt{5}$ is irrational.

ARITHMETIC PROGRESSIONS

1. Find a, b and c such that the following numbers are in A.P: a, 7, b, 23, c.
2. Find the sum: $\frac{a-b}{a+b} + \frac{3a-2b}{a+b} + \frac{5a-3b}{a+b} + $ ....to 11 terms
3. The ratio of the 11th term to the 18th term of an AP in 2:3. Find the ratio of the 5th term to the 21st term and also the ratio of the sum of me first five terms to the sum of the first 21 terms.
4. If S_n denotes the sum of the n terms of an A.P. whose common difference is d, show that $d=S_n-2S_{n-1}+ S_{n-2}$.
5. Find the sum of 2n terms of the series $1^2-2^2+3^2-4^2+5^2-6^2+$..........
6. If S_1, S_2, S_3 are the sum of n terms of three APs, the first term of each being using and the respective common difference being 1,2 & 3; prove that $S_1+ S_3=2S_2$.
7. If S_n denotes the sum of first n-terms of an A.P, prove that $S_{12}=3(S_8-S_4)$
8. If the sum of first 4 terms of an A.P is 40 and that of first 14 terms is 280, find the sum of its first n terms.
9. Find the common difference of an A.P whose first term in 5 and the sum of its first four terms is half the sum of the next four terms.
10. Show that the sum of first n-even natural number is equal to $(1+\frac{1}{n})$ times the sum of the first n-odd natural numbers.
11. If the seventh term of an AP is $\frac{1}{9}$ and its ninth term is $\frac{1}{7}$, find its 63rd term.
12. The sum of the first 7 terms of an AP is 63 and the sum of next 7 terms is 161. Find the 28th term of this AP.
13. If the ratio of the sum of first n terms of two AP's is (7n+1) : (4n+1), find the ratio of their mth terms.
14. A thief runs with a uniform speed of 100 m/minute . After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will catch the thief?

15. The houses in a row are numbered consecutively from 1 to 49. Show that there exists a value of X such that the sum of numbers of houses preceding the house numbered X is equal to sum of the numbers of houses following X. Find the value of X.

CIRCLE

(1) The radius of the incircle of a triangle is 4 cm and the segments into which one side is divided by the point of contact are 6 cm and 8 cm. Determine the other two sides of the triangle.

(2) Two circle with Centre A and B of radius 3 cm and 4 cm respectively intersect at two points C and D such that AC and BC are tangents to the two circle .find the length of the common chord CD.

(3) In the given figure PA and PB are tangents from an internal point P to a circle with Centre O , LN touches the circle at M. Prove that PL +LM =PN+MN
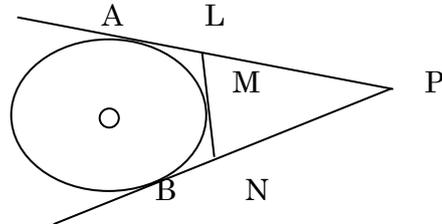

(4) AB is a diameter of a circle. P is a point on the semi – circle APB. AH and BK are perpendicular from A and B respectively to the tangent at P. Prove that AH+BK= AB.

(5) If an isosceles triangle ABC in which AB=AC=6 cm is inscribed in a circle of radius 9 cm, find the area of the triangle.

(6) The radius of two concentric circles are 13 cm and 18 cm AB is a diameter of the bigger circle. BE is a tangent to the smaller circle touching it at D . Find the length of AD.
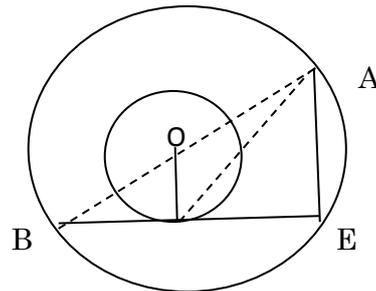
(7) If a circle touches the sides of a quadrilateral ABCD at P,Q,R,S respectively, Show that angles subtended at the centre by a pair of opposite sides are supplementary.

(8) PQ is a chord of length 8 cm of a circle of radius 5 c m. The tangents at P and Q intersect at a point T. Find the length of TP.
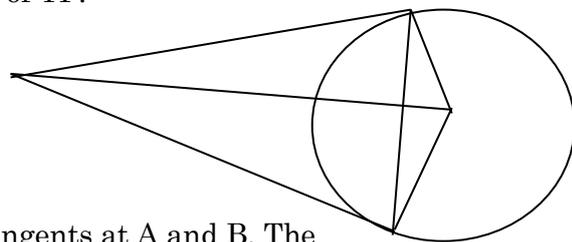
(9) In the given figures l and m are two parallel tangents at A and B. The tangent at C makes an intercept DE between l and m . Prove that <DFE = 90º
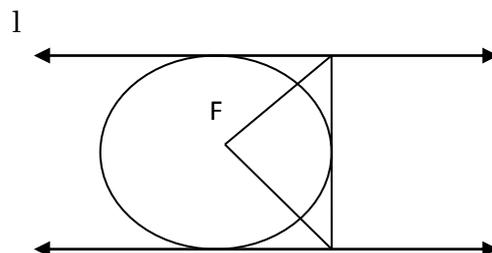
HEIGHT & DISTANCE

1. The angle of elevation of the top of a tower, from a point on the ground and at a distance of 150 m from its foot, is 30°. Find the height of the tower correct to one decimal place.

2. From a point P in the level ground, the angle of elevation of the top of a tower is 30°. If the tower is 100 m high, how far is P from the foot of tower?

3. A kite is flying at a height of 75 meters from the level ground, attached to a string inclined at 60° to the horizontal. Find the length of the string to the nearest meter.

4. If the length of a shadow cast by a pole be $\sqrt{3}$ times the length of the pole, find the angle of elevation of the sun.

5. The angle of elevation of a cloud from a point 200 meters above a lake is 30° and the angle of depression of its reflection in the lake 60°. Find the height of the cloud.

6. (a) From a boat 300 meters away from a vertical cliff, the angles of elevation of the top and the foot of a vertical concrete pillar at the edge of the cliff are 55° 40' and 54° 20' respectively. Find the height of the pillar correct to the nearest meter.

   (b) From a man M, the angle of elevation of the top of a tree is 44°. What is the angle of elevation from the man of a bird perched half way up the tree?

7. The Upper part of a tree broken by wind, falls to the ground without being detached. The top of the broken part touches the ground at an angle of $38^{\circ}30'$ at a point 6 m from the foot of the tree. Calculate
   (i) The height at which the tree is broken.
   (ii) The original height of the tree correct to two decimal places.

8. The angle of elevation of the top of a tower from a point A (on the ground) is 30°. On walking 50 m towards the tower, the angle of elevation is found to be 60°. Calculate :
   (i) The Height of the tower (correct to one decimal place).
   (ii) The distance of the tower from A.

9. from the top of a church spire 96 m high, the angle of depression of two vehicles on a road at the same level as the base of the spire and on the same side of it are x° and y°, Where $\tan x^{\circ} = ¼$ and $\tan y^{\circ} = 1/7$. Calculate the distance between the vehicles.

10. The shadow of a vertical tower on level ground increases by 10 m, When the altitude of the sun changes from 45° to 30°. Find the height of the tower correct to one decimal place.

PROBABILITY

1. A card is drawn at random from a well shuffled deck of playing cards . Find the probability that the card drawn is
   i) A card of spade or an ace
   ii) A black king
   iii) Neither a jack nor a king.
   iv) Either a king or a queen

2. A bag contains white, black and red balls only. A ball is drawn at random from the bag. If the probability of getting a white ball is 3/10 and that of a black ball is 2/5, find the probability of getting a red ball. If the bag contains 20 black balls, then find the total number of balls in the bag.

3. Find the probability of getting 53 Fridays in a leap year.

4. Out of 400 balls in a box, 15 balls are defective. One ball is taken out at random from the box. Find the probability that the ball drawn is not defective.

5. Rahim tosses two different coins simultaneously. Find the probability of getting at least one tail.

6. A die is thrown once. Find the probability of getting:-
   i) a prime number
   ii) a number lying between '2' and '6'
   iii) an odd number

7. 1000 tickets of a lottery were sold and there are 5 prizes on these tickets. If Saket has purchased one lottery ticket, what is the probability of winning a prize?

8. All the black face cards are removed from a pack of 52 playing cards. The remaining cards are well – shuffled and then a card is drawn at random. Find the probability of getting a
   i) face card   ii) black card   iii) king

9. A number x is chosen at random from the numbers -3, -2,-1 , 0, 1, 2, 3 . What is the probability that Mod X <2?

10. A bag contains 7 green , 10 blue and 5 red balls . A ball is drawn at random. Find the probability of this ball being a
    i) blue ball   ii) not a green ball   iii) red ball or a green ball.

11. Two dice are thrown at the same time. Find the probability of getting
   (i)   Same number on both dice.
   (ii)   Different numbers on both dice.

12. A bag contains white, black and red balls only. A ball is drawn at random from the bag.The probability of getting a white ball is $\frac{3}{10}$ and that of a black ball is $\frac{2}{5}$. Find the probability of getting a red ball. If the bag contains 20 black balls, then find the total number of balls in the bag.

13. Cards bearing numbers 1,3,5,…………..,35 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card bearing
   (i)   A prime number less than 15.   (ii) a number divisible by 3 and 5

14. A carton of 24 bulbs contain 6 defective bulbs. One bulb is drawn at random . What is the probability that the bulb is not defective? If the bulb selected is defective and it is not replaced and a second bulb is selected at random from the rest, what is the probability that the second bulb is defective?

15. A bag contains 18 balls out of which X balls are red.
   (i)   If one ball is drawn at random from the bag, what is the probability that it is not red?
   (ii)   If 2 more red balls are put in the bag, the probability of drawing a red ball will be $\frac{9}{8}$ times the probability of drawing a red ball in the first case. Find X.

POLYNOMIALS

1. Show that the square of an odd positive integer can be of the form $6q + 1 \: or \: 6q + 3$ for some integer q.

2. What must be subtracted from $p(x) = 8x^2 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $g(x) = 4x^2 + 3x - 2$?

3. Given that $\sqrt{2}$ is a zero of the cubic polynomial space $6x^3 + \sqrt{2}\,x^2$ - 10x - $4\sqrt{2}$, find its other zeros.

4. If $\boldsymbol{\alpha}$ **and** $\boldsymbol{\beta}$ are the zeros of the quadratic polynomial $f(x) = 2x^2 - 5x + 7$, find a polynomial whose zeros are $2\alpha + 3\beta$ and $3\alpha + 2\beta$.

5. Obtain all zeros of $3x^4 + 6x^3 - 2x^2 - 10x - 5$ if two its zero are $\sqrt{5/3}$ and $-\sqrt{5/3}$.

(Coordinate Geometry)

1. If the points A(6,1),B(8,2),C(9,4)and D(p,3) are the vertices of a parallelogram taken in order, find the value of p.

2. In what ratio does the point (-4,6) divide the line segment joining the points A(-6,10) and B(3,-8) ?

3. If the points A(-1,-4),B(b,c)and C(5,-1)are collinear and 2b+c=4,find the values of b and c.

4. If the point P(x,y) is equidistant from the points A(5,1)and B(1,5),prove that x=y.

5. Two vertices of a triangle are (3,-5) and (-7,4). If the centroid is (2,-1),find the third vertex.

6. A(6,1) , B(8,2) and C(9,4) are three vertices of a parallelogram ABCD. If E is the mid point of DC, find the area of triangle ADE.
7. Find the points on the x –axis which are at a distance of $2\sqrt{5}$ from the point (7,-4). How many such points are there?
8. If the point (a,0), (0,b) and (1,1) are collinear , show that 1/a+1/b=1.
9. If A (5,3) , B(11,-5) and C(12,y) are vertices of a right triangle right angled at C , then find the value of y.
10. If P and Q are two points whose coordinates are (at^2 , 2at) and (a/t^2 ,-2a/t) respectively and S is a point (a,0), show that (1/SP+1/SQ) is independent of t.
11. The line joining the points (2,1) and (5,-8) is trisected at points P and Q . If the point P lies on the line 2x-y+k=0 , find the value of K.
12. The opposite angular points of a square are (2,0) and (5,1). Find the remaining points.
13. Name the type of triangle formed by the points A(2,3), B(4,6) and C(6,9).
14. The vertices of $\triangle$PQR are P(4,6) , Q(1,5) and R(7,2). A line is drawn to intersect sides PQ and PR at M and N respectively, such that PM/PQ=PN/PR=1/4 . Calculate the area of $\triangle$PMN.

15 .The vertices of a$\triangle$ ABC are A (1,k), B(4,-3) and C(-9,7). Area of triangle is 15 square unit. Find the altitude of the triangle with AB as the base (K is the integer).

AREA RELATED TO CIRCLES

1. The length of the minute hand of a clock is 14 cm . Find the area swept by the minute hand in 5 minutes .
2. The perimeter of a certain sector of a circle of radius 5.6 m is 27.2 m . Find the area of the sector.
3. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. Find the length of the arc and the area of the sector formed by the arc (Use п=22/7).
4. A chord AB of a circle of radius 15 cm makes an angle of 60° at the centre of the circle . Find the area of the major and the minor segment. (Take п=3.14 , $\sqrt{3}$ =1.73).
5. A horse is placed for grazing inside a rectangular field 70 m x 52 m and is tethered to one corner by a rope 21 m long. On how much area can it graze?
6. An athlete track 14 m wide consists of two straight sections 120 m long joining semi- circular ends whose inner radius is 35 m. calculate the area of the shaded region.
7. ABCD is a quadrant of a circle of radius 14 cm. With AC as diameter, a semi – circle is drawn. Find the area of the shaded portion.
8. Four equal circles each of radius a touches each other. Show that the area between them is 6/7 a^2 (Take п=22/7).
9. If OABC is a quadrant of a circle with radius r and O, then Find the area of the shaded region. (Use п= 22/7)
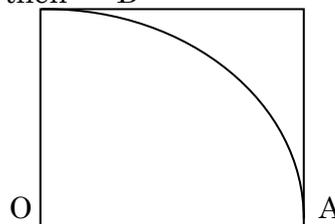
10. The diameter of a wheel of a bus is 90 cm which makes 315 revolutions per minute. Determine its speed in km/hr. (use п=22/7).

11. A path 4 m wide runs round a semi-circular grassy plot whose circumference is $163\frac{3}{7}$m . Find
    i.   The area of the path.
    ii.   The cost of gravelling the path at the rate of Rs. 1.50 per square metre.
12. In an equilateral triangle of side 24 cm , a circle is inscribed touching its sides . Find the area of the remaining portion of the triangle.(Take $\sqrt{3}=1.732$)
13. A regular hexagon is inscribed in a circle. If the area of the hexagon is $24\sqrt{3}$cm², find the area of the circle .(Use $\pi=3.14$)
14. Find the area of minor segment of a circle of radius 14 cm, when the angle of the corresponding sector is 60^0 .
15. A chord of a circle of radius 20 cm subtends a right angle at the centre. Find the area of the corresponding major segment of the circle.(Use $\pi=3.14$)

QUADRATIC EQUATIONS :

1. Solve for X : $x^2 -2 (a^2+ b^2) x +(a^2-b^2)^2 = 0$
2.   Using the quadratic formula solve $a^2 b^2 x^2 – (4b^4 – 3a^4) x – 12a^2 b^2 = 0$
3.   Solve : $\frac{2}{5}x^2 - x - \frac{3}{5} = 0$
4.   Find the value of x so that the quadratic equation:
     $x^2 – 2x (1+3x) +7(3+2x) = 0$ has equal roots.
5.   Solve : $9x^2+9 (a+b)x+(2a^2+5ab+2b^2)=0$
6.   Solve : $4x^2 – 4a^2x + (a^4 – b^4) = 0$
7.   Solve : $\frac{1}{2a+b+2x} = \frac{1}{2a}+\frac{1}{b}+\frac{1}{2x}$
8.   Solve : $abx^2 = (a+b)^2 (x-1)$
9.   A polygon of n sides has $\frac{n(n-3)}{2}$ diagonals. How many sides has a polygon with 54 diagonals?
10.   If $\sin\theta$ and $\cos\theta$ are the root of the equation $ax^2+bx+c=0$, then prove that $a^2+2ac=b^2$.
11.   If the roots of the equation
      $(a^2+b^2) x^2-2 (ac+bd)x + (c^2+d^2) =0$ are equal, prove that $\frac{a}{b} = \frac{c}{d}$
12.   One pipe can fill a tank in (x-2) hours, and the other pipe can empty the full tank in (x+2) hours .If the tank is empty and both the pipes are opened together, the tank is filled completely in 24 hours. Find how much time will the second pipe take to empty the same?

CONSTRUCTIONS

1. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 2.2 cm and 2.2 cm. Then construct another triangle whose sides are 5/3 times the corresponding sides of the given triangle.
2. Draw a line segment of length 5.6 cm and divide it internally in the ratio 5:8.Measure the two parts.
3. Draw a pair of tangents to a circle of radius 2.3 cm which are inclined to each other at an angle of 60^0 .
4. Draw a circle of radius 5 cm . Take a point P on the circle. Draw a tangent to the circle at point P without using the centre of the circle.
5. Construct a triangle of sides 4 cm,5 cm and 6 cm and then a triangle similar to it whose sides are (2/3) of the corresponding sides of the first triangle.

LINEAR EQUATION IN TWO VARIABLE

1. Solve graphically the following system of equations

$$2x - 6y + 10 = 0$$
$$3x - 9y + 15 = 0$$

2. Find K for infinitely many solutions

$$5x + 2y = K$$
$$10x + 4y = 3$$

3. Two digit number is divisibly by 9. Number when multiplied by sum of its digit is equal to

486. Given digits are unequal, find the numbers.

4. Solve for x and y

$$\frac{x}{a^2} + \frac{y}{b^2} = \frac{2}{ab} \quad ; \quad \frac{x}{2b} - \frac{y}{2a} = \frac{a^3 - b^3}{2a^2 b^2}$$

5. Determine the equation, sum of whose roots is 1 and sum of their squares is 13.

6. If roots of equation $x^2 - px + q = 0$ differ by unity then prove that $p^2 - 4q = 1$.

7. If the roots of equation (x-a) (x-b) – k = 0 are c and d, then prove that the roots of (x-c) (x-d) + k= 0 are and a & b.

8. Find 'p' for which the quadratic equation

$(3k+1) x^2 + 2 (k+1) x + 1 = 0$ has equal roots. Also, find the roots.

9. A takes 6 days less that time taken by B to finish a piece of work. If both A and B together can finish it in 4 days, find the time taken by B to finish the work.

10. Solve for x and y

$$mx - ny = m^2 + n^2$$
$$x + y = 2m$$

TRIGMOMETRY

1. If Cos θ = $\frac{3}{5}$, evaluate $\frac{sin\theta - cot\theta}{2tan\ \theta}$

2. If tan A = $\sqrt{2-1}$, show that $\frac{tanA}{1+tan^2 A} = \frac{\sqrt{2}}{4}$

3. If A = 30° and B= 60° , verify tht

sin (A+B) = sin A cos B + cos A.sinB

4. (a) Prove that : $\frac{tan\theta + sec\theta - 1}{tan\theta - sec\theta + 1} = sec\theta + tan\theta = \frac{1+sin\theta}{cos\theta}$

(b) (1+cotθ −cosecθ) (1+tanθ+secθ) = 2

5. Two poles of equal heights are standing opposite to each other on either side of the road, which is 80 m wide From a point between them on the road, the angles of elevation of the top of the poles are 60° and 30° respectively. Find the heights of the poles and the distances of the point from the poles.

कक्षा – दसवीं
हिन्दी (अभ्यास) कार्य

प्र01   समास विग्रह कर नाम निर्देष करें–

गुणयुक्त, पंकज, संसार–सागर, अनुरूप, जन्मांध, आमरण, असफल, चौराहा, देष–विदेष,   महावीर।

प्र02   दिए गए विग्रहों से समस्त पद बनाकर समास का नाम लिखिए–

नीला है कंठ जिसका, वह; माल के लिए गोदाम, वेद और पुराण, न संभव, पाँच आबों का समूह,   चार पैरों का समाहार, आषा रूपी लता, प्रसंग के अनुसार, मृत्यु–पर्यंत,   सौ वर्षों का समूह!

प्र03   निर्देषानुसार वाक्य रूपांतरण कीजिए–

    (क) मिश्र वाक्य में–

       (i) पिताजी ने पर्स खोला और पैसे दे दिए।

       (ii) वह हरियाली के बीच रहती है।

       (iii) मुझे फल लेने थे इसलिए मैं बाजार गया था।

       (iv) मैंने पुराना मकान बेच दिया।

    (ख) संयुक्त वाक्य में–

       (i) मैं और मेरी पत्नी विदेष जा रहे हैं।

       (ii) जो सच्चा होता है, वह किसी से नहीं डरता।

       (iii) हमारे समझाने पर भी वह न मानी।

       (iv) जैसे ही लालबत्ती हुई, ट्रैफिक रूक गया।

    (ग)   सरल वाक्य में–

       (i) जैसा तुम चाहते हो, वैसा कमरा इस होटल में नहीं है।

       (ii) उसने कहा कि वह अवष्य आएगा।

प्र04   वाक्यों के षुद्ध रूप लिखें–

(i) छोटे बच्चियों को मत डाँटो।

(ii) उसे नौकर से बुलाओ।

(iii) माता जी खाना बना ली है।

(iv) आपने झूठ क्यों बोले?

(v) मेरे पास दो बेटे हैं।

प्र05   मुहावरों से वाक्य बनाएँ–

(i) पौ बारह होना, आँखें फोड़ना, टूट जाना, बेराह चलना, एक ही राग अलापना।

प्र06   'बढ़ते विद्यालय, घटते संस्कार' विषय पर पिता एवं पुत्र के बीच का संवाद लगभग 50 षब्दों में लिखें।

प्र07   कील–मुँहासे दूर करने वाली फेस–क्रीम के लिए एक विज्ञापन तैयार कीजिए।

प्र08   पतझर में टूटी पत्तियाँ के आधार पर अपने जीवन की कोई ऐसा घटना लिखिए जिसमें   आदर्षवादिता के कारण आपको तात्कालिक नुकसान हुआ हो।

कक्षा – दसवीं
संस्कृत (अभ्यास) कार्य

प्र01 विकल्पेभ्यः उचितं अर्थं चिनुत–

(i) सः <u>युक्तः</u> सः सुखी नरः

(क) प्रगल्भः   (ख) मनुष्यः   (ग) अर्जुनः   (घ) योगी

(ii) <u>भूयः</u> प्रीतः षक्रः वरम् अददात् –

(क) त्वरितम्   (ख) अथ   (ग) पुनः   (घ) षनैः

(iii) क्रमषः याचकानाम् संख्या <u>बिरला</u> जाता।

(क) न्यूना   (ख) सरला   (ग) विषिष्य   (घ) अधिका

(iv) किम् च <u>अनर्घम्?</u>

(क) मूल्यहीनम्   (ख) तुच्छम्   (ग) हीनम्   (घ) अमूल्यम्

(v) विषयान् ध्यातः <u>पुंसः</u> संगस्तेषूपजायते।

(क) विद्वांसः   (ख) साधोः   (ग) कृष्णस्य   (घ) नरस्य

प्र02 प्रष्ननिर्माणं कुरू

(क) <u>मनसः</u> निग्रहः वायोः इव सुदुष्करं भवति।

(ख) मम <u>अर्थिनः</u> तु सन्तोषं भजन्ते

(ग) सकलं ब्रह्माणं <u>व्याकुलं</u> सञ्जातम्।

(घ) प्राणिनां मूढता <u>विचक्षणैः</u> निद्रा कथिता।

(ङ) प्रच्छन्नं यत्कृतं <u>पापं</u>

प्र03 समास विग्रहं क्रियताम्

(क) <u>षीतलसलिलम्</u> पुरूषं प्रहलादयति।

(ख) <u>श्रीकृष्णार्जुनयुधिष्ठिराः</u> सहैव युद्धक्षेत्रं प्रति अगच्छन्।

(ग) रामः <u>अनुमृगम्</u> अगच्छत्।

(घ) <u>पुत्रषोकसंतप्ता</u> द्रौपदी विलापं अकरोत्।

(ङ) इदं <u>अपांडवाय</u>।

प्र04 प्रकृति – प्रत्यौ विभाज्यताम् योजयताम् वा –

(क) बालिकाभिः चलचित्रं न .... (दृष+तव्यत्)

(ख) .... सर्वत्र पूज्यते। (गुण+मतुप्)

(ग) सेतुनिर्माणम् <u>सामाजिकम्</u> कार्यम् वर्तते।

(घ) पषवः स्नेहेन <u>रक्षणीयाः</u> भवन्ति।

(ङ) वने .... मयूराः षोभन्ते। (नृत्+षतृ)

(च) <u>षीतलता</u> सर्वेभ्यः सुखदा भवति।

प्र05 अधोलिखितानि वाक्यानि संषोध्य पुनः लेखनीयम्

(क) ते सरोवरे स्नानं <u>करोषि</u>।

(ख) वयं श्वः चेन्नईनगरम् <u>अगच्छामः</u>।

(ग) मम समीपे पञ्च <u>पुस्तकाः</u> सन्ति।

(घ) त्वं स्मातरं <u>सेवन्ताम्</u>।

प्र06 वाच्यानुसारं उचितं पदं चित्वा संवादं पूरयत–

कोमलः– त्वं किं पिबसि?

सोनलः–   मया आम्ररसः ....।

कोमलः –   किं त्वं गीतं अपि गायसि?

सोनलः –   आम्............गीतं अपि गीयते।

कोमलः–   किम् रामः उपहारान् ददाति?

सोनलः –   आम् रामेण अनेके ....दीयन्ते।

कोमलः–   किम् रामः पाठं पठति?

सोनलः–   आम्, तेन .... पठ्यते।