ATOMIC ENERGY CENTRAL SCHOOL No.4, RAWATBHATA

Annual Examination (2018-19)

Class-XI, English (Core)

M.M-80 **Time: 3 Hrs.**

General instructions:

1. **The paper is divided into three sections: A, B and C. All the sections are compulsory.**
2. **Separate instructions are given with each section and question, wherever necessary. Read these instructions very carefully and follow them faithfully.**
3. **Don't exceed the prescribed word limit while answering the questions.**

Section-A- Reading (20 Marks)

Q.1 Read the passage carefully and gives the answer that follow.

1. In my most frustrated moment of navigating chaotic Delhi traffic, I close my eyes in the back seat and imagined what it would be like if someday just a thought would transport me from one place to another.

2. At times, sitting relaxed on my terrace, I look at the green tree tops that I see every day and wonder if some day, just with the power of my thoughts I would be able to create the image of the most vivid blue ocean and sandy beach in front of me? Then having had enough of that could my thoughts switch the scene to that of Snowy Mountain peaks?

3. Just thinking of these seemingly impossible things give me a sense of well –being, because I do believe that if you can think it, you can will it and achieve it. If it occurs as a thought, it is possible to fructify as reality. After all, everything big started with a thought. Looking at birds flying freely in the sky, humans must have thoughts of the possibility of flying centuries before the invention of aero planes. The tallest skyscraper, the longest bridge across the ocean, the fastest train, the internet, the cell phone- all are the end result of one thought.

4. As technology advances we become more confident in our abilities to transform thoughts to reality, the gap between the ideas and implementation keeps shrinking. Today one of the biggest thrills of living is watching impossible-seeming thoughts turn to reality within one's life time!

5. If with the power of his 'Big thought' Donald Trump become the president of the USA, what then is impossible? As he says in his book, 'Think like a millionaire' "I like thinking big. To me it is very simple. If you are going to be thinking anyway, you might as well think big".

6. True. None of the big achievements or discoveries in life happened by thinking small. To achieve big stuff, you have to think big. Most people avoid thinking big because of laziness, fear of extra work and the instinct to stay unnoticed--- and hence out of trouble. A large part of the work force just wants to do their designated work and get done with it.

7. And then there are those who let their own small success become the enemy of possible bigger success, later. Sitting back to celebrate a small achievement, they underestimate their own potential whoever said that aspirations or possibilities have any limitations? The most pleasurable moment can be spent imagining what seems the impossible ---- come on; let your imagination run wild! Believe in yourself and your thoughts. Some of the tips Donald Trump shares mould yourself to think bigger are, "Walks softly but carry a big attitude, conquer your doubts and ditch them; be proud of your big ego and get into the habit of speaking of your mind".

8. The power of thought is a form of energy that is impervious to time, space and present reality. It is important to hone and direct your thoughts towards bigger and better, impossible – to – imagine things. What you believe about yourself and what you believe about possibilities is crucial to not just what you become, but also critical to the world as we all experience it ---- now and in the future.

9. Dreams and thoughts must rule free without any limitations. Thoughts have to reach beyond and encompass the impossible, the unthinkable, the weird, the unheard of and the shocking. Think beyond the realms of possibility and then aim to get there. Once there, think much beyond that possibility too. And then get going once again.

a. On the basis of your reading of the passage, answer the following questions by choosing most appropriate option. 1x4=4

i. …… that make (s) living more thrilling in modern times.

a. Big thoughts
b. Watching impossible- seeming thoughts turn to reality within one's life time
c. Think small
d. All of these

ii. The passage suggests that ……

a. One should stop after making a seemingly- impossible, possible
b. Dreams and thoughts should have limitations
c. One should continue to think big forever
d. Time, space and present reality affect the power of thought

iii. …….. Stop (s) people from achieving big.

a. Avoiding thinking big
b. Sitting back to celebrate small success
c. Underestimating their potential
d. All of these

iv. The author's wish list does not include ----------

a. Just a thought transporting her from one place to another
b. Creating the image of blue ocean in front of her
c. Switching the blue ocean image into that of snowy mountain peaks
d. Feeling frustrated while navigating chaotic Delhi traffic

b. Answer the following questions as briefly as possible. 1x6=6

i. Thinking of impossible things gives the author a feeling of well- being. Why?
ii. Why do many people don't think big?
iii. Name any two wonderful result associated with seemingly impossible thoughts.
iv. What prevents bigger success in case of many people?
v. What is increasing the gap between the ideas and their implementation?
vi. What does a large part of work force get done with?

c. Find the words/phrases in the passage which means the same as: 1x2=2

i. Qualities and abilities (para-7)
ii. Include, cover (para-9)

Q2. There is nothing more frustrating than when you sit down at your table to study with the most sincere of intentions and instead of being able to finish the task at hand, you find your thoughts wandering. However, there are certain techniques that you can use to enhance your concentration. "Your concentration level depends on a number of factors" 'says Sumati Ghosh, a special counsellor. "In order to develop your concentration span, it is necessary to examine various facts of your physical and internal environment", she adds.

To begin with, one should attempt to create the physical environment that is conducive to focused thoughts. Whether it is the radio, the TV or your noisy neighbors, identify the factors that make it difficult for you to focus on your task. For instance, if you live in a very noisy neighborhood, you could try to plan your study hours in a nearby library.

She disagrees with the notion that people can concentrate or study in an environment with destructions like a loud television, blaring music etc. "if you are distracted when you are attempting to focus, your attention and retention power don't work at optimum levels", cautions Ghosh. "Not more than two of your senses should be activated at the same time", she adds. What that means is that music that sets your feet tapping is not the ideal accompaniment to your books.

Also, don't place your study table or desk in front of a window. "While there is no cure for a mind that wants to wander, one should try and provide as little stimulus as possible. Looking out of a window when you are trying to concentrate will in variable send your mind on a tangent", says Ghosh.

The second important thing is, she says, is to establish goals for oneself instead of setting a general target and trying to accomplish what you can in a haphazard fashion. It is very important to decide what you have to finish in a given span of time. The human mind recognizes fixed goals and targets, and appreciates schedules more than random thoughts. Once your thought and goals are in line, a focused system will follow.

She recommends that you divide your schedule into study and recreation hours. When you study, choose a mix of subjects that you enjoy and dislike and save the former for the last so that you have something to look forward to. For instance, if you enjoy verbal skill tests more than mathematical problems, then finish mathematics first. Not only will you find yourself working harder, you will have a sense of achievement when you wind up.

Try not to sit for more than 40 minutes at a stretch. Take a very short break to make a cup of tea or listen to a song and sit down again. Under no circumstances should one sit for more than one and a half hour. Short breaks build your concentration and refresh your mind. However, be careful not to overdo to relaxation. It may have undesired effects. More than anything else, don't get disheartened. Concentration is merely a matter of disciplining the mind. It comes with practice and patience, and doesn't take very long to become a habit for life.

Questions:

a. **On the basis of your reading of the above passage, make notes on it using headings and sub-headings. Use recognizable abbreviations wherever necessary (minimum 4). Use a format you consider suitable. Also supply an appropriate title to it.** **5**

b. **Write a summary of the above passage in about 80 words.** **3**

Section-B - Writing & Grammar (30 Marks)

3. Design a poster against the ill-effects of plastics on the environment. Suggest alternative solution as well, in not more than 50 words. **4**

OR

You are Akshay/Aakriti. You have been invited to participate in a seminar on Fundamental Rights of Children organized by the Lion Club of your district. Respond to the invitation by writing a letter to the secretary of the club, in not more than 50 words. Invent the necessary details.

4. Public demonstration causes a lot of disturbance in daily routine of common man. You almost missed your important entrance examination as people blocked the highway. As Tarun/ Tanya, a student aspiring to be a doctor, write a letter to the Editor of Times of India highlighting the need to discourage such demonstrations and disturbance caused by public on highways which cause a great loss of time and opportunity for many. (word limit- 120-150 words) **6**

OR

You are Arun/ Aarti, Raja road, Kanpur. You had placed an order with Ram Book Depot, 4 Mall Road, Delhi for the supply of two books. You wanted to give them as a gift to a friend of yours. On receiving them you were disappointed to find that the books were damaged. Write a complain letter in 120-150 words to the manager about your problem.

5."Should everyone become vegetarian". Write a debate in 150-200 words either for or against the motion.**10**

OR

Excessive focus on academics allows little time to the children to engage in hobbies. Write an article on "The importance of Hobbies in One's Life" in 150-200 words.

6.There is an error in each line of the following passage. Find the error and write the correct words in your answer sheet. **1/2x8=4**

	Incorrect	**correct**
It has been said that anyone live by	(a)…….	…….
sell something or the other. In the light of	(b) …….	…….
this statement, teachers lives off selling	(c) ……	……
knowledge, philosophers by sell good words	(d) ……	……
and priests by selling spiritually comforts.	(e) ……	……..
It is extreme difficult to estimate the	(f) ……..	……
true value for the service which people	(g) ……..	……
perform to us.	(h) …….	……

7. Arrange the jumbled words/phrases into meaningful sentences. (6x1)

a. Without/could not have/ effort/your/we/succeeded.

b. education/ progressive/the/is/way/discovering/of/things.

c. What/you/do/of/think/yourself ?
d. He/best/is/the/boy/our class/in
e. He/the station/reached/before/had/the train/left
f. Why/do/you/did/this/thing?

8. Section-C - Literature (30 Marks)

Read the extract given below and answer the questions that follow: 1x3=3

They talked of love and preached of love,
But did not act so lovingly
Was that the day?

Questions:

1. **Name the poet and the poem.**
2. **Who are 'they'?**
3. **How is the poet's observation about their behavior significant?**

Or

And forever, by day and night, I back life to my own origin
And make pure and beautify it;
(For song, issuing its birthplace after fulfillment, wandering
Reck'd or unreck'd , duly with love return.

Questions:

1. **Name the poet and the poem.**
2. **How does 'I' give life to its origin?**
3. **Explain the comparison with song.**

9. Answer any four of the following questions in 40-50 words each. 3x3= 9

1. How can life be equated with art ?
2. 'I would have him prodigal'. What does the father in Elizabeth Jennings' poem mean by this?
3. Why could Taplow not understand Crocker's joke? Why did then he laugh at it?
4. What were the peculiarities in uncle Khosrove's behaviour?
5. What was Einstein's chief objection against teaching history?

10. Answer the following question in 120-150 words: 6

Taplow does an imitation of Mr.Crocker Harris. Do you think respect for one's teacher is fast disappearing in the modern world? Give reasons in support of your answer.

OR

Describe the difficulties and disillusionment faced by Nick Middleton during his journey to Mount Kailash.

11. Answer the following question in 120-150 words: 6

"We're Not Afraid to Die" is a saga of patience and bravery. Comment.

OR

'Religion was the dominant feature of her life'. Comment on this statement in regard to Khushwant Singh's grandmother as projected in, "The Portrait of a Lady".

12. Answer the following question in 120-150 words: 6

How did Mrs. Dorling acquire the possessions of Mrs.S? What extraordinary circumstances made it possible? Do you justify Mrs. Dorling's conduct?

OR

The journey from the foyer of Shahid's building to his door was a voyage between continents. Show how this is true.

Atomic Energy Central School No. 4 Rawatbhata

Annual Examination (2018-19)

Time: 3 hours **Class XI, PHYSICS** M MARKS: 70

General Instructions:

1. All questions are compulsory. There are 27 questions in all.

2. This question paper has four sections: Section A, Section B, Section C and Section D.

3. Section A contains five questions of one mark each, Section B contains seven questions of twomarks each, Section C contains twelve questions of three marks each, and Section D containsthree questions of five marks each.

SECTION A

1. Name the SI unit used to express the amount of substance.

2. Define one erg.

3. What is a rigid body?

4. What is meant by simple harmonic motion?

OR

What are stationary waves?

5. Write two essential conditions for total internal reflection.

OR

Which physical quantities are conserved in an elastic collision?

Section B

6. Find the dimension of a /b in the relation: P = $\frac{b-x}{at}$Where P is power, x is distance and t is time.

7. State and prove work energy theorem.

8. State of theorems of moment of inertia.

9. Two bodies of masses 1 Kg and 2 Kg are located at (1,2) and (-1,3) resp. Calculate the co-ordinates of centre of mass.

10. Define modulus of rigidity. Give its unit.

OR

Explain young's modulus of elasticity.

11. Briefly explain the formation of land and sea breezes.

12. What is linear magnification? Derive linear magnification of a spherical mirror.

OR

Explain the effect of temperature on speed of sound.

Section C

13 The displacement of a particle moving along x-axis is given by $x=18t-5t^2$.Calculate

(i) the instantaneous velocity at t=2sec

(ii) average velocity between t=2sec and t=3sec.

(iii) instantaneous acceleration.

14. Two vectors $\vec{A}$ and $\vec{B}$ are inclined to each other at an angle θ. Using triangle law of vector addition find the magnitude and direction of their resultant.

15. What is Time of flight of projectile? Derive formula for time of flight of projectile projected with initial velocity u at an angle θ with horizontal.

16. Define centripetal acceleration. Derive an expression for centripetal acceleration of particle moving with uniform speed v along a circular path of radius r.

17. What is radius of gyration of a body rotating about an axis? Derive an expression for it.

OR

Show that $\tau = I\alpha$. τ=torque , I=moment of inertia , α= angular acceleration.

18. What will be the duration of the day, if earth suddenly shrinks to 1/64 of its original volume, mass remains the same.

19. Derive an expression for the excess pressure inside a liquid drop.

20. Using first law of thermodynamics show that PV^{γ}=contant.(Adiabatic relation between Pand V)

21. What is Carnot's engine? Derive an expression for the efficiency of a Carnot's engine. On what factors does it depend?

22. Derive newton's formula for velocity of sound.

OR

Explain the Laplace correction in the formula of speed of sound.

23. What is simple pendulum? Derive formula for time period of simple pendulum.

24. Derive relation between refractive index and angle of minimum deviation for a Prism.

Section D

25. What do you mean by banking of road? Determine the angle of banking so as to minimise the wear and tear of the tyres of a car negotiating a banked curve.

OR

a) Explain static friction, limiting friction and kinetic friction

b) An aircraft execute a horizontal loop a speed of 720 Kmh^{-1} with its wings banked at 30^0. What is the radius of loop?

26. Derive expression for work done during the isothermal expansion of an ideal gas.

OR

On the basis of kinetic theory, derive an expression for the pressure exerted by an ideal gas.

27. With the help of ray diagram explain the construction and working of compound microscope. Derive the expression for magnifying power.

OR

What is lens makers formula? Derive lens makers formula for convex lens.

Atomic Energy Central School no. 4 Rawatbhata

Annual Examination (2018-19)

MM: 70 Class: XI,Chemistry Time: 3 Hours

General Instructions :

i. ***All*** *questions are compulsory.*

ii. *Q. no.* ***1*** *to* ***5*** *are very short answer questions and carry* ***1*** *mark each.*

iii. *Q. no.* ***6*** *to* ***12*** *are short answer questions and carry* ***2*** *marks each.*

iv. *Q. no.* ***13*** *to* ***24*** *are also short answer questions and carry* ***3*** *marks each.*

v. *Q. no.* ***25*** *to* ***27*** *are long answer questions and carry* ***5*** *marks each.*

vi. *There is no overall choice. However an internal choice has been provided in two questions of one mark, two questions of two marks, four questions of three marks and all the three questions of five marks weightage. You have to attempt only one of the choices in such questions.*

vii. *Use log tables if necessary, use of* ***calculators*** *is* ***not*** *allowed.*

Q1 Why gypsum is added during the setting of cement?

OR

Why can't we prepare K_2CO_3 by Solvay's process?

Q2 Complete the chemical reaction: PbS (s) $+H_2O_2$ (aq) →

Q3 Arrange the following ions in order of their increasing ionic radii:

N^{3-} , O^{2-} , F^-, Na^+, Mg^{2+} and Al^{3+}

OR

Why does Chlorine have a greater negative electron gain enthalpy than Fluorine?

Q4$[SiF_6]^{2-}$ is known whereas$[SiCl_6]^{2-}$ not. Give reason.

Q5 Compressibility factor (z) of a gas is given as$Z=\frac{PV}{nRT}$. What is the value of z for an ideal gas?

Q6(i) What is total number of sigma (σ) and pi (π) bonds in C_2H_2?

(ii) Write the resonance structures for NO_3^- .

Q7 (i) Calcute number of moles in 44 gm CO_2

(ii) Iron and Oxygen combine to form their oxides,FeO, Fe_2O_3 and Fe_3O_4.

Which law does it prove? 1+1=2

Q8 What causes the temporary and permanent hardness of water?

Q9InCarius method of estimation of halogen, 0.15 g of an organic compound gave 0.12g of AgBr.

Find out the percentage of bromine in the compound. [At mass Ag=108, Br= 80]

OR

In the estimation of Sulphur by Carius Method, 0.468g of an organic Sulphur compound afforded0.668g of barium sulphate. Find the percentage of sulphur in the given compound.

[At mass Ba=137, S=32, O=16]

Q10(i) Write the IUPAC name of CH_3–CH=CH–COOH

(ii) Write the Structural formula of But-3-en-1-ol

Q11. Account for the following.

a) Nitrogen is a gas but phosphorus is a solid.

b) Ammonia acts as a complexing agent.

Q12.Draw the structures of the following.

a) Phosphorous acid b) H_3PO_4

OR

a) Is Boric acid a protic acid? Give reasons.

b) $PbCl_2$ is more stable than $PbCl_4$. Why?

Q13 (i) Define surface tension.

(ii) Using the equation of state PV = nRT show that at a given temperature, the density of the gas is proportional to the gas pressure P.

Q14(i) Write the electronic configuration of Cu. (Z for Cu=29)

(ii)How many electrons will be present in the sub-shells (fully filled) with n+l= 5?

(iii)Write down the equation for wave number for Balmer series.

OR

(i) Write the electronic configuration of Cr. (Z for Cr=24)

(ii) How many electrons will be present in the sub-shells having ms value of -½ for n=4?

(iii) What is the value of angular momentum for an electron in 5^{th} orbit according to Bohr's theory?

Q15The mass of an electron is 9.1 x 10^{-31} Kg. If it's K.E. is 3.0 x 10^{-25}J. Calculate its wave-length. (h=6.626 x 10^{-34} Kg m^2 s^{-1})

Q16(i) WhyH_2O is a liquid while H_2S is a gas?

(ii) Predict the shape of SF_4 using VSEPR theory.

(iii) Calculate Bond order of O_2 using molecular orbital theory.

OR

i) Draw the orbital diagram of C_2H_4 (1+2)

ii) Explain the shape of NH_3 by VSEPR Theory.

Q17 (a) Explain the following

(i) Carbon monoxide is more dangerous than Carbon dioxide. Why?

(ii) Statues and monuments in India are affected by acid rain. How?

(b) What is Green Chemistry?

Q18(a) The equilibrium constant expression for a gas reaction is

$$K = \frac{[NH_3]^4[O_2]^5}{[NO]^4[H_2O]^6}$$

Write the balanced Chemical equation corresponding to this expression.

(b) Describe the effect of :

(i) Addition of H_2(ii) Addition of CH_3OH (iii) removal of CO (iv) removal of CH_3OH ,

On the equilibrium of the reaction: $2H_2$ (g) + CO (g) $\rightleftharpoons$ CH_3OH (g)

Q19 Balance the following redox reaction by ion-electron method

Fe^{2+} (aq) +$Cr_2O_7^{2-}$ (aq) → Fe^{3+} (aq) + Cr^{3+} (aq) (in acidic medium)

OR

Depict(Draw) the galvanic cell for the following reaction:

$Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$

a)Write individual reactions at each electrode.

b)Show the direction of flow of electrons and current.

Q20(i) Which one is more stable and why?

$CH_3^+,\ CH_3CH_2^+,\ (CH_3)_2CH^+,\ (CH_3)_3C^+$

(ii) Will CCl_4 gives white precipitate of AgCl on heating it with silver nitrate? Give reason for your answer.

OR

Write the structures of:

a) *o*-Ethylanisole b) 2,3 - Dibromo -1 – phenylpentane c) methyl carbocation

Q21(i) Propanaland Pentan-3-one are the ozonolysis products of an alkene.

What is the structural formula of the alkene?

(ii) Draw the Cis and Trans structures of hex-2-ene.

Which isomer will have higher b.pt and why?

Q22 (a) Consider the ground state electronic configurations given bellow:

A) $1s^2\ 2s^2\ 2p^6$B) $1s^2\ 2s^2\ 2p^4$C) $1s^2\ 2s^2\ 2p^6\ 3s^2$D) $1s^2\ 2s^2\ 2p^6\ 3s^1$E) $1s^2\ 2s^2\ 2p^5$

(i) Which of the above configuration is associated with the lowest and which is associated with highestIonization enthalpy?

(ii) Arrange the above configuration in order of increasing negative electron gain enthalpy?

(b) Assign the position of element having outer electronic configuration $ns^2\ np^4$ for n=3.

Q23(i) Write down the conjugate acid and conjugate base of H_2O.

(ii) How are K_p and K_c related for the following reaction?$N_2(g) + 3H_2$ (g) $\rightleftharpoons$ 2 NH_3 (g)

(iii) If solubility of AgCl in water is 'x' at 298 K. What is the value of K_{S_p} for AgCl at 298K?

Q24Explain the difference in the properties of diamond and graphite in the basis of their structures.

Q25 (a) Compare the alkali metals and alkaline earth metals with respect to

(i) Ionization enthalpy (ii) basicity of oxides and (iii) Solubility of hydroxides.

(b) Beryllium and magnesium do not give colour to flame whereas other alkaline earth metals do so why?

(OR)

(a) What happens when

(i) Magnesium is burnt in air

(ii) Chlorine reacts with slaked lime

(iii)Calcium nitrate is heated?

(b) Explain why the mobilities of alkali metal ions in aqueous solution shows following trend:$Li^+ < Na^+ < K^+ < Rb^+$

Q26 (i) Predict the sign of ΔS for the reaction:$CaCO_3$ (s) $\xrightarrow{\Delta}$ CaO (s) + CO_2 (g)

(ii) For a reaction both ΔH and ΔS are positive. Under what conditions will the reaction occur spontaneously?

(iii) If standard free energy change for a reaction is found to be zero. What is its equilibrium constant?

(iv) For a reaction at 298 K , 2A + B → CΔH = 400 KJ $mol^{-1}$and ΔS =2.0 KJ K^{-1} mol^{-1}.

At what temperature will be the reaction become spontaneous considering ΔH and ΔS to be constant over the temperature range.

(OR)

(i) Predict the feasibility of a chemical reaction when both ΔH and ΔS decreases.

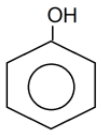
(ii) Predict the relation between ΔH and ΔU for the reaction H_2 (g) + Cl_2 (g) → 2HCl (g)

(iii) The enthalpy of formation of CO (g) , CO_2 (g), N_2O (g)and N_2O_4(g) are -110, -393, 81 and 9.7KJ mol^{-1} respectively. Find the value of $\Delta_r H^\theta$ for the reaction.

N_2O_4 (g) + 3 CO(g)→ N_2O (g) + 3CO_2 (g)

Q27 (a) Complete the reaction:

(i) CH_3-CH_2-CH=CH_2 + HBr→

(ii) 

+ Zn $\xrightarrow{\Delta}$

(b) How will you convert:

(i)Methane and Ethane(ii)Propyne to Propane(iii) Benzene to Toluene

(OR)

(a) Complete the reaction:

(i) CH_3-CH_2-OH $\xrightarrow[\Delta]{conc.\ H_2SO_4}$ → (ii) CH_3 -CH=CH_2 + HBr$\xrightarrow[\Delta]{Benzoylperoxide}$ →

(b) How will you convert :

(i) Benzene to Nitrobenzene (ii) n- Hexane to Benzene (iii)Benzene to Acetophenone

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Atomic Energy Central School No. 4, Rawatbhata
Annual Examination (2018-19)
Time: 3 Hours Class- XI, MATHEMATICS M.M- 100

General Instructions:

i. *Allquestions are compulsory*
ii. *This question paper contains **29** questions and number of printed pages are 2.*
iii. *Question **1- 4** in **Section A** are very short-answer type questions carrying **1** mark each*
iv. *Question **5-12** in **Section B** are short-answer type questions carrying **2** marks each.*
v. *Question **13-23** in **Section C** are long-answer-**I** type questions carrying **4** marks each.*
vi. *Question **24-29** in **Section D** are long-answer-**II** type questions carrying **6** marks each.*
vii. *Question numbers 14 & 27 need graphs.*

Section A (1X 4 =4)

1. Write the roster form of the set A = {x : x∈Z and – 1 < x < 4}
2. Write a + ib form of complex number z = i + i^{10} + i^{20} + i^{30}.
3. Find the values of a such that the distance between points (a, 2, 1) & (1, – 1, 1) is 5.

Or

Find the third vertex of triangle whose centroid is at origin and two vertices are(2, 4, 6) and (0, –2, –5).

4. Write the negation of statement "Both diagonals of a rectangle are of same lengths".

Section B(2X8 = 16)

5. Draw the sets A = {1, 2, 3, 4} and B = {x : x∈N and 5 ≤ x ≤ 7} on Venn diagram. Are these are disjoint or not? Check it.
6. If f(x) = x^2 – 3x + 1 then find x such that f(2x) = f(x).
7. If $a + ib = \frac{x+iy}{u+iv}$then find the value of $a^2 + b^2$. **Or** Find the square root of 3 – 4i.
8. How many different words can be formed by using all the letters of word "SCHOOL"?
9. Find the constant terms in the expansion of $\left(x^2 - \frac{1}{x^2}\right)^{16}$
10. If sum of first p terms is equal to the sum of first q terms in an AP then find the sum of first p + q terms of same AP.

Or

If S is the sum, P is the product and R is the sum of reciprocals of three terms of a GP then find the value of $\frac{P^2R^3}{S^3}$.

11. Evaluate $\lim_{x\to 0} \frac{\sqrt{2+x}-\sqrt{2}}{x}$ **Or** Find the derivative of $f(x) = x + \frac{1}{x}$ using first principle.
12. Write converse and contrapositive statements for the statement "If a number is divisible by 5 then it is divisible by 10".

Section C(4 X 11=44)

13. If U = {1, 2, 3, 4, 5, 6, 7, 8, 9}, A = {1, 2, 3, 4}, B = {2, 4, 6, 8} then find the following and show by Venn Diagram also

    i) A′ ii)B′ iii)(A′)′ iv) (A ∪ B)′

14. Re-define the function given by f(x) = |x+1| – 2 . Hence draw its graph and write domain and range.

Or

Find domain and range of the function $f(x) = \frac{3}{2-x^2}$

15. Prove that sinx + sin3x + sin5x + sin7x = 4cosx cos2x sin4x

16. If $z_1 = \sqrt{3} + i\sqrt{3}$ *and* $z_2 = \sqrt{3} + i$ are two complex numbers then find modulus and argument of $\frac{z_1}{z_2}$.

17. If ${}^{n}P_{r}$= 840 and ${}^{n}C_{r}$= 35 then find the value of n & r.

Or

Prove that ${}^{n}C_{r} + {}^{n}C_{r-1} = {}^{n+1}C_{r}$

18. Using binomial theorem expand $\left(x^2 - \sqrt{1-x^2}\right)^4 + \left(x^2 + \sqrt{1-x^2}\right)^4$

19. Find the sum of first n terms of 1×2 + 2×3 + 3×4 + ……..

Or

If a, b, c and d are in GP then prove that $(a^n + b^n)$, $(b^n + c^n)$, $(c^n + d^n)$ are also in GP.

20. Find the equation of the perpendicular drawn from the point (–1, 3) to the line 3x – 4y – 16 = 0. Hence find the co-ordinates of foot of perpendicular.

21. Evaluate eccentricity, co-ordinates of foci, equations of directrix and length of latus rectum of the conic $\frac{x^2}{9} - \frac{y^2}{16} = 1$.

22. Find the ratio in which the line joining the points (1,2,3) and (-3,4,-5) is divided by the *XY*-plane. Also, find the co-ordinates of the point of division.

23. Find the derivatives of the following functions :

a. $f(x) = \frac{x^n - a^n}{x - a}$ at x = 0 b. $f(x) = \left(x + \frac{1}{x^2}\right)(x^2 + 1)$ at x =1.

Section D(6X6 = 36)

24. Out of 100 students; 15 passed in English, 12 passed in Mathematics, 8 in Science, 6 in English and Mathematics, 7 in Mathematics and Science; 4 in English and Science; 4 in all the three. Find how many passed

i) in English and Mathematics but not in Science
ii) in Mathematics and Science but not in English
iii) in Mathematics only

25. If $\cos\theta = -\frac{1}{3}$ where θ is in third quadrant then evaluate $\sin\frac{\theta}{2}, \cos\frac{\theta}{2}$ & $tan\frac{\theta}{2}$.

Or

Solve the following

i) secx cos5x + 1 = 0 ii) sinx – 3sin2x + sin3x = cosx – 3cos2x + cos3x

26. Using principle of Mathematical Induction prove that for all n ∈ N

$1^2 + 3^2 + 5^2 + \cdots \ldots \ldots + (2n-1)^2 = \frac{n(2n-1)(2n+1)}{3}$ for all n∈N.

Or

P(n) = $x^{2n} - y^{2n}$ is divisible by x + y for all n∈N.

27. Solve graphically 2x + 3y ≥ 3, 3x + 4y ≤ 18, –7 x + 14 y ≤ 14, x – 6y ≤ 3, x ≥ 0 and y ≥ 0.

28. Find mean, variance and standard deviation of the data:

CI	1-10	10-20	20-30	30-40	40-50	50-60
f	11	29	18	4	5	3

Or

Following are the marks obtained, out of 100, by two students Ravi and Hashina in 10 tests- Who is more consistent?

Ravi	25	50	45	30	70	42	36	47	35	60
Hashima	10	70	50	20	95	55	42	60	48	80

29. A bag contains 8 red marbles, 6 blue marbles and 7 green marbles. If 3 marbles are drawn from the bag then what is the probability that-

a. all are of different colours b.at least one is green c.at most two are red

Atomic Energy Central School No-4, Rawatbhata

Annual Examination (2018-19)

Class: XI **Subject: Computer Science with C++**

Time Limit: 3 hours ***Maximum Marks: 70***

***Instructions*:**

i) ***Some questions are having OR options, choose only one and mention the OR option clearly in answer sheet.***
ii) Please check that this question paper contains 6 questions in 4 pages.
iii) Please write down the proper serial number of the question before attempting it.

Q.No. 1

a) Express the advantages and limitations of Digital Computers. [2]
OR
Classify the Software. What is difference between Hardware and Software?

b) Write the name of some inventions, who helped in design of digital computer? [1]

c) Explain the types of Operating Systems. [2]
OR
Draw the labeled block diagram of digital computer system.

d) Write a short note on any one of the following: [2]
(i) Memory Management (ii) Processor Scheduling (iii) Microprocessors

e) Compare the DRAM and SRAM. [2]
OR
What is Primary Memory? Name the types of ROMs, with full form.

Q.No. 2

a) Define any two of the followings: [2]
(i) Ports (ii) EEPROM (iii) Booting (iv) Cache (v) Virtual Memory

b) Compare the terms: RISC & CISC [1]
OR
Classify the types of memories used in the digital computer system. [2]

c) Fill in the blanks:
i) Full form of SJN Scheduling is_____.
ii) EPIC is a type of _____.
iii) Inkjet is a _____.
iv) 1.2GB= _____MB.

d) Convert the following numbers into another bases: [3]
(i) $(17.46)_8$ = $(?)_{10}$

(ii) $(49.27)_{10}$ = $(?)_2$

(iii) $(B1.BA)_{16} = (?)_2$

Q.No. 3

a) Differentiate between syntax and logical errors occur in C++, with example. [2]
OR
Explain the Program maintenance process and its types.

b) Write down some steps of Problem solving methodology. (Min. 4) [2]

c) State some Stylistic guidelines of a good C++ program. (Min. 4) [2]

d) Draw a flow chart to find a greater number between two numbers. [3]

Q.No. 4

Solve the following Questions using C++:

a) Give Classification of C++ Tokens, with examples. [2]

b) What is a variable? Give syntax to declare and initialize a variable in C++. [2]

c) Explain any one of the operator given below, with example: [1]
i) shorthand assignment ii) type iii) Reference

d) Write the header files required to run the following program. [2]

```
void main()
{  int x, y, z;
   cin>>x>>y;
    if(isdigit(y))
       z= pow(x,y);
   cout<<z;
   getch();
}
```

e) Predict the output for the following: [3]

i) -2 && 0 || 4 || 1 && -10

ii) (5 != 5) ? (b = 10) : (b = 20);

iii) A = 7; B = 8;

```
C =  ++A *(B++ - 3) +A;
D = --C + A++  -  ++B;
cout<<"A= "<<A<<" B= "<<B<<" C=  "<<C<< " D = "<<D;
```

f) Convert the following algebraic expression into C++ expression: [2]

i) $z = \frac{(x+a)^n}{na}$

ii) $x = \frac{-b+\sqrt{b^2-4ac}}{2a}$

Q.No. 5

(a) Give output for the following programming code: (ignore header files etc.)

(i) [1]

```
#include<iostream.h>

void main()

{ long num = 153, result=0;
```

```
        int digit;
        do
        {
          result *= 10;
          digit=num % 10;
          result += digit;
          num /= 10;
        } while(num);
      cout<<"Output="<<result<<endl;
    }
```

OR

```
 void main() {
                char s[]="Welcome  to  2019-!!!";
                int i, c=0;
                for(i=0; s[i] != '\0' ; i++)
                {
                  if( isalpha(s[i]) )
                    c+=1;
                  else if (isdigit(s[i]))
                          c+=2;
                       else
                          c+=3;
                 }
                 cout<<"Total count = "<<c<<endl;                                    [1]
                }
(ii) int  outer, inner;
    for(outer = 5; outer >= 1; --outer)
     {
         for( inner = 1; inner <= outer; inner++)
             cout<<inner<<" ";
```

```
        cout << endl;
      }
```
[2]

(iii)
```
int stock[]={10, 22, 15, 12, 18, 5, 19};
    int total=0;
    for(int i = 0; i<7 ; ++i)
      {  if(stock[i]>15)
           total += stock[i];
      }
    cout<< "Total = " << total<<endl;
```
[2]

(iv)
```
#include<iostream.h>
    void exch (int & x, int  y = 200)
    { int Temp= x;
      x = ++y + Temp;
      y= Temp + --x ;
    cout<<"X= "<<x<<" Y=  "<<y<<endl;
    }
    void main()
    {  int a=25,b=50;
        exch(a,b);
      cout<<"A= "<<a<<"B=  "<<b<<endl;
    }
```
[2]

b) Write a short not on any one of the following: (with example)
(i) Switch statement (ii) goto iii) call by reference
[2]

c) Define a structure STUD with id, name and Fee as members. Take a variable of stud structure and initialize it.

Q.No. 6 Write programs in C++ for the followings:

(a) Enter the marks and calculate the grade of a student on the basis of the following criteria: [3]
If marks >=90 then Grade ='A'

[3]

If 90> marks >=60 then Grade ='B' otherwise Grade ='C'

Display all details at output (marks and grade of the student*).*

(b) Enter the day as number (take Sunday as 0, Monday as 1… up to Saturday) and display the week day in words, on the basis of user's choice number by using a switch statement.
OR

Enter the value of a & b and calculate the following formula and display the answer:

$Z = \sqrt{(a^2 - b)} \Big/ (a + b)$ [3]

(c) Print the sum of series: $1 + x + x^2/!2 + x^3/!3 + \ldots\ldots\ldots\ldots x^n/!n$

OR

Print the following pattern:

1 2 3 4 5 6 7

1 2 3 4 5

1 2 3

1 [3]

(d) Enter 16 numbers in a 4x4 array and display all elements row wise along with the sum of each row. [3]
OR

Enter 16 numbers in a 4x4 array (matrix) and display the transpose matrix array.

(e) Enter 10 numbers in an array and check whether a specific number is present in the array or not? [3]
OR

Define a structure *EMP* with elements Emp_id, Name and Salary. Enter two employee's record and Display the employees having greater Salary.

(f) Enter a string and find its reverse string, also check that is it a Palindrome string or not?
OR

Enter a string and pass it to a function called Alpha(), which will count the number of Alphabets and digits present in the string. [4]

(g) Enter 10 numbers in an array and pass this to a function Max(), the function will Find the maximum number present in the array and display that at output with its position.
OR
Enter 10 numbers in an array and pass this to a function Mod(), the function will Find the negative numbers present in the array and replace them using zero (0) and display all element at output.

परमाणु ऊर्जा केंद्रीय विद्यालय - 4 , रावतभाटा

वार्षिक परीक्षा (2018-19)

पूर्णाङ्क - 80 कक्षा -11 विषय -हिन्दी (केंद्रिक) समय -3 घंटे

खंड – क

प्र 1 निम्नलिखित गदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए

मैं जिस समाज की कल्पना करता हूँ ,उसमें गृहस्थ संन्यासी और संन्यासी गृहस्थ होंगे अर्थात संन्यासी और गृहस्थ के बीच वह दूरी नहीं रहेगी जो परम्परा से चली आ रही है। संन्यासी उत्तम कोटि का मनुष्य होता है , क्योंकि उसमें संचय की वृत्ति नहीं होती है ,लोभ और स्वार्थ नहीं होता। यही गुण गृहस्थ में भी होना चाहिए । संन्यासी भी वही श्रेष्ठ है जो समाज के लिए कुछ काम करे। ज्ञान और कर्म को भिन्न करोगे तो समाज में विषमता उत्पन्न होगी ही। मुख में कविता और करघे पर हाथ ,यह आदर्श मुझे पसंद था। इसी की शिक्षा मैं दूसरों को भी देता हूँ और तुमने सुना है या नहीं कि नानक ने एक अमीर लड़के के हाथ पानी पीना अस्वीकार कर दिया था। लोगों ने कहा ," गुरुजी लड़का तो अत्यंत संभ्रांत वंश का है , इसके हाथ का पानी पीने में क्या दोष है" ? नानक बोले –इसके तलहत्थी में मेहनत मजदूरी के निशान नहीं हैं। जिसके हाथ में मेहनत के ठेले नहीं होते ,उसके हाथ का पानी पीने में मैं दोष मानता हूँ । नानक ठीक थे। श्रेष्ठ समाज वह है ,जिसके सदस्य जी खोल कर श्रम कराते हैं और तब भी जरूरत से अधिक धन पर अधिकार जमाने की उनकी इच्छा नहीं होती।

(क) 'गृहस्थ संन्यासी' और 'संन्यासी गृहस्थ ' होंगे से लेखक का क्या आशय है ? 2

(ख) संन्यासी उत्तम कोटि का मनुष्य क्यों माना गया है ? 2

(ग) समाज में विषमता कब उत्पन्न होती है ? 2

(घ) श्रेष्ठ समाज कौन- सा है ? 2

(ङ) 'विषमता 'शब्द का विलोम लिखकर इसमें प्रयुक्त प्रत्यय अलग कीजिए। 1

(च) इसका उचित शीर्षक दीजिए। 1

प्र 2 निम्नलिखित काव्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए।

है अगम चेतना की घाटी ,कमजोर पड़ा मानव का मन ,
ममता की शीतल छाया में ,होता कटुता का स्वयं शमन !
ज्वालाएँ जब घुल जाती हैं खुल –खुल जाते हैं मूँदे नयन '
होकर निर्मलता में प्रशांत ,बहता प्राणों का क्षुब्ध पवन।
संकट में यदि मुसका न सको ,भय से कातर हो मत रोओ ,
यदि फूल नहीं बो सकते हो ,काँटे कम से कम मत बोओ !

(क) फूल और काँटे बोने का भाव क्या है ? 1

(ख) मानव मन की कड़वाहट कैसे दूर हो सकती है ? 1

(ग)' ज्वालाएँ 'किसका प्रतीक हैं ? 1

(घ) उत्तेजित मन कब शांत हो जाता है ? 1

(ड) कवि कठिनाई के क्षणों में क्या करने या क्या न करने का परामर्श दे रहा है ? 1

(च)'नयन ' के दो पर्यायवाची शब्द लिखिए ? 1

अथवा

आदर्शों से आदर्श भिड़े ,प्रज्ञा –प्रज्ञा से टूट रही।

प्रतिमा –प्रतिमा से लड़ती है ,धरती की किस्मत फूट रही।

आवर्तों का है विषम जाल ,निरूपाय बुद्धि चकराती है ,

विज्ञान- यान पर चढ़ी हुई सभ्यता डूबने जाती है।

जब –जब मस्तिष्क जयी होता ,संसार ज्ञान से चलता है ,

शीतलता की है राह हृदय , तू यह संवाद सुनाता चल।

(क) धरती की किस्मत फूटने का कारण स्पष्ट कीजिए।

(ख) सभ्यता के डूबने का अर्थ एवं कारण स्पष्ट कीजिए।

(ग)मन को शांति कैसे मिलती है ?

(घ) मस्तिष्क जयी होने का क्या अर्थ है ?

(ड) इसका शीर्षक लिखिए।

(च) विज्ञान की उन्नति होने का परिणाम क्या हुआ ?

खण्ड – ख

प्र 3 निम्नलिखित में से किसी एक विषय पर निबंध लिखिए। 8

(क) युवावर्ग और अनुशासन की समस्या (ख) राष्ट्र-निर्माण में नारी का योगदान
(ग) गाँव की उन्नति के उपाय (घ) आतंकवाद :विश्व के लिए भयानक खतरा

प्र 4 सड़कों की दुर्दशा पर खेद और चिंता प्रकट करते हुए नगरपालिका अध्यक्ष को पत्र लिखिए। 5

अथवा

दूरददर्शन के केंद्र –निदेशक को किसी विशेष कार्यक्रम की सराहना करते हुए पत्र लिखिए।

प्र 5 निम्नलिखित प्रश्नों के संक्षिप्त उत्तर लिखिए –

(क) जनसंचार के प्रमुख माध्यम कौन-कौन से हैं ? 1

(ख) पत्रकारिता से आप क्या समझते हैं ? 1

(ग)' वाँचडाग 'पत्रकारिता किसे कहते है ? 1

(घ)फ्लैश या ब्रेकिग न्यूज से क्या तात्पर्य है ? 1

प्र 6 संतुलित भोजन के महत्व पर प्रकाश डालते हुए एक फीचर लिखिए। 3

अथवा

मोबाइल के सुख-दुख को रेखांकित करते हुए एक फीचर लिखिए।

खण्ड –ग

प्र 7 निम्नलिखित पदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए। 3x2 =6

हम तौ एक एक करी जानां।

दोइ कहैं तिनही कौं दोजग जिन नाहिन पहिचानां।

एकै पवन एक ही पानीं एकै जोती समानां।

एकै खाक गढ़े सब भाण्डै एकै कोहरा सांनां।

जैसे बाढ़ी काष्ट ही काटै अगिनी न काटै कोई।

सब घटि अंतरि तूंही व्यापक धरै सरूपै सोई।

माया देखि के जगत लुभाँनां काहे रे नर गरबानां।

निरभै भया कछु नहिं ब्यापै कहै कबीर दीवानां।

(क) कवि ने परमात्मा की एकता किस प्रकार सिद्ध की है ?

(ख) संसार नश्वर है किन्तु आत्मा अमर है – इस बात को किस उदाहरण से सिद्ध किया गया है ?

(ग) कवि मनुष्य को किन- किन दोषो से बचने की चेतावनी देता है ?

अथवा

पग घुँघरू बांधि मीरा नाची ,

मैं तो मेरे नारायण सूं ,आपही हो गई साची।

लोग कहै मीरां भइ बावरी ,न्यात कहै कुल नासी।

विस का प्याला राणा भेज्या ,पीवत मीरा हाँसी।

मीरा के प्रभु गिरधर नागर ,सहज मिले अविनासी।

(क) लोग मीरा को बाबरी क्यों कहते है ?

(ख) मीरा किसके प्रेम मे अनुरक्त थी और क्यों ?

(ग) मीरा के कुल बंधुओं ने उसके साथ कैसा व्यवहार किया ?

प्र 8 भाव –सौंदर्य एवं शिल्प –सौंदर्य स्पषट कीजिए। 3+3=6

आँखों ही में घूमा करता
वह उसकी आँखों का तारा ,
कारकुनों की लाठी से जो
गया जवानी में मारा !

प्र 9 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 2+2=4

(क) मायके आई बहन के लिए कवि ने घर को परिताप घर क्यों कहा है ? घर की याद पाठ के आधार पर उत्तर दीजिए।

(ख) चम्पा ने ऐसा क्यों कहा कि कलकत्ता पर बजार गिरे ? चम्पा काले- काले अक्षर नहीं चीन्हती पाठ के आधार पर उत्तर दीजिए।

(ग) ईश्वर केलिए किस दृष्टांत का प्रयोग किया गया है ?ईश्वर और उसके साम्य का आधार बताइए। (हे भूख मत मचल पाठ के आधार पर उत्तर दीजिए)

प्र 9 निम्नलिखित गदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर दीजिए।

जब नमक का नया विभाग बना और ईश्वर-प्रदत्त वस्तु के व्यवहार करने का निषेध हो गया तो लोग चोरी- छिपे इसका व्यापार करने लगे। अनेक प्रकार के छल – प्रपंचों का सूत्रपात हुआ ,कोई घूस से काम निकालता था ,कोई चालाकी से।

अधिकारियों के पौ बारह थे। पटवारीगिरी का सर्वसम्मानित पद छोड़- छोड़कर लोग इस विभाग की बरक्न्दाजीकरते थे। इसके दारोगा पद के लिए तो वकील का भी जी ललचाता था। यह वह समय था ,जब अङ्ग्रेज़ी शिक्षा और ईसाई मत को लोग एक ही वस्तु समझते थे। फारसी का प्राबल्य था। प्रेम की कथाएँ और शृगार रस के काव्य पढ़कर फारसीदाँ लोग सर्वोच्च पद पर नियुक्त हो जाया करते थे।

(क) ईश्वर प्रदत्त वस्तु किसे कहा गया है ? उसके निषेध का क्या अर्थ है ? 2

(ख) अधिकारी किस बात से प्रसन्न थे और क्यों ? 2

(ग) पटवारीगिरी और नमक के विभाग की नौकरी में लोगों का आकर्षण क्यों था ? 2

(घ) कहानी तथा कहानीकार का नाम लिखिए। 1

अथवा

फिर तेवर चढ़ा हमें घूरकर कहा –'तुनकी पापड़ से ज्यादा महीन होती है ,महीन। हाँ। किसी दिन खिलाएँगे ,आपको। 'एकाएक मियां की आँखों के आगे कुछ कौंध गया। एक लंम्बी सांस भरी और किसी गुमशुदा याद को ताजा करने को कहा – 'उतर गए वे जमाने। और गए वे क़द्रदान जो पकाने खाने की कदर करना जानते थे ! मियां अब क्या रखा है..... निकाली तंदूर से –निगली और हजम !'

(क) तुनकी क्या है ? इसकी क्या विशेषता है ?

(ख) मियां को किस बात का अफसोस है ?

(ग) मियां सचमुच प्रतिभाशाली कलाकार है –सिद्ध कीजिए।

(घ) पाठ तथा लेखिका का नाम लिखिए।

प्र 11 निम्नलिखित प्रश्नों मे से किन्ही तीन के उत्तर दीजिए। 3+3+3=9

(क) कर्ज़न को इस्तीफा क्यों देना पड़ गया ?

(ख) मोहन के लखनऊ आने के बाद के समय को लेखक ने उसके जीवन का एक नया अध्याय क्यों कहा है ?

(ग) वर्षा यहाँ एक घटना है ,एक सुखद संयोग है –लेखक ने ऐसा क्यों कहा है ?

(घ) स्त्री के चरित्र की बनी बनाई धारणा से रजनी का चेहरा किन मायनों में अलग है ?

प्र 12 लेखक ने लता की गायकी की किन विशेषताओं को उजागर किया है ? आपको लता की गायकी में कौन -सी विशेषताएँ नजर आती हैं ? उदाहरण सहित बताइए। 4

अथवा

निजी होते हुए भी सार्वजनिक क्षेत्र में कुइयों पर ग्राम-समाज का अंकुश लगा रहता है। लेखक ने ऐसा क्यों कहा है ?

प्र 13 निम्नलिखित प्रश्नों में से किसी दो प्रश्नों के उत्तर लिखिए। 4x 2=8

(क) तातुश लेखिका का अपनी बेटी की तरह ध्यान रखते थे। उदाहरण सहित समझाइए।

(ख) आलो- आंधारी रचना बेबी की व्यक्तिगत समस्याओं के साथ –साथ कई सामाजिक मुद्दों को समेटे हैं। किन्ही दो समस्याओं पर अपने विचार प्रकट कीजिए।

(ग) राजस्थान में कुंई किसे कहते हैं ? इसकी गहराई और व्यास तथा सामान्य कुओं की गहराई और व्यास में क्या अंतर होता है ?
