Atomic Energy Central School 4 No. Rawatbhata

Confidence Examination II (2018-19)

Time: 3 Hrs Class: XII,ENGLISH Marks: 100

General Instructions:

1. This 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.

3. Do not exceed the prescribed word limit while answering the questions**.**

SECTION-A

(READING) (Marks:30)

1 Read the passage given below:

1. No student of a foreign language needs to be told that grammar is complex. Bychanging word sequences and by adding a range of auxiliary verbs and suffixes, we are ableto communicate tiny variations in meaning. We can turn a statement into a question, statewhether an action has taken place or is soon to take place, and perform many other wordtricks to convey subtle differences in meaning. Nor is this complexity inherent to theEnglish language. All languages, even those of so-called 'primitive' tribes have clevergrammatical components. The Cherokee pronoun system, for example, can distinguishbetween 'you and I', 'several other people and I' and 'you, another person and I'. In English,all these meanings are summed up in the one, crude pronoun 'we'. Grammar is universal andplays a part in every language, no matter how widespread it is. So the question which hasbaffled many linguists is - who created grammar?2. At first, it would appear that this question is impossible to answer. To find out howgrammar is created, someone needs to be present at the time of a language's creation,documenting its emergence. Many historical linguists are able to trace modern complexlanguages back to earlier languages, but in order to answer the question of how complexlanguages are actually *formed*, the researcher needs to observe how languages are startedfrom scratch. Amazingly, however, this is possible.

3. Some of the most recent languages evolved due to the Atlantic slave trade. At thattime, slaves from a number of different ethnicities were forced to work together undercolonizer's rule. Since they had no opportunity to learn each others languages, theydeveloped a make-shift language called a *pidgin*. Pidgins are strings of words copied fromthe language of the landowner. They have little in the way of grammar, and in many cases itis difficult for a listener to deduce when an event happened, and who did what to whom.Speakers need to use circumlocution in order to make their meaning understood.Interestingly, however, all it takes for a pidgin to become a complex language is for a groupof children to be exposed to it

at the time when they learn their mother tongue. Slavechildren did not simply copy the strings of words uttered by their elders, they adapted theirwords to create a new, expressive language. Complex grammar systems which emerge frompidgins are termed creoles, and they are invented by children.

4. Further evidence of this can be seen in studying sign languages for the deaf. Signlanguages are not simply a series of gestures; they utilise the same grammatical machinerythat is found in spoken languages. Moreover, there are many different languages usedworldwide. The creation of one such language was documented quite recently in Nicaragua.Previously, all deaf people were isolated from each other, but in 1979 a new governmentintroduced schools for the deaf. Although children were taught speech and lip reading in theclassroom, in the playgrounds they began to invent their own sign system, using the gesturesthat they used at home. It was basically a pidgin. Each child used the signs differently, andthere was no consistent grammar. However, children who joined the school later, when thisinventive sign system was already around, developed a quite different sign language.Although it was based on the signs of the older children, the younger children's languagewas more fluid and compact, and it utilised a large range of grammatical devices to clarifymeaning. What is more, all the children used the signs in the same way. A new creole wasborn.

5. Some linguists believe that many of the world's most established languages werecreoles at first. The English past tense –ed ending may have evolved from the verb 'do'. 'Itended' may once have been 'It end-did'. Therefore it would appear that even the mostwidespread languages were partly created by children. Children appear to have innategrammatical machinery in their brains, which springs to life when they are first trying tomake sense of the world around them. Their minds can serve to create logical, complexstructures, even when there is no grammar present for them to copy.

1.1 On the basis of your understanding of the above passage, answer each of thequestions given below by choosing the most appropriate option:1x4=4

(a) In paragraph 1, why does the writer include information about the Cherokee language?

i. To show how simple, traditional cultures can have complicated grammar structures.

ii. To show how English grammar differs from Cherokee grammar.

iii. To prove that complex grammar structures were invented by the Cherokees.

iv. To demonstrate how difficult it is to learn the Cherokee language.

(b) What can be inferred about the slaves' pidgin language?

i. It contained complex grammar.

ii. It was based on many different languages.

iii. It was difficult to understand, even among slaves.

iv. It was created by the land-owners.

(c) All the following sentences about Nicaraguan sign language are true EXCEPT:

i. The language has been created since 1979.

ii. The language is based on speech and lip reading.

iii. The language incorporates signs which children used at home.

iv. The language was perfected by younger children.

(d) Which idea is presented in the final paragraph?

i. English was probably once a creole.

ii. The English past tense system is inaccurate.

iii. Linguists have proven that English was created by children.

iv. Children say English past tenses differently from adults.

1.2 Answer the following questions briefly:1x6=6

(a) What is common to all languages?

(b) How can we find out who created grammar?

(c) According to the passage what can be attributed as a consequence of the Atlantic slavetrade?

(d) What is *pidgin*?

(e) What are *creoles*?

(f) Why does the author say that even the most widespread languages were partly created bychildren?

1.3 Pick out the words/phrases from the passage which are similar in meaning to thefollowing:1x2 =2

i) simple and temporary (Para 3)

ii) uniform (Para 4)

2 Read the passage given below carefully and answer the questions that follow:

1. Close at hand is a bridge over the River Thames, an admirable vantage ground forus to make a survey. We are here to consider facts; now we must fix our eyes upon theprocession—the procession of the sons of educated men. There they go, our brothers whohave been educated at public schools and universities, mounting those steps, passing in andout of those doors, ascending those pulpits, preaching, teaching,administering justice,practising medicine, transacting business, making money. It is a solemn sight always—aprocession, like a caravan crossing a desert....But now, for the past twenty years or so, it isno longer a sight merely, a photograph, or fresco scrawled upon the walls of time, at whichwe can look with merely an aesthetic appreciation.

2. For there, traipsing along at the tail end of the procession, we go ourselves. And thatmakes a difference. We who have looked so long at the pageant in books, or from acurtained window watched educated men

leaving the house at about nine-thirty to go to anoffice, returning to the house at about six-thirty from an office, need look passively nolonger. We too can leave the house, can mount those steps, pass in and out of thosedoors,...make money, administer justice.

3. Nobody will dare contradict us then; we shall be the mouthpieces of the divinespirit—a solemn thought, is it not? We are here, on the bridge, to ask ourselves certainquestions. And they are very important questions; and we have very little time in which toanswer them. The questions that we have to ask and to answer about that procession duringthis moment of transition are so important that they may well change the lives of all menand women for ever. For we have to ask ourselves, here and now, do we wish to join thatprocession, or don't we? On what terms shall we join that procession? Above all, where is itleading us, the procession of educated men?

4. As you know from your own experience, and there are facts that prove it, thedaughters of educated men have always done their thinking from hand to mouth; not undergreen lamps at study tables in the cloisters of secluded colleges. They have thought whilethey stirred the pot, while they rocked the cradle. It was thus that they won us the right toour brand-new sixpence. It falls to us now to go on thinking; how are we to spend thatsixpence? Think we must. Let us think in offices; in omnibuses; while we are standing in thecrowd watching Coronations and Lord Mayor's Shows; let us think...in the gallery of theHouse of Commons; in the Law Courts; let us think at baptisms and marriages andfunerals.

Adapted from 'Three Guineas', Virginia Woolf

2.1 On the basis of your understanding of the passage, complete the statementsgiven below by choosing the most appropriate option: 1x2=2

1. The main purpose of the passage is to:

A. emphasize the value of a tradition.

B. stress the urgency of an issue.

C. highlight the severity of social divisions.

D. question the feasibility of an undertaking.

2. The author uses the word "we" throughout the passage mainly to

A. reflect the growing friendliness among a group of people.

B. advance the need for candor among a group of people.

C. establish a sense of solidarity among a group of people.

D. reinforce the need for respect among a group of people

2.2 Answer the following briefly:1x6=6

a) Why is the author jubilant on looking at the procession?

b) What/who did the procession traditionally consist of?

c)According to the author why were is the purpose for the women to be on the bridge?

d) How have women learnt to think as different to men?

e)What do the range of places and occasions in paragraph 4 emphasize?

f) What does ' sixpence' mean?

2.3 Find words from the passage which mean the same as the following: 1x2 =2

i) ceremonial occasion (para 2) ii) spokespersons (para 3)

3 Read the passage given below:

This isn't a mountain region of mere subjective beauty. Nor one, which claims its greatness,based on just an overwhelming opinion of a large majority. For Sikkim is a treasure that fewknow about. However, the facts of its remarkable geography bear enough testimony to pitchSikkim in a slot that no other mountain region, anywhere in the world, could duplicate orrival. What Everest is to peaks, Sikkim is to the mountains. Tragically, a region so wild andexotic and with such geographic and climatic extremes, that it's amazing wilds and not itsunremarkable hill stations, ensure its accessibility to the adventurous only.Just delve on these facts a bit. From the plains, in a mere 80 kms as the crow flies, thealtitude reaches 28,168 feet at the very top of Kangchenjunga, the third highest peak in theworld. Such a sharp elevation is unrivalled anywhere else and is the first geographical claimof Sikkim.

The second is an offshoot of the first. Nowhere else do so many 7,000 metre plus peakscrowd up such a confined space. And the third is really a consequence of the first and thesecond with the sharp gradation creating the most variegated flora and fauna possibleanywhere in the mountains. The fourth uniqueness is also a consequence of the first and thesecond and lies in the extremes of the climate which ranges from the tropical to the typicalarctic type. And the fifth claim is its thin permanent population and relatively fewertravellers by virtue of its remote far-eastern Himalayan location.

The startling facts about Sikkim never seem to end. For starters, all of Sikkim lies in a mere110 kms by 65 kms of mountains, peaks, glaciers, rivers and forests. A little dot on the mapat a latitude 27 degrees North and longitude 88 degrees East. Its 7,000-sq kms make it aboutas large as the National Capital Region of India! To the North and extending to the East ofSikkim, is Tibet / China and to the West is Nepal. To the South are the Himalayan and subHimalayan regions of West Bengal.It is, in fact these geographical extremes and the resulting ambience, that makesmountaineers trek here, when they are not climbing, besides fuelling mountaineering dreamsin the minds of trekkers, what with the closest possible proximity to magnificent peakswhile trekking.

On the subject of trekking here, it is strange but true that acclimatisation is much tougher inSikkim than elsewhere. It may have something to do with being closer in latitude to theTropic of Cancer, besides the rather sharp stages involved in each day of trekking. Thecloseness to the Tropic of Cancer has meant that the

snowline will always be much higherand therefore human settlements are seen even at altitudes of 16,000 feet!

(a) On the basis of your understanding of the above passage, make notes on it using

headings and sub-headings. Use recognizable abbreviations (wherever necessary-minimum

four) and a format you consider suitable. Also supply an appropriate title to it. **5**

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

SECTION : B(WRITING SKILLS)(Marks:30)

4 You are Romi/Rohit, Sports Captain of Sunshine International School. Your school hasorganised a marathon to promote a cause. Design a visually appealing poster about this inabout 50 words. Include all relevant details.

OR

You are the Dean, Admissions, MNT Professional College, Chandigarh. Draft anadvertisement in about 50 words giving information about admission to undergraduatecourses offered by your College. Include all relevant details. **4**

5 You are Kumaran/Koyala, Vice President, Customer Care, Shopmart Online. You havereceived a letter of inquiry from a dissatisfied customer seeking information about yourcompany's exchange policy. Write a letter of reply in about 120-150 words to the customergiving information about the same.

OR

You see a classified advertisement in the newspaper inviting applications for the post of aSales Executive in a reputed bank. Write a letter with bio-data in about 120-150 words to theHR Manager, HABC Bank, Lajpat Nagar , New Delhi, applying for the post advertised. Youare Avani/Aviral of 120, Kirti Nagar, Delhi.

6

6 Are celebs responsible for the products they endorse? Taking a clue from the headlinesgiven below and using your own ideas, write either a debate orspeech as directed in about 150-200 words.

Amitabh Bachchan steps back from promoting Pepsi after a school girl questions thehealth impact of the drink.Brief ban on Maggi noodles causes trouble for its celebrity Brand ambassadorsM.S. Dhoni quits as Amrapali brand ambassador after Twitter furore (Speech)

OR

Should schools promote coaching institutes? Taking a clue from the points given below andusing your own ideas, write a debate for or against the topic in about 150-200 words.Despite CBSE**'s** ban, coaching centers running classes in schoolsTeachers from coaching institutes teach subjects like physics, chemistry andMathematics, English and Physical Education continue to be taught by the school faculty.Classes in separate sections from 8 am to 12 pm for the CBSE and competitiveexaminations. **10**

7.5th June has been recognized as World Environment Day. Your school conducted variousactivities to commemorate (celebrate) the day. Write a report about it in about 150-200 words for yourschool magazine. You are Karuna/Karan.

OR

On the occasion of International Museum day, prepare an article, in about 150-200 wordson the role of museums in preserving history and heritage. Alsomention how students can benefit from visiting museums. You are Bhagyashree/Bhagesh. **10**

SECTION: C

(LITERATURE: TEXT BOOKS and LONG READING TEXT)(Marks : 40)

8 Read the extract given below and answer the questions that follow:

On sour cream walls, donations, Shakespeare's head,

Cloudless at dawn, civilized dome riding all cities.

Belled, flowery, Tyrolese valley. Open-handed map

Awarding the world its world.

a) What is the condition of the classroom wall?

b) What aspects show a civilized race?

c) What is the specialty of the Tyrolese valley?

d) Explain: 'Awarding the world its world'.

OR

And such too is the grandeur of the dooms

We have imagined for the mighty dead:

All lovely tales that we have heard or read:

An endless fountain of immortal drink,

Pouring unto us from the heaven's brink.

a) Name the poem and the poet.

b) Who are the 'mighty dead'?

c) Why is 'grandeur' associated with the ' mighty dead'?

d) Identify and explain the poetic device used in the last two lines. **4**

9 Answer any four of the following questions in about 30 -40 words each:

a. How did Edla persuade her father to let the pedlar stay in their home till Christmas ?

b. How did Mahatma Gandhi uplift the peasants of Champaran?

c. The poet is talking about in the poem 'Keeping Quiet' by Pablo Neruda, Why is it'exotic'?

d. In the poem Aunt Jennifer's Tigers, what is the contrast between the reality of Aunt's lifeand her imagination?

e. *'From that day onwards it was celebration time for all tigers inhabiting*

Pratibandapuram' . Bring out the irony in this statement.

f. Why did Jack begun find the story telling ritual a chore? **3x4=12**

10 Answer any one of the following questions in about 120-150 words:

Do the poor have the right to dream? Why then does the author call Mukesh's dream 'amirage'?

OR

In what way was Sophie's hero worship and fantasizing at odds with her socio-economicbackground? Was she justified in dreaming the 'impossible'? **6**

11 Answer any one of the following questions in about 120-150 words:

The Tiger King's quest for tigers was full of hurdles and challenges. Justify the statement.

OR

Mr. Lamb and Derry are two different sides of the same coin. Do you agree? Justify youranswer with evidence from the text. **6**

12 Answer the following question in about 120-150 words:

Why does Silas return to Lantern Yard? How does the visit prove useful to him?

OR

How does Griffin rob the Buntings at the vicarage? Do the Buntings realize what hadhappened in their home? Why? **6**

13 Answer the following question in about 120-150 words:

Discuss the role of chance and co-incidence in the novel, ‘Silas Marner’.

OR

How does the novel ‘The Invisible Man’ highlight the theme of corruption of morals in theabsence of social restriction? **6**

Atomic Energy Central School No.4,Rawatbhata

Confidence Examination-II (2018-19)

Time: 3 Hours Class: XII, Physics Max. Marks: 70

Name of the student: _____ Roll No. _____ Class,Sec_____

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.

4. There is no overall choice. However, internal choices have been provided in two questions ofone mark, two questions of two marks, four questions of three marks and three questions ofFive marks weightage. You have to attempt only one of the choices in such questions.

Section A

1. Name the phenomenon which shows the quantum nature of electromagnetic radiation. 1

2. Name the electromagnetic radiations used for providing energy to artificial satellite. Also write its wavelength range. 1

OR

Name the electromagnetic waves that are widely used as a diagnostic tool in medicine. Also write its wavelength range.

3. A charge q is moved from a point A above the dipole of dipole moment 'p' to a point B below the dipole in equatorial plane without acceleration. Find the work done in the process. 1

OR

Name the current which can flow even in the absence of electric charge.

4. How does the angle of minimum deviation of a glass prism vary, if the incident violet light is replaced by red light? 1

5. Draw the graphs showing variations of photoelectric current with applied voltage for two incidentradiations of equal frequency and different intensities. Mark the graph for the radiation of higher intensity. 1

Section B

6. Compare the following 2
(i) Wavelengths of the incident solar radiation absorbed by the earth's surface and the Radiation re-radiated by the earth.
(ii) Tanning effect produced on the skin by UV radiation incident directly on the skin and That coming through glass window.

7. Find the condition under which the charged particles moving with different speeds in the presence of electric and magnetic field vectors can be used to select charged particular speed. 2

8. Two electric bulbs P and Q have their resistances in the ratio of 1:2. They are connected in series across a battery. Find the ratio of the power dissipation in these bulbs. 2

OR

A 9 V battery is connected in series with a resistor .The terminal voltage is found to be 8 V. Current through the circuit is measured as 5 A. What is the internal resistance of the battery?

9. If light of wavelength 412.5 nm is incident on each of the metals given below, which ones will show photoelectric emission and why? 2

Metal	Work function (in eV)
Na	1.92
K	2.15
Ca	3.20
Mo	4.17

10. Draw the intensity pattern for single slit diffraction and double slit interference. Hence, state two differences between interference and diffraction patterns. 2

OR

Unpolarised light is passed through a polaroid P_1. When these polarized beams passes through another polaroid P_2 and if the pass axis of P_2 makes an angle α with the pass axis of P_1, then write the expression for the polarized beam passing through P_2. Draw a plot showing the variation of intensity when α varies from 0 to 2π.

11. Calculate the shortest wavelength of the spectral lines in Balmer series. (Rydberg constant, $R = 10^7 m^{-1}$) 2

12. The frequencies of two side bands in AM wave are 640 kHz and 660 kHz respectively. Find the frequencies of carrier and modulating signal. What is the bandwidth required for amplitude modulation? 2

Section C

13. Using photon picture of light, show how Einstein's photoelectric equation can be established. Write two features of photoelectric effect which cannot be explained by wave theory. 3

14. Draw a ray diagram depicting the formation of the image by an astronomical telescope in normal adjustment. Write two drawbacks of refracting type telescopes. 3

OR

(a)Define resolving power of a telescope. Write the factors on which it depends.

(b) A telescope resolves whereas a microscope magnifies. Justify the statement.

15. (a) Monochromatic light of wavelength 589 nm is incident from air ona water surface. If refractive index for water is 1·33, find the wavelength,frequency and speed of the refracted light. 3

(b) A double convex lens is made of a glass of refractive index 1·55, with both faces of the same radius of curvature. Find the radius ofcurvature required, if the focal length is 20 cm.

16. Write the basic nuclear process involved in the emission of β^+ in a symbolic form, by a radioactive nucleus. 3

In the nuclear transition given below:

(i) ${}^{11}_{6}C \rightarrow {}^{z}_{y}B + x + \nu$

(ii) ${}^{12}_{6}C + {}^{12}_{6}C \rightarrow {}^{20}_{a}Ne + {}^{c}_{b}He$

Find the values of x, y and z and a, b and c.

17. Define mutual inductance between a pair of coils. Derive an expressionfor the mutual inductance of two long coaxial solenoids of same length wound one over the other having radius of cross section r_1 and r_2 where $r_1 > r_2$ 3

OR

Define self-inductance of a coil. Obtain the expression for the energystored in an inductor L connected across a source of emf.

18. (a) Draw a ray diagram for a simple microscope and write formula of its magnifying power when image forms at infinity. 3

(b) You are given the following three lenses. Which two lenses will youuse as an eyepiece and as an objective to construct an astronomical telescope? Give reason.

Lenses Power (D) Aperture (cm)

L_1 3 8

$L_2$6 1
$L_3$10 1

19. Define the term 'conductivity' of a metallic wire. Write its SI unit. 3
Using the concept of free electrons in a conductor, derive theexpression for the conductivity of a wire in terms of numberdensity and relaxation time. Hence obtain the relation betweencurrent density and the applied electric field E.

OR

Two material bars A and B of equal area of cross-section, are connected in series to a DC supply. A is made of usual resistance wire and B of an n-type semiconductor.
(a) In which bar is drift speed of free electrons greater?
(b) If the same constant current continues to flow for a long time, how will the voltage drop across A and B be affected?Justify each answer.

20. A bar magnet of magnetic moment 6 JT^{-1} is aligned at $60^0$with a uniformexternal magnetic field of 0·44 T. 3
Calculate (a) the work done in turningthe magnet to align its magnetic moment (i) normal to the magnetic field,(ii) opposite to the magnetic field, and (b) the torque on the magnet in thefinal orientation in case (ii).

21. (a) State Bohr's postulate to define stable orbits in hydrogen atom.How does de Broglie's hypothesis explain 3
the stability of these orbits?
(b) A hydrogen atom initially in the ground state absorbs a photonwhich excites it to the n = 4 level. Estimate the frequency of thephoton.

22. (a) Explain the role of moderator and controlling rods in a nuclear reactor. Also write one example of each. (b) 3
A radioactive isotope has a half-life of 10 years. How long will ittake for the activity to reduce to 3·125% ?

23. (a) A student wants to use two p-n junction diodes to convertalternating current into direct current. Draw the 3
labelled circuitdiagram she would use and explain how it works.
(b) Give the truth table and circuit symbol for NAND gate.

OR

(a) Give three reasons why modulation of a message signal isnecessary for long distance transmission.
(b) Show graphically an audio signal, a carrier wave and an amplitudemodulated wave.

24. Draw the typical input and output characteristics of an n-p-n transistorin CE configuration. Show how these 3
characteristics can be used todetermine (a) the input resistance (r_i), and (b) current amplificationfactor (β).

Section C

25. (a) Define electric flux. Is it a scalar or a vector quantity? 5
A point charge q is at a distance of d/2 directly above the centre ofa square of side d, as shown in the figure. Use Gauss' law to obtainthe expression for the electric flux through the square.
(b) If the point charge is now moved to a distance'd' from the centre ofthe square and the side of the square is doubled, explain how theelectric flux will be affected.

OR

(a) Use Gauss' law to derive the expression for the electric field $\vec{E}$due to a straight uniformly charged infinite line of charge density σ C/m.
(b) Draw a graph to show the variation of E with perpendicular distance r from the line of charge.
© Find the work done in bringing a charge q from perpendicular distance r_1 to r_2 ($r_2 > r_1$).

26. (a) Define wavefront. Use Huygens' principle to verify the laws of reflection. 5
(b) How is linearly polarised light obtained by the process of reflection of light? Find the Brewster angle for air –

glass interface, whenthe refractive index of glass = 1·5.

OR

(a) Draw a ray diagram to show the image formation by a combination f two thin convex lenses in contact. Obtain the expression for thepower of this combination in terms of the focal lengths of thelenses.

(b) A ray of light passing from air through an equilateral glass prismundergoes minimum deviation when the angle of incidence is4/3 thof the angle of prism. Calculate the speed of light in the prism.

27. (a) State the principle of an ac generator and explain its working withthe help of a labelled diagram. Obtain the expression for the emfinduced in a coil having N turns each of cross-sectional area A,rotating with a constant angular speed 'ω' in a magnetic field $\vec{B}$,directed perpendicular to the axis of rotation. 5

(b) An aeroplane is flying horizontally from west to east with avelocity of 900 km/hour. Calculate the potential differencedeveloped between the ends of its wings having a span of 20 m.The horizontal component of the Earth's magnetic field is 5×10^{-4} T and the angle of dip is 30^0

OR

A device X is connected across an ac source of voltage$V = V_0 sin\omega t$. The current through X is given as $I = I_0 \sin\left(\omega t + \frac{\pi}{2}\right)$.

(a) Identify the device X and write the expression for its reactance.

(b) Draw graphs showing variation of voltage and current with timeover one cycle of ac, for X.

(c)How does the reactance of the device X vary with frequency of the ac? Show this variation graphically.

(d) Draw the phasor diagram for the device X.

Atomic Energy Central School No.4, Rawatbhata

Confidence Examination-II (2018-19)

Time: 3 Hours Class XII, Chemistry Maximum Marks:70

General Instructions:

1. This paper contains 26 questions. All the questions are compulsory.
2. Question No. 1 to 5 are very short type questions and carry one mark each.
3. Question No. 6 to 12 carry two marks each.
4. Question No. 13 to 24 carry three marks each.
5. Question No. 25 to 27 carry five marks each.
6. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all three questions in five marks each. You have to attempt only one of the choices in such question.
7. Use of calculator is not permitted.

Q.1. Give the point of difference between adsorption and absorption. 1

Q.2. A compound formed by element P and Qcrystallizes in the cubic structure where P atoms are at the corner of the cube and Q atoms are present only at one set of opposite face. What is the formula of the compound? 1

Q.3. What is denaturationofalcohol? 1

Q.4. What are ambientnucleophiles. Give one example. 1

Q.5. Write the formulaof 2,3 dibromo-1-phenyl hexane. 1

Q.6. What do you meant bymischmetal? Write its uses. 2

Q.7. Give one example of each solution which is showing positive and negative deviation from Raoult's Law. 2

Q.8. Complete the following reactions 2

a. $C_6H_5OH + Br_2(aq) \rightarrow$

b. $C_6H_5NH_2 + (CH_3CO)_2O \rightarrow$

Q.9. a. What is the structural difference between nucleoside and a nucleotide. 2

b. Differentiate between globular and fibrous proteins.

Q.10. Convert : 2

a. Aniline into 1,3,5- tribromobenzene.

b. Ethanamide into methanamine

Q.11. a. An optically active compound having molecular formula $C_5H_{11}Br$ reacts with aqueous KOH to give a racemic mixture of products. Write the mechanism involved for this reaction. 2

b. The p-isomer of dichlorobenzene has higher melting point than o- and m-isomer. Why?

Q.12. (i) Name a substance which can be used as an antiseptic as well as disinfectant. 2

(ii) Name a sweetening agent in the preparation of sweet for a diabetic patient.

Or

(i) What is the harmful effect of $NaHCO_3$ in hyper acidity?

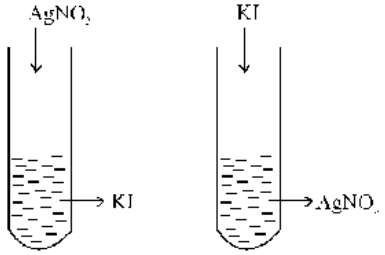
(ii) Which site of an enzyme s called allosteric site?

Q.13. a) What is the role of depressant in froth floatation process? 3

b) Out of C and CO, which is better reducing agent for FeO?In the lower part of blast furnace (higher temperature)In the upper part of blast furnace (lower temperature).

c) The extraction of Au by leaching with NaCN involves both oxidation and reduction. Justify giving equations.

Q.14. (i) A colloidal solution of AgI is prepared by two different methods shown below:- 3



A B

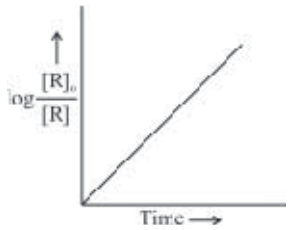
What is the charge of AgI colloidal particles in the two test tubes (A) and (B).

(ii) Give reason of the following: :

a) sky appears blue in colour.

b) A freshly formed precipitate of ferric hydroxide can be converted to a collidal sol by shaking it with a small quantity of ferric chloride

Q.15. Answer the following questions on the basis of the curve for a first order reaction :- 3



(i) What is the relation between slope of this line and rate constant?

(ii) Calculate the rate constant of the above reaction if the slope is $2 \times 10^{-4} S^{1}$

a. Derive the relationship between half- life of a first order reaction and rate-constant.

Q.16. An optically active compound having molecular formula $C_6H_{12}O_6$ is found in two isomeric forms (A) and (B) in nature. When (A) and (B) are dissolved in water they show the following equilibrium. 3

(A) ==========Equilibrium mixture========= (B)

$|\alpha|_D = 111^0$ 52.2^0 19.2^0

(i) What are such isomers called?

(ii) Can they be called enantiomers? Justify your answer.

(iii) Draw the cyclic structure of isomer (A)

Q.17. An element E crystallizes in body centred cubic structure. If the edge length of the cell is 150pm 3

and the density is 19.3 g cm-3, calculate the atomic mass of this element. Also calculate the radius of an atom of this element.

Q.18. Give chemical tests to distinguish between compounds in each of the following pairs: 3

a) Phenol and Benzoic acid
b) Methyl amine and Aniline
c) Ethyl alcohol and methyl alcohol

Or

Give reasons:

a. Phenol is more acidic than alcohol.
b. Ethers boiling points are less than alcohols.
c. Alcohols are more soluble than ethers in water.

Q.19. Write names of monomer/s of the following polymers and classify them as addition or condensation polymers. 3

a) Teflon
b) Bakelite
c) Nylon-2,6

(a) Give the IUPAC name of : 3
$[Cr\,Cl_2\,(H_2O)_4]\,Cl$
(b) Give the number of unpaired electrons in the following complex ions:
$[FeF_6]^{4-}$ and $[Fe(CN)_6]^{4-}$
(c) Name the isomerism exhibited by the following pair of coordination compounds:
$[Co(NH_3)_5\,Br]\,SO_4$ and $[Co(NH_3)_5\,SO_4]\,Br$
Give one chemical test to distinguish between these two compounds.

Q.20. Arrange the following in the order of property indicated for each set: 3

i. F_2, Cl_2, Br_2, I_2 – increasing bond dissociation enthalpy.
ii. HF, HCl, HBr, HI – increasing acid strength.
iii. NH_3, PH_3 , AsH_3, SbH_3, BiH_3 – increasing base strength.

Q.21. A blackish brown coloured solid 'A' when fused with alkali metal hydroxides in presence of air, produces a dark green coloured compound 'B', which on electrolytic oxidation in alkaline medium gives a dark purple colouredcompound C. Identify A, B and C. What happens when an acidic solution of the green compound (B) is allowed to stand for some time? Give the equation involved. What is this type of reaction called? 3

OR

Explain the following fact:

(a) Transition metals act as catalysts.
(b) Chromium group elements have the highest melting points in their respective series.
(c) Transition metals form coloured complexes.

Q.22. 2 g of benzoic acid(C_6H_5COOH) dissolved in 25g of benzene shows a depression in freezing point equal to 1.62K. Molal depression constant for the benzene is 4.9 K Kg mol-1. What is the Vant Hoff factor and the percentage association of acid if it forms dimer in solution? 3

Q.23. The following results have been obtained during the kinetic studies of the reaction, $A+B \rightarrow C+D$

Experiment	[A] (mol L^{-1})	[B] (mol L^{-1})	Intial rate of formation of [D] Mol L-1 min^{-1})
I	0.1	0.1	$6.0X10^{-3}$
II	0.3	0.2	$7.2X10^{-2}$
III	0.3	0.4	$2.88X10^{-1}$
IV	0.4	0.1	$2.40X10^{-2}$

Determine the rate law and the rate constant for the reaction.

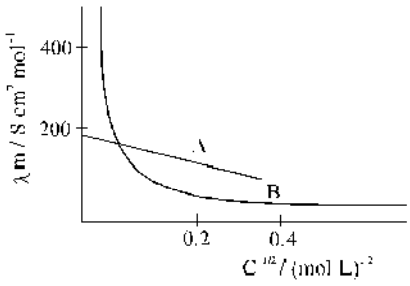
Q.24. Give reasons for the following: 5

i. Decompostion of ozone molecule is spontaneous process.
ii. NO_2 dimerises to form N_2O_4
iii. H_2S is less acidic than H_2Te
iv. PCl_5 ionic in solid state
v. H_3PO_2 is mono basic.

Or

A. Describe the favorable conditions for the manufacture of (i) ammonia by Haber's process, and (ii) sulphuric acid by Contact process.
B. Complete the following chemical equations:
(i). $Ca_3P_2(s)+H2O(I) \rightarrow$……
(ii).Cu +HNO3 (Conc.)→……
(iii).F2(g)+H2O(l)

Q.25. A. The following curve is obtained when molar conductivity (y-axis) is plotted against the square root of concentration $C^{1/2}$(x - axis) for two electrolytes A and B. 5



i. What can you say about the nature of the two electrolytes A and B?
ii. How do you account for the increase in molar conductivity for the electrolytes A and B on dilution?

B. State Kolrauch Law of independent migration of ions. Write an expression for the molar conductivity of calcium phosphate at infinite dilution, according to Kolrauch Law
C. State Faraday's first law of electrolysis.

Or

a. The following chemical reaction is occurring in an electrochemical cell.

$Mg(s) + 2\ Ag^+ (0.0001\ M) \rightarrow Mg^{2+} (0.10M) + 2\ Ag(s)$

E^O value for the electrodes are $Mg^{2+} / Mg = -2.36\ V$ & $Ag^+ / Ag = 0.81\ V$

For this cell calculate &write

i. Standard cell potential E^ocell.

ii. Cell potential (E)cell

iii. Symbolic representation of the above cell.Will the above cell reaction be spontaneous?

b. Write the cell reaction at anode and cathode in lead storage battery when cell is discharging.

Q.26. Predict the products formed when ehtanal reacts with the following reagents: 5

a. PhMgBr and then H_3O^+
b. Tollen's reagents
c. Hyrbazine and KOH
d. Excess ethanol and acid
e. Zinc amalgam and hydrochloric acid

Or

i. An organic compound A ($C_7H_6Cl_2$) on treatment with NaOH solution gives another compound B(C_7H_6O). B on oxidation gives an acid C($C_7H_6O_2$), which on treatment with a mixture of conc. HNO_3 and H_2SO_4 gives a compound D($C_7H_5NO_4$). B on treatment with conc. NaOH gives the compound E(C_7H_8O) and F. Deduce the structure of A, B, C, D, E, F.

ii. Arrange the following compounds in the order of increasing acidic strength –
Benzoicacid, p-Nitro benzoic acid, p- Methoxybenzoicacid.

ii. Acetic acid can be halogenated in the presence of red P and Cl_2 but formic acid cannot be halogenated in the same way. Explain.

Atomic Energy Central School No. 4 Rawatbhata
Confidence Examination –II (2018-19)
Time. 3 Hrs. Class XII, Mathematics M.M.100

General Instructions:

1. All questions are compulsory.
2. The question paper consists of 29 questions divided into Four sections A, B, C and D. Section A comprises of 4 questions of one mark each. Section B comprises 8 questions of two marks marks each . Section C comprises of 11 questions of four marks each and section D comprises 6 questions of six marks each.
3. There is no overall choice. However, internal choices has been provided in 4 questions of four marks and 2 questions of six marks each.
4. Answer one mark questions in one word or in one line only.
5. If you wish to answer any question which was already answered by you for any reason, cancel the previous answer.
6. Use of calculators is not permitted. Symbols have their usual meanings.

Section A

Q1. If a line makes angles $\alpha, \beta \text{ and } \gamma$ with the positive directions of the coordinate axes, then prove that $sin^2\alpha + sin^2\beta + sin^2\gamma = 2$.

Or

Find the differential equation of all non-horizontal lines in a plane.

Q2. Write the order of the differential equation of all circles of given radius 'a'.

Q3. Write $[\vec{a}\ \vec{b}\ \vec{c}]$ where $\vec{a} = 2\hat{i} + 3\hat{j} + 4\hat{k}$, $\vec{b} = 2\hat{i} + \hat{k}$ and $\vec{c} = \hat{i} + \hat{j} - 3\hat{k}$.

Q4. Write the number of orders of a matrix with 72 elements.

Section B

Q5. Evaluate $\int_0^{\frac{\pi}{2}} \log\left(\frac{3+5\cos x}{3+5\sin x}\right) dx$

Q6. Find the sum of the intercepts cut off by the plane $6x+4y-12z = 1$.

Q7. If A and B are two events such that P(A)= $\frac{1}{2}$, P(B)= $\frac{1}{3}$ and P(A∩B) = $\frac{1}{4}$, find P(A'/B').

Q8. Show that secx− tanx is an integrating factor for differential equation cosx $\frac{dy}{dx}$ − y=$\cos^2$x.

Q9.Evaluate $\int \frac{(x-3)\,e^x}{(x-1)^3} dx$.

Or

Evaluate $\int \frac{1}{x^2(x^4+1)^{\frac{3}{4}}}\, dx$.

Q10. Find the real solutions of the equation; $\tan^{-1}\sqrt{x^2+x} + \sin^{-1}\sqrt{x^2+x+1} = \frac{\pi}{2}$.

Or

If $\tan^{-1}\left(\frac{1}{1+1.2}\right) + \tan^{-1}\left(\frac{1}{1+2.3}\right) + \cdots \ldots\ldots\ldots\ldots\ldots\ldots + \tan^{-1}\left(\frac{1}{1+n(n+1)}\right) = tan^{-1}x$, then evaluate x.

Q11. An urn contains 5 red and 5 black balls. A ball is drawn at random , its colour is noted and is returned to urn. Moreover, two additional balls of the colour drawn are put in urn and then a ball is drawn at random. What is the probability that second ball is red?

Or

If P(A) = 0.6, P(B) = 0.5 and P(A|B) = 0.3, then find P(A∪ B).

Q12. Using properties of determinants, prove that

$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1-x^3)^2$$

Section C

Q13. Show that the following lines are skew lines: $\frac{x-1}{2} = \frac{y+2}{3} = \frac{z-3}{4}$ and $\frac{x+1}{3} = \frac{y-1}{7} = \frac{z+5}{8}$.

Q14. Solve the differential equation ydx+ xlog($\frac{y}{x}$)dy –2xdy = 0.

OR

Solve the differential equation $\frac{dy}{dx} = e^{(x+y)} + 1$.

Q15. Find the least value of "a" so that the function f(x) = x^2 +2ax+ 1 is strictly increasing in (1, 2).Also find the greatest value of "a" for which f(x) is strictly decreasing in (1,2).

Q16. Find $\int \frac{sec^2x - tan^2x}{sec^2x + tan^2x}$ dx.

Q17. If $\alpha = 3i - j$ and $\beta = 2i + 3j - k$, then express vector β as the sum of vectors β_1 and β_2 where, β_1 is parallel to vector α and β_2 is perpendicular to α.

Q18. Using elementary row transformations, find the inverse of the matrix: $\begin{bmatrix} -1 & 2 & 3 \\ 2 & 1 & 3 \\ 3 & -1 & 2 \end{bmatrix}$

Q19. If f(x) = $\begin{cases} \frac{1-\sin^3 x}{3\cos^2 x}, & if\ x < \frac{\pi}{2} \\ p\ , if\ x = \frac{\pi}{2} \\ \frac{q(1-\sin x)}{(\pi-2x)^2}\ , if\ x > \frac{\pi}{2} \end{cases}$ is continuous at π/2 , then find the value of p and q.

Q20. Evaluate $\int_0^1 (x + e^{2x})$dx as limit of sums.

OR

Find $\int_0^{\frac{\pi}{6}} (2 + 3x^2 \cos 3x)$dx.

Q21. If a function f defined by f(x) = $\begin{cases} x^2+3x+a, & x \le 1 \\ bx+2, & x > 1 \end{cases}$

is differentiable, find a and b.

OR

If y = $cos^{-1}\sqrt{\frac{cos3x}{cos^3x}}$, then show that $\frac{dy}{dx} = \sqrt{\frac{3}{cosxcos3x}}$

Q22. Show that $\int_0^{\frac{\pi}{2}} \frac{sin^2x}{sinx+cosx}$ dx = $\frac{1}{\sqrt{2}}\log(\sqrt{2}+1)$.

Q23. The tailors A and B are paid Rs. 225 and Rs.300 per day respectively. A can stitch 9 shirts and 6 pants while B can stitch 15 shirts and 6 pants per day. Form a linear programming problem to minimize the labour cost to produce atleast 90 shirts and 48 pants.Solve the problem graphically.

Section D

Q24. If l_1, m_1, n_1 and l_2, m_2, n_2 are the direction cosines of two mutually pendicular lines, then show that direction cosines of the line perpendicular to both of these lines are $m_1n_2 - m_2n_1$, $n_1l_2 - n_2l_1$ and $l_1m_2 - l_2m_1$.

OR

Find the equation of a plane passing through the points (4,11,2), (– 2 ,– 6 ,– 1) and (0,2,1). Also show that the line r = 2i +3j + μ(7i – 5k) lies on this plane.

Q25. A total amount of Rs.7000 is deposited in three different saving bank account with annual interest rates 5%, 8% and 8.5% respectively. The total annual interest from these three accounts is Rs.550. Equal amounts have been deposited in 5% and 8% saving accounts. Find the amount deposited in each of three accounts by matrix method.

Q26. Find the maximum value of functions f(x) and g(x), where f(x) $=x^2e^{-2x}$,x>0 and g(x) =x+sin2x in $[0,2\pi]$.

Q27. Consider the function $f:R^+\rightarrow[-9,\infty)$ given by f (x)= $5x^2+6x-9$. Prove that f is invertible with f^{-1} (y)= $\frac{\sqrt{54+5y}-3}{5}$. Also find f^{-1} (2) and f^{-1} (9).

Q28. Using integration, find the area of a triangle bounded by the lines x+2y=2, $y-x=1$ and 2x+y=7.

OR

Using integration,find the area of the reigon bounded by the following curves after making a rough sketch: $y=1+|x+1|$, $x=-3$, x=3 and y=0.

Q29. A die is thrown again and again until four sixes are obtained. Find the probability of obtaining the fourth six in seventh throw of a die.

OR

A bag contains 2n+1 coins. It is known that n of these coins have head on both sides whereas rest of the coins are fair.A coin is picked up at random from a bag and tossed. If the probability that results in a head is $\frac{31}{42}$,find n.

Atomic Energy Central School No.4 Rawatbhata

Confidence Examination-II (2018-19)

Time: 3 Hours Class XII, Computer Science Max.Marks: 70

1. (a) Differentiate between a global variable and a local variable. [1]

(b) Name the Header file(s) that shall be needed for successful compilation of the following C++ code? [2]

```
void main()
    {
        char st[20];
        gets(st);
        if(isaplha(st[0])
            cout<<"Starts with alphabet";
        else
            cout<<strlen(st);
    }
```

(c) Rewrite the following program after removing syntactical error(s) if any. Underline each correction. [2]

```
#include<iostream.h>
#define SIZE =10
VOID MAIN()
{
    int a[SIZE]={10,20,30,40,50};
    float x=2;
    SIZE=5;
    for(int i=0;i<SIZE;i++)
        cout<<a[i]%x;
}
```

(d) Find the output of the following program : [1]

i)
```
#include<iostream.h>
#include<string.h>
struct Student
{
    int rno;
    char name[20];

};
void main()
{student a[2]={1,"Amit",}{2,"Sumit"}};
    for(int i=0;i<2;i++)
    {

            cout<<"\n Rno"<<a[i].rno;
        cout<<"\n Name ";
      for(int j=0;j<strlen(a[i].name);j++)
```

```
                    cout<<a[i].name[i]<<" ";
            }
      }
```

ii) #include<iostream.h> [1]

```
 int a=10;

void main()
{
        void demo(int &,int,int*);
        int a=20,b=5;
        demo(::a,a,&b);
                cout<<::a<<a<<b<<endl;

}
void demo(int &x, int y, int *z)
{
        a+=x;
        y*=a;
        *z=a+y;

        cout<<x<<y<<*z<<endl;
}
```

(e) In the following C++ program, what will be the maximum and minimum value of r generated with the help of random function? [1]

```
#include<iostream.h>
#include<stdlib.h>

void main()
{
        int r;
        randomize();
        r=random(20)+random(2);
        cout<<r;

}
```

(f) Answer the questions(i) and (ii) after going through the following class : [2]

```
class Exam
{
        int year;
        public :

                Exam(int y) { year=y; } //constructor 1
                Exam(Exam &t);          //constructor 2
```

}

(i) Create an object, such that it invokes constructor 1.

(ii) Write complete definition for constructor 2.

2. Define a class **Competition** in C++ with the following descriptions: [4]

Data Members:

Event_no	integer
Description	char(30)
Score	integer
qualified	char

Member functions:

- A constructor to assign initial values Event_No number as 101, Description as "State level", Score is 50 and qualified as "N".
- Input(), To take the input for event_no, description and score.
- Award(int), To award qualified as "Y", if score is more than the cutoff score passed as argument to the function else "N".
- Show(), To display all the details.

3. Answer the questions (i) to (iv) based on the following code :

```
class Employee
{
        int id;
        protected :
        char name[20];
        char doj[20];

        public :
        Employee();
        ~Employee();
        void get();
        void show();
};

class Daily_wager : protected Employee
{
        int wphour;
        protected :
        int nofhworked;
        public :
        void getd();

        void showd();
};
class Payment : private Daily_wager
{
        char date[10];
        protected :
```

```
        int amount;
        public :
        Payment();
        ~Payment();
        void show();
};
```

(i) Name the type of Inheritance depicted in the above example. [1/2]

(ii) Name the member functions, which are accessible by the objects of class Payment. [1]

(iii) From the following, Identify the member function(s) that can be called directly from the object of class Daily_wager class [1/2]
show(), getd(), get()

(iv) Find the memory size of object of class Daily_wager. [1/2]

(v) Is the constructors of class Employee will copied in class Payment? Due to inheritance. [1/2]

4. (a) Write a function in C++ which accepts a character array and its size as arguments and reverse that array without using second array and library function. [3]
Example : if the array is having: "Computer Science"
Then after reversal it should rearranged as: "ecneicS retupmoC"
OR
WAF that accept an array of 10 integers with size. The function finds a particular number from the array by using the binary search method

(b) An array A[-2..8][-2..5] is stored in the memory along the column with each element occupying 4 bytes. Find out the address of the element A[3][2]. [2]

(c) Write a function in C++ to delete a node containing names of student, from a dynamically allocated stack of names. The function receives the value of top by reference. The stack is implemented with the help of following structure : [2]

```
struct student
{
        char name[20];
        student *next;
};
```

(d) Write a function to insert a set of integer values in a circular queue and display them. [2]

(e) Evaluate the following postfix expression using a stack and show the contents of stack after execution of each operation: [2]

False, True , False , True ,Not, Or, True , Or, Or ,And

(Hint: Consider the each „Not", „Or", „And" as operators and „False" and „True" are operands)

(f) Find the post fix expression from the given infix expression:

(A+B-(C*D)+F*G*H+M) [2]

5. a) Assuming a binary file "FUN.DAT" is containing objects belonging to a class LAUGHTER (as defined below). Write a user defined function [3]

in C++ to add more objects belonging to class LAUGHTER at the bottom of it.

```
Class LAUGHTER
 {
                int    idno;
                char Type[5];
                char Desc[255];

  PUBLIC:
        void Newentry()

    { cin>> Idno; gets(Type); gets(Desc);}
   void Showonscreen()

    { cout<<Idno<<" "<<Type<<endll<<Desc<<endl;}
};
```

b) Define the various file opening methods in c++ program. [2] [2]

(c)WAF in c++ to store a set of price values with the item names in a file " item-record.dat". Also write a function to display the name of the items whose price is above 2000 [3] [3]

6. (a)Write SQL commands for (a) to (j) and write output for (h) on the basis of ***Teacher*** relation given below. [7] [7]

No	Name	Age	Department	Date of Join	Salary	Sex
1.	jigal	34	Computer	10/01/97	12000	M
2.	Sharmila	31	History	24/03/98	20000	F
3.	Sandeep	32	Maths	12/12/96	30000	M
4.	Sangeeta	35	History	01/07/99	40000	F
5.	Rakesh	42	Maths	05/09/97	25000	M
6.	Shyam	50	History	27/02/97	30000	M
7.	Shiv Om	44	Computer	25/02/97	21000	M
8.	Shalakha	33	Maths	31/07/97	20000	F

I. To show all information about the teacher of history department.

II. To list the names of female teachers who are in Maths department

III. To list names of all teachers with their date of joining in ascending order.

IV. To count the number of teachers with age<35.

V. To insert a new row in the TEACHER table with the following data:

9,"Raja",26,"Computer",'13/05/95',2300,"M".

VI. To count the number of teachers having salary >=12000, with each department.

VII. Give the output of following statement.

(i) Select COUNT(distinct department) from TEACHER.

(ii) Select name, MAX(Age) from Teacher where sex="F"

(b) Define the following terms in Database: [2]

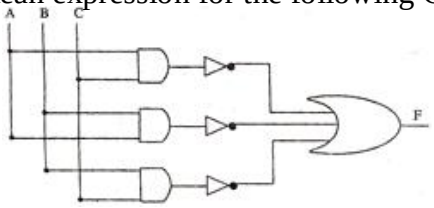
(1) Set Difference (2) Foreign Key

(c) (i) What is a View? Write syntax to create a view from a table. [1]

(ii) Differentiate between DDL and DML commands. [1]

7. (a) State and verify Demorgan"s Laws [2]

(b)Write the equivalent Boolean expression for the following Circuit[1]



(c) For the given truth table, give canonical sum-of-products(SOP) and canonical product-of- sum (POS) expression [2]

X	Y	Z	F o/p
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	1

(d) If **F(a,b,c,d)=Σ(1,3,4,5,7,9,11,12,13,15)** obtain the simplified form using K-Map. [2]

(e) Write the principal of Duality and write the dual of the [1] Boolean Expression:

(B` + C) + A`

(f) Draw the Circuit for Boolean expression **(X+Y)(Y+Z)(X+Z)** with help of NOR gate[1]

8. (a) Write the different type of Topologies with 1 advantage & 1 disadvantage. [3]

(b) Define Circuit Switching and Packet Switching [2]

(c) Give one advantage and one disadvantage of optical fiber and coaxial [1]

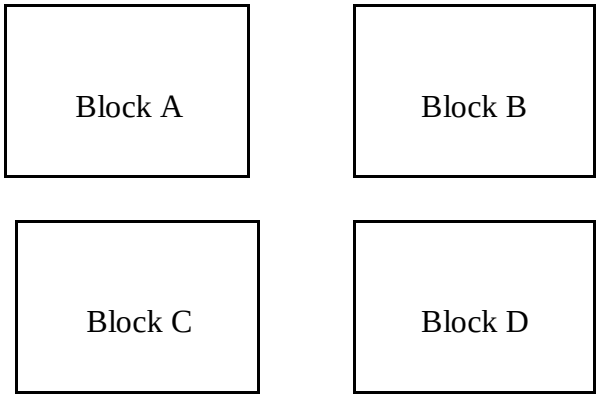
cable used in communication.

(d) Explain the following terms [2]

(1) Video Conferencing

(2) TCP\IP

(e) Knowledge Supplement Organization has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below.



The distances between the building are as :

Block A to Block C- 120 meters

Block A to Block B- 20 meters

Block A to Block D- 550 meters

Block B to Block D- 80 meters

Block D to Block C- 110 meters

Block B to Block C- 280 meters

The number of computers in each Block are as follows:

Block A - 120

Block B - 180

Block C - 20

Block D - 110

(i) Suggest a cable layout of connections between the blocks and type of cable [1]

(ii) Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason [1]

(iii) Suggest the placement of the following devices with justification

(a) Repeater (b) Hub/Switch [1]

(iv) The organization is planning to link its front office situated in the city in a Hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed. [1]

Atomic Energy Central School No 4 Rawatbhata

Confidence Examination-II (2018-19)

Time: 3Hrs Class XII , Biology M.M. 70

General Instruction:-

1) There are a total of 27 questions and five sections in the questions paper. All questions are compulsory.
2) This question paper consists of four sections A, B, C and D. Section 'A' consists of 5 question of one mark each. Section 'B' is of 7 questions of 2 marks each, section 'C' is of 12 questions of 3 marks each and Section 'D' consists of 3 questions of five marks each.
3) There is no overall choice. However an internal choice has been provided in one questions of 2 marks one question of 3 marks and all questions of 5 marks. Attempt only one choice in all such questions.
4) Wherever necessary, the diagrams drawn should be neat and properly labeled

SECTION 'A'

1. Name the vegetative propagules in the following:

(i) Agave (ii) Bryophyllum

2. What stimulates the pituitary to release the hormone responsible for parturition? Give the name of the hormone.
3. Name the enzyme that joins the small fragments of DNA of lagging strand during DNA replication.
4. Why is sharing of injection needles between two individuals not recommended?
5. Write the equation that helps in deriving the net primary productivity of an ecosystem.

SECTION 'B'

6. How does an electrostatic precipitator work to remove particulate pollutants released from the thermal power plants?
7. Write the role of 'Ori' and 'restriction site' in a cloning vector pBR322.

OR

Explain the role of Ti plasmid in biotechnology?

8. How can healthy potato plants can be obtained from a desired potato variety which is viral infected? Explain.
9. With the help of one example, explain the phenomenon of codominance and multiple allesim in human population.
10. Explain any two ways by which apomictic seeds get developed.
11. (i) Explain triple fusion in angiosperms.
    (ii) Write the fate of the product of this fusion in the mature fruit of coconut.
12. Differentiate between the following;
    (i) Exon and Intron in an unprocessed eukaryotic mRNA.
    (ii) Inducer and repressor in operons.

SECTION 'C'

13. (i) Draw a diagram of the structure of a human ovum surrounded by corona radiate. Label the following parts

(a) Ovum (b) Plasma membrane (c) Zona pellucid

(iii) State the function of zona pellucid

14. A colour blind child is born to a normal couple. Workout a cross to show how it is possible. Mention the sex of this child.

15. (i) Explain a monohybrid cross, taking seed coat colour as a trait in *Pisum sativum.* Workout the cross upto F_2 generation.
(ii) State the laws of inheritance that can be derived from such as cross.

16. A patient showed symptoms of constipation, abdominal pain and stools with excess mucous and blood clots. Name the disease and its pathogen. Where do these pathogen live in the victim's body? Name the mechanical carrier that transmits this pathogen.

OR

17. Explain the role of following in providing defence agnainst infection in human body:(i) Histamine (ii) Interferons (iii) B-cells

18. (i)Name the fungus used in organ transplant. Write the product of this oranism and explain its specific use.
(ii) How does culturing of *Spirulina* solve the food problems of the growing population?

19. Name and describe the technique that help in separating the DNA fragments by the use of restriction endonuclease.

20. Eco RI is used to cut a segment of foreign DNA and that of a vector DNA to form a recombinant DNA. Show with the help of the schematic diagrams.

21. (i) the set of palidromic nucleotide swquence of base pairs the Eco RI will recognise in both the DNA segment. Mark the site at which Eco RI will act and cut both the segments.
(ii) Sticky ends formed on both the segments where the two DNA segments will join later to form a recombinant DNA.

22. (i) Construct an age pyramid which reflects a stable growth status of human population.
(ii) Bear hibernates, whereas some species of zooplantons enter diapause to avoid stressful external conditions. How are these two waus different from each other?

23. (i) Global carbon is fixed in the biosphere through photosynthesis. Explain any two ways by which carbon is returned to the atmosphere.
(ii) Explain brifly how does a primary succession start on a bare rock and reach a climax community.

24. Alien species are highly invasive and are athreat to indigenous species. Substatiate this statement with any three example.

OR

Explain 'rivet popper hypothesis'. Name the ecologist who proposed it.

SECTION 'D'

25. The flow chart given below depicts an experiment. Study the flow chart and answer the questions that follow.

I S-Strain injected in → mice → Mice die

II R-Strain injected in → mice → Mice live

III Heat-killed S-Strain +Live R-Strain injected in → mice → A

IV Heat-killed S-Strain + DNase +Live R-Strain injected in → mice → B

(i) Give the name of the organism and differentiate between its two strains.
(ii) What wre the results A and B obtained in step III and IV respectively?
(iii) Give the name of the scientist who performed the experiment shown above?
(iv) what was the conclusion of this experiment?

OR(for Question 25)

(i) Explain the process of DNA replication with help of a schematic diagram.
(ii) In which phae of the cell cycle does replication occur in eukaryotes? What would happen if cell division is not followed after DNA replcation?

26. (i) How is 'oogenesis' markedly different from 'spermatogenesis' with respect to the growth till puberty in the humans?

(ii) Draw a sectional view of human ovary and label the different follicular stages, ovum and corpus luteum.

OR

(i) Differentiate between: Autogamy, geitonogamy and xenogamy.

(ii) Explain the events that occur during pollen-pistil interaction.

27. (a) The presence of more than one embryo in a seed is termed polyembryony. State the commercial importance of polyembryony in plants (any three points).

(b) Certain sports persons misuse drugs. Comment on the statement. Also draw the chemical structure of any one such drug.

OR

(a) In a form some cattle are showing poor productivity, poor growth rate and suffering from inbreeding depression. Can you suggest a breeding method in order to overcome this situation?

(b) Why is there a statutory ban on amniocentesis? Why is the technique so named?

परमाणु ऊर्जा केंद्रीय विद्यालय क्रमांक 04, रावतभाटा

आत्मविश्वास परीक्षा -(2) (2018-19)

समय -3घण्टे कक्षा -बारहवीं , हिन्दी (केन्द्रिक) पूर्णांक -80

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*सभी प्रश्न करना अनिवार्य है ।

खण्ड -क

प्र 1 निम्न लिखित गदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर दीजिए -

संस्कृति ऐसी चीज नहीं जिसकी रचना दस -बीस या सौ -पचास वर्षों मे की जा सकती हो । हम जो कुछ भी करते हैं उसमें हमारी संस्कृति की झलक होती है ; यहाँ तक की हमारे उठने -बैठने ,पहनने -ओढ़ने ,घूमने -फिरने और रोने हंसने से भी हमारी संस्कृति की पहचान होती है ,यद्यपि हमारा कोई भी एक काम हमारी संस्कृति का पर्याय नहीं बन सकता । असल में ,संस्कृति जीने का एक तरीका है और यह तरीका सदियों से जमा होकर उस समाज में छाया रहता है जिसमें हम जन्म लेते हैं । इसलिए जिस समाज में हम पैदा हुए हैं अथवा जिस समाज से मिलकर हम जी रहे हैं ,उसकी संस्कृति हमारी संस्कृति है ; यद्यपि अपने जीवन में जो संस्कार जमा कर रहे हैं वह भी हमारी संस्कृति का अंग बन जाते हैं और मरने के बाद हम अन्य वस्तुओं के साथ अपनी संस्कृति की विरासत भी अपनी संतान के लिए छोड़ जाते हैं । इसलिए संस्कृति वह चीज मानी जाती है जो हमारे सारे जीवन को व्यापे हुए हैं तथा जिसकी रचना और विकास में अनेक सदियों के अनुभवों का हाथ है । यही नहीं ,बल्कि संस्कृति हमारा पीछा जन्म जन्मांतर तक करती है । अपने यहाँ एक साधारण कहावत है कि जिसका जैसा संस्कार है ,उसका वैसा पुनर्जन्म भी होता है ।जब हम किसी बालक या बालिका को बहुत तेज पाते हैं तब अचानक कह देते हैं की वह पुनर्जन्म का संस्कार है । संस्कार या संस्कृति ,असल मे शरीर का नहीं ,आत्मा का गुण है ; और जबकि सभ्यता की सामग्रियों से हमारा संबंध शरीर के साथ छूट जाता है , तब भी हमारी संस्कृति का प्रभाव हमारी आत्मा के साथ जन्म -जन्मांतर तक चलता रहता है ।

(क) संस्कृति के बारे में लेखक क्या बताता है ? 2

(क) संस्कृति निरंतर प्रवाहमान है । कैसे ? 2

(ख) सभ्यता और संस्कृति में क्या अंतर है ? 2

(घ)संस्कृति के बारे में साधारण कहावत क्या है ? 2

(ड) किसी व्यक्ति की संस्कृति को कैसे पहचाना जा सकता है ? 2

(च) विलोम बताइए - छाया , जीवन । 1

(छ) प्रत्यय बताइए -सभ्यता, बालिका । 1

प्र 2 निम्नलिखित काव्यान्श को ध्यानपूर्वक पढे और पूछे गए प्रश्नों के उत्तर संक्षेप में लिखिए -

जब जब बांहे झुकी मेघ की ,धरती का तन- मन ललका है ,
जब -जब मैं गुजारा पनघट से ,पनहारिन का घट छलका है ।
सुन बांसुरिया सदा -सदा से हर बेसुध राधा बहकी है
मेघदूत को देख यक्ष की सुधियों में केसर महकी है ।
क्या अपराध किसी का है फिर ,क्या कमजोरी कहूँ किसी की ,
जब -जब रंगा जमा महफिल में जोश रुका काबा पायल का है ।
जब -जब मन में भाव उमड़ते ,प्रणय श्लोक अवतीर्ण हुए हैं ,
जब -जब प्यास जमी पत्थर में ,निर्झर स्रोत विकीर्ण हुए हैं।
जब-जब गूंजी लोकगीत की धुन अथवा आल्हा की कड़ियाँ ,
खेतों पर यौवन लहराया ,रूप गुजरिया का दमका है ।

(क) मेघों के झुकने का धरती पर क्या प्रभाव पड़ता है और क्यों ? 1

(ख) राधा कौन थी ? उसे बेसुध क्यों कहा है ? 1

(ग) काव्यान्श में झरनों के फूट पड़ने का क्या कारण बताया गया है ? 1

(घ) आशय स्पष्ट कीजिए – खेतों पर यौवन लहराया ,रूप गुजरिया का दमका है। 1

खंड -ख

प्र 3 निम्नलिखित में से किसी एक विषय पर अनुच्छेद लिखिए - 5

(क) पर्यटन का महत्व (ख) तनाव आधुनिक जीवन शैली की देन

(ग) परीक्षा की तैयारी (ग) शिक्षा और बेरोजगारी

प्र 4 आपके क्षेत्र की कानून -व्यवस्था इतनी बिगड़ गयी है कि हर व्यक्ति अपने को असुरक्षित महसूस करता है । इसके कारणों की चर्चा करते हुए समाधान हेतु पुलिस आयुक्त को पत्रलिखिए । 5

अथवा

आपके घर का फोन खराब पड़ा है । क्षेत्र के टेलीफोन एक्सचेज़ मे प्रबन्धक को शिकायती पत्र लिखिए ।

प्र 5 निम्नलिखित प्रश्नों के संक्षिप्त उत्तर लिखिए -

(क) प्रिंट -माध्यम से आप क्या समझते हैं ? 1 X 4 = 4

(ख) संपादकीय से आप क्या समझते हैं

(ग) रिपोर्ट की परिभाषा दीजिए ।

(घ) डेस्क से आप क्या समझते हैं ?

प्र 6' कर्ज मे डूबा किसान ' अथवा 'भारत का बदलता चेहरा ' विषय पर एक आलेख लिखिए । 3

प्र 7' महंगी शिक्षा ' अथवा' बाल श्रमिक ' विषय पर एक फीचर लिखिए । 3

खण्ड -ग

प्र 8 निम्नलिखित पदयांश को पढ़ कर पूछे प्रश्नों के उत्तर दीजिए - 2x 3=6

दिन जल्दी-जल्दी ढलता है ।

हो जाए न पथ मे रात कहीं ,

मंजिल भी तो दूर नहीं -

यह सोच थका दिन का पंथी भी जल्दी जल्दी चलता है ।

दिन जल्दी -जल्दी ढलता है ।

(क) पथिक के मन मे क्या आशंका है ?

(ख) पथिक के तेज चलाने का क्या कारण है ?

(ग) कवि दिन के बारे मे क्या बताता है ?

अथवा

प्रात नभ था बहुत शंख जैसे

भोर का नभ

राख़ से लीपा हुआ चौका (अभी गीला पड़ा है)

(क) प्रात:कालीन आकाश की तुलना किससे की गई है और क्यों ?

(ख) कवि ने भोर के नभ को राख़ से लीपा चौका क्यों कहा है ?

(ग) प्रात;कालीन नभ के लिए कवि ने किन उपमानों का प्रयोग किया है

प्र 9 निम्नलिखित में से किसी एक पदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए । 2x 2=4

सचमुच मुझे दण्ड दो की हो जाऊँ
पाताली अँधेरे की गुहाओं मे विवरों में
धुएँ के बादलों में
बिलकुल मैं लापता

लापता कि वहाँ भी तो तुम्हारा ही सहारा है ।

(क) भाव –सौंदर्य बताइए।

(ख) शिल्प –सौंदर्य बताइए ।

अथवा

हम दूरदर्शन पर बोलेंगे
हम समर्थ शक्तिवान
हम एक दुर्बल को लाएँगे
एक बंद कमरे में

(क) काव्याश में किस पर व्यंग्य किया गया है ?

(ख) कावयांश मे कवि क्या प्रस्तुत करना चाहता है ?

प्र 10 निम्नलिखित प्रश्नों मे से किन्ही दो प्रश्नों के उत्तर लिखिए। 3 x 2=6

(क) जहाँ पर दाना रहते हैं ,वहीं नादान भी होते है –कवि ने ऐसा क्यों कहा होगा ?

(ख) 'कविता के बहाने 'पाठ के आधार पर बताइए कि 'सब घर एक कर देने के माने' क्या है ?

(ग) 'अशनि पात से शापित उन्नत शत- शत वीर ' पंक्ति में किसकी ओर संकेत किया गया है ?

प्र 11 निम्नलिखित में से किसी एक गदयांश को पढ़कर पूछे गए प्रश्नों के उत्तर दीजिए 2x 3=6

सेवक धर्म में हनुमान जी से स्पर्धा करने वाली भक्तिन किसी अंजना की पुत्री न होकर एक अनामधन्या गोपालिका की कन्या है –नाम है लछमिन अर्थात लक्ष्मी। पर जैसे मेरे नाम की विशालता मेरे लिए दुर्वह है ,वैसे ही लक्ष्मी की समृद्धि भक्तिन के कपाल की कुंचित रेखाओं में नहीं बंध सकी। वैसे तो जीवन में प्राय: सभी को अपने –अपने नाम का विरोधाभास लेकर जीना पड़ता है : पर भक्तिन बहु तसमझदार है ,क्योकि वह अपना समृद्धि सूचक नाम किसी को बताती नहीं।

(क) भक्तिन के संदर्भ में हनुमान जी का उल्लेख क्यों हु आहै ?

(ख) भक्तिन के नाम एवं उसके जीवन में क्या विरोधाभास था ?

(ग) भक्तिन ने लेखिका से क्या प्रार्थना की और क्यों ?

अथवा

बाजार में एक जादू है । वह जादू आँख की राह काम करता है । वह रूप का जादू है जैसे चुंबक का जादू लोहे पर ही चलता है ,वैसे ही इस जादू की भी मर्यादा है । जेब भारी हो और मन खाली हो ,ऐसी हालत में जादू का असर खूब होता है । जेब खाली पर मन भरा न हो, तो भी जादू चल जाएगा । मन खाली है तो बाजार की अनेकानेक चीजों का निमंत्रण उस पर पहुंच जाएगा। कहीं उस वक्त जेब

भरी हो तब तो फिर वह मन किसकी मानने वाला है । मालूम होता है यह भी लूँ । सभी सामान जरूरी और आराम को बढ़ाने वाला होता है ।

(क) बाजार का जादू 'आँख की राह 'किस प्रकार काम करता है ?

(ख) क्या आप भी'बाजार के जादू' मे फंसे हैं? अपना अनुभव लिखिए जब आप न चाहने पर भी सामान खरीद लेते है ?

(ग) बाजार का जादू अपना असर किन स्थितियों मेन अधिक प्रभावित करता है और क्यों ?

प्र 12 निम्नलिखित प्रश्नों के उत्तर लिखिए ।

(क) इंदर सेना सबसे पहले गंगा मैया की जय क्यों बोलती है ? नदियों का भारतीय सामाजिक ,सांस्कृतिक परिवेश मे क्या महत्व है ? 3

(ख) लुट्टन पहलवान ने ऐसा क्यों कहा होगा कि "मेरागुरुकोईपहलवाननहीं,यही ढ़ोल है"? 3

(ग) जीवन के जद्दोजहद ने चार्ली के व्यक्तित्व को कैसे संपन्न बनाया ? 3

(घ) साफिया के भाई ने नमक के पुड़िया ले जाने से क्यों माना कर दिया ? 1

प्र 13पाठ्यपुस्तक वितान भाग दो मे संकलित पाठों के आधार पर पूछे गए किन्हीं 2 प्रश्नों के उत्तर दीजिए|

2x 4=8

(क) यशोधर बाबू की कहानी को दिशा देने मे किशन दा की महत्वपूर्ण भूमिका रही है । आपके जीवन को दिशा देने मे किसका महत्वपूर्ण योगदान रहा और कैसे ?

(ख) जूझ "कहानीमेचित्रितग्रामीणजीवन का संक्षिप्त वर्णन अपने शब्दो में कीजिए ।

(ग) सिंधु – सभ्यता का सौंदर्य –बोध समाज पोषित था " अतीत में दबे पाँव पाठ के आधार पर स्पष्ट कीजिए ।

प्र 14 निम्नलिखित निबंधात्मक प्रश्नों में से किसी एक प्रश्न का उत्तर दीजिए । 4

(क) जूझ कहानी के सार्थकता पर टिप्पणी लिखिए ।

(ख) सिंधु –सभ्यता में खेती का उन्नत रूप भी देखने को मिलता है , स्पष्ट कीजिए ।

Atomic Energy Central School No. 4,Rawatbhata

Confidence Examination-II ,2018-19

Time: 3 hrs. Class XII, Physical Education, MM: 70

Instructions: 1.The question paper consist of 26 questions.
2.All the questions are compulsory.
3.The word limit for the questions carrying 1 marks is approximately 20-30 words.
4. The word limit for the questions carrying 3 marks is approximately 80-100 words.
5. The word limit for the questions carrying 5 marks is approximately 150--200 words.

QUESTIONS

Q.1.What is Fartlek training?	1
Q.2.Differentiate between Bye and Seeding.	1
Q.3.Write the types of Friction with example.	1
Q.4.Define Sports Psychology.	1
Q.5.What do you understand by Runner's Knee.	1
Q.6.What is Blood Pressure?	1
Q.7.List down the test items of AAPHER .	1
Q.8.Write the pitfalls of Dieting.	1
Q.9.What do you mean by Life style diseases.	1
Q.10.Write the full form of SPD,OCD,ADHD and ASD.	1
Q.11.List down the factors affecting Motor development in Children.	1
Q.12.Explain the advantages of Correct Posture.	3
Q.13.Describe the laws of Flexibility training.	3
Q.14.Explain the Physiological benefits of Physical Activities.	3
Q.15.List down the name of muscles and their functions involved in Running.	3
Q.16.What is Aggression? Write its causes.	3
Q.17.Describe the Barrow three items General Motor ability fitness test.	3
Q.18.Write short note on "Female Athlete triad".	3
Q.19.Describe Intramural and Extramural.	3
Q.20.Explain the deformities of Spinal Curvature.	5
Q.21.Draw a fixture of 29 teams on League Cum League tournament using Staircase method.	5
Q.22.Describe the causes, symptoms and management of Oppositional Defiant Disorder.	5
Q.23.Explain the Harvard step test and Rockport One mile test.	5
Q.24.What is Coordinative ability? Describe its types..	5
Q.25.Define Motivation. Explain its types and techniques.	5
Q.26.Write the immediate and long term effects of Exercises on Cardiovascular system.	5
