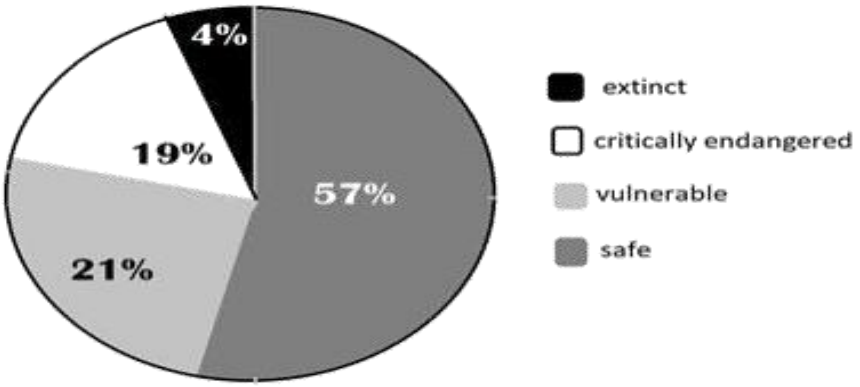
Lokmanya Vidya Niketan
Pre-Board Worksheet 24-25
Subject: English
Class XII

	SECTION A — (Reading)	
Q 1	Read the passage given below: Deserts are the driest places on earth. But even the desert animals cannot survive without water, or for long periods in the scorching sun, so they have had to find different ways of coping with the harsh conditions The animals living in deserts have to develop their capacity to adapt to the harsh climate. For instance, gerbils spend the hottest part of the day in their cool underground burrows. Similarly darkling beetles catch drops of moisture on their legs. Then they lift the legs in the air until the drops of water trickle down into their mouths. The Rocky deserts of America have 'Rattle Snake' which kill their prey with venom. The snakes swallow the animal whole and hardly eat more than once a week. Larger pythons can survive for a year without eating. Some snakes also live in desert. In the rocky deserts of America is found the frightening rattler which makes a frightening rattle and can strike with a lightning speed. It avoids people if it possibly can but when threatened it coils ready to bite. Rattlers feed on a variety of prey including mice. Snakes do not eat more than once a week but some snakes such as pythons cansurvive for a year or more without eating. The other animal found in deserts are mongooses that like to hunt together. They have to be careful of dangerous predators. Their food is beetles and other small creatures. They warn each other with a special alarm call of they see anything suspicious. All the female mongooses have their kittens at about the same time. They are raised by the whole group in a den. Mongooses are famous snake-killers. Their reactions are so fast that they can dodge each time the snake strikes. In the end the snake gets tired. Then, the mongoose quickly dives in for a kill. Another animal that lives in the desert is the camel. They were tamed by man thousands of years ago, Camels get the water they need from desert plants. They can survive without drinking water up to ten months. A thirsty camel can drink as much as thirty gallons of water in just ten minutes. Camels are of two kinds Dromedary and Bactrian. The Dromedary camel has one hump while the Bactrian camel has two humps. These humps are full of fat which helps them to survive for many days without food and water. Their mouths are so tough that even thorns cannot pierce them.	
	On the basis of your understanding of the passage, Answer ten out of the eleven questions that follow:	
a	What does the passage tell about deserts and desert animals?	
b	Why do Mongooses like to hunt together?	

c	Identify the reason for the mongooses being famous snake killers.	
d	Cite a point of evidence from the passage to suggest that the fear induced by rattle snake is justified.	
e	Why do all the female mongooses have their kitten at about the same time? 1 When the females are out looking for food, males stay behind to stand guard. 2 They are raised by the whole group in a den 3 Mongooses like to hunt together, but they always keep a lookout for dangerous predators 4They are afraid of being killed by the snakes.	
f	What makes camel well adapted to live in desert? 1 Camels were first domesticated by man many thousands of years ago. 2 They can survive without drinking water up to ten months. 3 If they have nothing to eat for several days, their humps shrink. 4 Their mouths are so tough that the sharp thorn can pierce through.	
g	What common features can you find in all desert animals? 1 They can all adapt to cool climate. 2 They can all live without food for a long time. 3 They are all carnivorous animals. 4 They do not need food or water to survive.	
h	Camels are of two kinds. How do you differentiate between them? 1 The Dromedary camel has one hump and the Bactrian camel also has one hump. 2 The Dromedary camel has one hump while the Bactrian camel has two humps. 3 The Dromedary camel has two humps while the Bactrian camel has one hump. 4 There is no difference between the two kinds.	
i	Find word from the passage which mean the opposite of the word ‘attacker’	
j	Find word from the passage which mean the same as the word ‘cautious’	
Q 2	Read the passage given below: 1. The death of a language marks the loss of yet another piece of cultural uniqueness from the mosaic of our wonderful planet and is a great tragedy for the human race. Language death should be treated like species’ extinction and the same methods of conservation and preservation	

X8	should be applied here. 2. A recent survey conducted in the state of Maharashtra, found only 2000-2500 speakers who speak *Nihali*, the language of the Nihal tribe. Sonbardi is home to 70 families and only half of them speak this language. Linguistic professors have been researching *Nihali* for five years. They visit Nihal villages at least twice a year, collecting words and understanding their customs and beliefs. Scholars have in the past tried to do work on *Nihali* but communication is a problem so interpreting grammar is difficult. 3. *Nihali* is one of India's 42 critically endangered languages, according to the UNESCO Atlas of the World's Languages in Danger. India has 197 languages in various stages of endangerment, more than any other country in the world. There are 7,100 living languages in the world and nearly 2,600 are endangered. Figure 1 showcases the vitality of existing languages in India. Fig.1  Critically endangered languages are those whose youngest speakers are grandparents or older and they speak the language partially and infrequently. The Nihals travel to other parts of Maharashtra on work. As that starts happening, the strong familial ties fostering the language may come under pressure. 4. Preserving their language may not be a top priority for a community like the Nihals for two reasons: there is the larger everyday question of eking out a living and the assumption that the future generations will of course speak the language. Economic and social factors could hinder the perpetuation of the language, especially when it has no script. A variety of language resuscitation and protection measures of endangered languages have been implemented over the years. We need to come to the aid of these languages and give them a shot at posterity not just as artifacts but as thriving cultural identities.	
	On the basis of your understanding of the passage, Answer the ten questions that follow:	
a	Which of the following stands as the best definition of **'*c*** *ritically endangered languages*'? 1 Languages spoken majorly by the senior citizens 2 Languages that are spoken partially and frequently 3 Languages that are spoken in rural parts of India	

	4 Languages that do not have a script.	
b	What is the relationship between (i) and (ii)? i. 4% of languages around the world are totally extinct. ii. lack of conservation and preservation have resulted in the extinction of languages. 1 (ii) is the cause for (i). 2 (i) repeats the situation described in (ii). 3 (ii) elaborates the problem described in (i). 4 (i) sets the stage for (ii).	
c	Which of the following factors makes the work of the language researchers cumbersome? 1 communication 2 social factors 3 research 4 economic factors	
d	Which of the following is the solution to the problem posed in the passage? 1 It is said that life and death are under the power of language. 2 Language conservation and preservation are the need of the hour. 3 The use of language is all we have against death. 4 When we speak, we exercise the power of language to transform reality.	
e	What parallel has the writer drawn to explain that some languages stand threatened?	
f	What does the writer mean by '*strong familial ties fostering the language'*?	
g	What makes Nihali a critically endangered language?	
h	Complete the core analysis of the pie chart (Fig.1). Nearly 60% of the languages are _____ FOR BLIND CANDIDATES IN PLACE OF h Why is preservation of their language not a top priority for the nihals?	
i	Find a synonym for the word 'pattern' from para 1	
j	What measures have been implemented for endangered languages?	
	SECTION B — (Writing)	
Q 3	Frequent cases of theft, burglary, eve teasing and electricity break down in the society are being reported to the Resident Welfare Association of Ashok Nagar. As the President of the society, write a notice in not more than 50 words inviting all members for a general body meeting to	

	discuss the issue and to find a solution. Agenda of the meeting must be mentioned. You are Surya/Suryanshi. OR The Cultural Club of Vaid Public School Noida is organising a 'Talent Hunt' evening. An eminent musician will be the Guest of Honour. As Mridul / Mridula, the Secretaryof the Cultural Club, draft a notice to inform the students and invite their participation with details in not more than 50 words.	
Q 4	You are Shaan/Shruti of C-29, Pragati Vihar. You have lost your leather wallet, containing your examination entry ticket for Class XIl, while travelling by a bus from Rithala to Model Town. Write a notice in not more than 50 words, to be published in the Times of India. OR You are Varun/Veena of 23, Ramesh Nagar Delhi. You found a watch during recess near the canteen. Draft a notice for the school notice board asking the owner to claim it from you upon identification in not more than 50 words.	
Q 5	You are Kavita / Kailash staying at B-101, Yamuna Vihar, Delhi. You wish to apply for the post of sports teacher in NK Jindal Public School, Delhi advertised in The Hindustan Times. Write a letter with bio data to the school Principal in approximately 120-150 words OR You see a classified advertisement in the newspaper inviting applications for the post of Marketing Representative in a reputed company. Write a letter with biodata in approximately 120-150 words to the HR Manager, Neo Technologies, New Delhi, applying for the post advertised. You are Priyanka/Priyank of 121 Green Park, New Delhi, a fresh graduate in Sales and Marketing from the University of Delhi.	
Q 6	You are Vipin / Vineeta. You have just visited a glass factory which employs children. You have witnessed the awful condition of the children there and their place of work. You also recount the child labourers engaged in carpet and cracker industry, brick-kilns, road side restaurants and as domestic helps. Inspite of strict laws you find it appalling that many people in educated society want the practice of child labourers to continue to fulfill their selfish motives. Write an article in about 120-150 words advocating a total ban on child labour. OR You are Anand/Anandita, Prefect, Divine Public School, Delhi. Rising cases of juvenile crime is a cause of concern in the country. An act of aggression destroys their life and spoils their life as well as career. Write an article about your views and suggestions on curbing juvenile crime for your school magazine in 120-150 words.	
	SECTION C - (Literature)	
Q 7	Read the extract and answer the questions that follow:	

	Extract 1 For once on the face of the Earth let's not speak in any language, let's stop for one second, and not move our arms so much. It would be an exotic moment without rush, without engines, we would all be together in a sudden strangeness.	
a	Why does the poet request all to 'let's not speak in any language'?	
b	What does the poet consider as 'an exotic moment'?	
c	The word 'arms' in the extract stands for a) a man's hands b) weapons used by the army c) hands of the clock d) man's weapons	
d	What could be the reason behind the poet's using the word 'strangeness'? a) To highlight the importance of everyone being together suddenly for once. b) To emphasize the frenetic activity and chaos that usually envelops human life. c) To indicate the unfamiliarity of a sudden moment without rush or without engine. d) To direct us towards keeping quiet and how we would all be together in that silence.	
e	The word 'stop' in 'let's stop for one second' suggests a) death b) slowness c) passivity d) apathy	
f	The result of "we would all be together" in silence would be a) a new experience in which humanity will feel a sense of bonding b) an experience where the whole world will be together and feel united in silence c) a new experience of thinking and action d) an experience of survival and fighting back together	
	OR	
	Extract 2 Driving from my parent's home to Cochin last Friday morning, I saw my mother, beside me, doze, open mouthed, her face ashen like that of a corpse and realised with pain that she was as old as she looked but soon put that thought away…	

a	Name the poet and the poem.	
b	Who is ‘she’ in the above lines?	
c	The poetic device in the line ‘ashen like a corpse’ is: a) hyperbole b) irony c) simile d) metaphor	
d	Which of the following options best applies to the given extract? a) a conversation b) a suggestion c) a recollection d) an argument	
e	The poet realizes with pain that her mother is: a) dead b) ill c) young d) aging	
f	The phrase *‘ashen like a corpse’* means: a) there were ashes of smoke on her face b) her face was full of dirt and dust c) her face was lifeless and dull like that of a dead person d) the wrinkles on her face made her looked ashen	
Q 8	Read the extract given below and answer the questions that follow:	
	Extract 1 From that day onwards it was a celebration time for all the tigers inhabiting Pratibandhpuram. The state banned tiger hunting by anyone except the Maharaja. A proclamation was issued to the effect that if anyone dared to fling so much as a stone at a tiger, all his wealth and property would be confiscated. The Maharaja vowed he would attend to all other matters only after killing the hundred tigers.	

a	The tone of the author when he says, 'It was celebration time for all tigers' Is (a) solemn. (b) sarcastic. (c) sympathetic. (d) mocking.	

b	On the basis of this passage, pick the option that enumerates the characteristics of the king 1. gullible 2. arrogant 3. willful3 4. aggressive (a) 1, 2 (b) 3, 4 (c) 2, 3 (d) 1, 3	
c	Why did the Maharaja want to kill tigers?	
d	Find a word from the passage which means : official announcement	
	OR	
	Extract 2 It's a wonderful town still, with big old frame houses, huge lawns, and tremendous trees whose branches meet overhead and roof the streets. And in 1894, summer evenings were twice as long, and people sat out on their lawns, the men smoking cigars and talking quietly, the women waving palm-leaf fans, with the fire-flies all around, in a peaceful world. To be back there with the First World War still twenty years off, and World War II over forty years in the future... I wanted two tickets for that.	
a	Who does 'I' refer to? a) Charley's psychiatrist, Sam Weiner b) Charley's wife, Louisa c) The reader d) Charley	
b	Choose the option that best describes the society to which the author wanted to go in the above extract: a) peace-loving b) sentimental c) orthodox d) ancient	
c	For which city did the author want two tickets? a) Alsace b) Lorraine c) Galesburg d) Hampton	
d	Why did the author want "To be back there with the First World War still twenty years off, and World War II over forty years in the future"?	

Q 9	Read the extract given below and answer the questions that follow:	

	Extract 1 My breath was gone. I was frightened. Father laughed, but there was terror in my heart at the overpowering force of the waves. My introduction to the Y.M.CA. swimming pool revived unpleasant memories and stirred childish fears. But in a little while I gathered confidence. I paddled with my new water wings, watching the other boys and trying to learn by aping them.I did this two or three times on different days and was just beginning to feel at ease in the waterwhen the misadventure happened.	
a	The memory of author's childhood visit to beach with his father was a) unpleasant and fearful b) funny and cheerful c) inspiring and induced confidence d) overpowering and forced	
b	What was the reason behind author's visit to YMCA pool? a) his father wanted him to learn swimming b) his mother warned him of the dangers of YMCA pool c) YMCA pool was safe and not treacherous d) the author wanted to prove that he knew swimming	
c	How did the author "gather confidence" at the pool a) by practicing with the trainer b) watching the other boys and aping them c) paddling with water wings daily d) asking the big boys to teach him swimming	
d	What was the misadventure that took place right after the author felt comfortable?	
e	Choose the statement that is NOT TRUE with reference to Douglas. a) Douglas's fear kept him away from leisurely activities in water. b) The fall in the pool at YMCA taught Douglas a life lesson. c) The fear of drowning was the source of Douglas's anxiety and terror. d) Douglas decided to practice relentlessly to overcome his fear.	
f	Identify the literary device used in "stirred childish fears"?	
	OR	

B	Extract 2 Poor man! It was in honour of this last lesson that he had put on his fine Sunday clothes, and now I understood why the old men of the village were sitting there in the back of the room. It was because they were sorry, too, that they had not gone to school more. It was their way of thanking our master for his forty years of faithful service and of showing their respect for the country that	

	was theirs no more.	
a	Why does the narrator refer to M. Hamel as 'Poor man!'? a) He empathizes with M. Hamel as he had to leave the village. b) He believes that M. Hamel was not rich. c) He feels sorry for M. Hamel as it was his last French lesson. He thinks that M. Hamel's patriotism and sense of duty resulted in his poverty.	
b	Choose the option that shows M. Hamel's "faithful service" a) When Franz came late, M. Hamel gently told him that he was about to begin class without him and taught the entire lesson with patience. b) Franz mentioned how cranky M. Hamel was and his "great ruler rapping on the table". c) M. Hamel often sent students to water his flowers, and gave a holiday when he wanted togo fishing. M. Hamel permitted villagers put their children "to work on a farm or at the mills" for some extra money.	
c	Identify the villagers' emotions from the extract. a) happiness b) desperation c) regret d) depression	
d	What feelings were expressed by the villagers when they came to attend the last lesson? a) regret for not learning French b) thanking their master for his forty years of faithful service c) showing their respect for the country that was theirs no more. d) All of the above	

e	Why did the country belong to them no more? a) Because they were leaving the country. b) Because Germans had taken over their country. c) Because it was destroyed in the war. d) Because their country was merging with Prussia.	

f	Give one reason why the villagers were present in the class in the last lesson.	
Q 10	Answer any five of the six questions given below in 40-50 words:	
a	What was the emotional impact of the misadventure at the California beach on Douglas? *How does the author ‘s writing style in ‘The Interview’ affect the reader's understanding of the story?	
b	“Now I’ll count up to twelve and you keep quiet and I will go.” Why does the poet wish to go at the end of the poem?	
c	What does the title “lost spring” convey? *Why did Jansie discourage Sophie from having dreams?	
d	What strange idea about the world struck the peddler?	
e	How could Shukla convince Gandhiji to come to Champaran? *What is the significance of the title Aunt Jennifer ‘s Tigers?	
f	How does the poet describe the conditions of the slum children? *A Roadside stand paints a picture of helplessness and despair. Discuss.	
Q 11	Answer any two of the three questions given in 40-50 words:	
a	Why does the Grand Central Station seem to grow like a tree to Charley?	
b	How did the dewan save himself when the Maharaja’s anxiety reached a fever pitch?	
c	What was the aim of the “Students on ice” programme?	
Q 12	Answer any one of the following questions in 120-150 words:	
	*Though tempted by the bright day, Franz stated that he had “the strength to resist, and hurried off to school.” As the story progresses, the reader realizes that Franz, M. Hamel and the villagers had “the strength to resist” much larger forces. Explain citing inferences from “The Last Lesson” *The characters in prose sections, Mukesh in 'The Lost Spring' and Sophie in 'Going Places' are two different kinds of daydreamers. One is who fulfilled his dreams in real and the other is one who always lives in imaginary dreams. The daydreaming can affect our lives positively as well as negatively. Imagine yourself as a motivational speaker who has to address high school students. Write this address in about 120-150 words elaborating on occurrences from the two texts highlighting realistic and unrealistic types of daydreaming. Or * 'Poets and Pancakes' includes this telling, "What is an English poet doing in a film studio which makes Tamil films for the simplest sort of people?" Comment on Stephen Spender. In 'Keeping Quiet', we are told that: "It would be an exotic moment without rush, without engines, we would all be together in a sudden strangeness." Imagine a conversation between you and Stephen Spender about your dream goals. Create	

	this exchange with reference to the two extracts given above OR If we surrender to our fears, they over power us; If we face them, they fade away. How did the writer experience the truth of Roosevelt's statement-"All we have to fear is fear itself"	
Q 13	Answer any one of the following questions in 120-150 words:	
	*Knowing too much of your future is never a good thing.' In light of this quote, explain how knowing the future paved way for the king's end in "The Tiger King" *Wherever there is a human being, there is an opportunity for kindness.' Prepare a lecture to be delivered to Class XII students in the light of the above statemen It has to be explained with reference to the texts "The Enemy' and 'On the Face Of If. OR The story reveals refuge from reality to illusion. Describe Charley's experiences atthe third level of the Grand Central Station.	

Physics

1	The electric potential on the axis of an electric dipole at a distance 'r from it's centre is V. Then the potential at a point at the same distance on its equatorial line will be (i) 2V (ii) -V (iii) V/2 (iv) Zero	
2	Two concentric and coplanar circular loops P and Q have their radii in the ratio 2:3. Loop Q carries a current 9 A in the anticlockwise direction. For the magnetic field to be zero at the common centre, loop P must carry (i) 3A in clockwise direction (ii) 9A in clockwise direction (iii) 6 A in anti-clockwise direction (iv) 6 A in the clockwise direction.	
3	If the magnetizing field on a ferromagnetic material is increased, its permeability (i) decreases (ii) increases (iii) remains unchanged (iv) first decreases and then increases	
4	Which of the following statement is NOT true about the properties of electromagnetic waves? (I) These waves do not require any material medium for their propagation (ii) Both electric and magnetic field vectors attain the maxima and minima at the same time (iii) The energy in electromagnetic wave is divided equally between electric and magnetic fields (iv) Both electric and magnetic field vectors are parallel to each other	
5	The work function for a metal surface is 4.14 eV. The threshold wavelength for this metal surface is: (i) 4125 Å (ii) 2062.5 Å (iii) 3000 Å (iv) 6000 Å	
6	Which of the following statements about nuclear forces is not true? (i) The nuclear force between two nucleons falls rapidly to zero as their distance is more than a	

	few femtometres. (ii) The nuclear force is much weaker than the Coulomb force. (iii) The force is attractive for distances larger than 0.8 fm and repulsive if they are separated by distances less than 0.8 fm. (iv) The nuclear force between neutron-neutron, proton-neutron and proton-proton is approximately the same.	
7	The current which is assumed to be flowing in a circuit from positive terminal to negative, is called (a) direct current (b) pulsating current (c) conventional current (d) alternating current	
8	When no current is passed through a conductor, (a) the free electrons do not move (b) the average speed of a free electron over a large period of time is not zero (c) the average velocity of a free electron over a large period of time is zero (d) the average of the velocities of all the free electrons at an instant is non zero	
9	A current passes through a wire of nonuniform cross-section. Which of the following quantities are independent of the cross-section? (a) The charge crossing (b) Drift velocity (c) Current density (d) Free-electron density	
10	Drift velocity of electrons is due to (a) motion of conduction electrons due to random collisions. (b) motion of conduction electrons due to electric field E (c) repulsion to the conduction electrons due to inner electrons of ions. (d) collision of conduction electrons with each other.	
11	When a potential difference V is applied across a conductor at a temperature T, the drift velocity of electrons is proportional to (a) V (b) V (c) T (d) T	
12	The relaxation time in conductors (a) increases with the increases of temperature (b) decreases with the increases of temperature (c) it does not depends on temperature (d) all of sudden changes at 400 K	
13	In a semiconductor, the forbidden energy gap between the valence band and the conduction band is of the order of: (a) 1 Mev (b) 1 ev (c) 0.1 Mev (d) 5ev	
14	In a good conductor, the energy levels in a valence band: (a) are partially filled only. (b) overlap with conduction band only. (c) both (a) and (b) are correct. (d) none of these	
15	A hole in a p-type semiconductor is- (a) an excess electron (b) A missing atom (c) A missing electron	

	(d) A donor level.	
16	The Voltage gain is highest for (a) common emitter amplifier (b) common base amplifier (c) common collector amplifier. (d) Equal in all the three.	
17	In an n-p-n transistor circuit the collector current is 18 mA. If 90% of the electrons emitted reach the collector, than the emitter current is: (a) 1.6 mA (b) 16.4 mA (c) 18 mA (d) 20 mA	
18	A charged particle is moving in a cyclotron, what effect on the radius of path of this charged particle will occur when the frequency of the ratio frequency field is doubled? (a) It will also be doubled. (b) It will be halved. (c) It will be increased by four times. (d) It will remain unchanged.	
19	What is the nuclear radius of 125Fe ,if that of 27 Al is 3.6 fermi?.	
20	The short wavelength limit for the Lyman series of the hydrogen spectrum is 913.4 A0 . Calculate the short wavelength limit for the Balmer series of the hydrogen spectrum.	
21	Two long straight parallel conductors carrying currents I1 and I2 are separated by a distance d. If the currents are flowing in the same direction, show how the magnetic field produced by one exerts an attractive force on the other. Obtain the expression for this force and hence define 1 ampere.	
22	An a.c. source generating a voltage $\varepsilon = \varepsilon 0 \sin \omega t$ is connected to a capacitor of capacitance C. Find the expression for the current I flowing through it. Plot a graph of ε and I versus ωt to show that the current is ahead of the voltage by $\pi/2$.	
23	An ac voltage $V = V0 \sin \omega t$ is applied across a pure inductor of inductance L. Find an expression for the current i, flowing in the circuit and show mathematically that the current flowing through it lags behind the applied voltage by a phase angle of 2π . Also draw graphs of V and i versus ωt for the circuit.	
24	The ground state energy of hydrogen atom is -13.6 eV. The photon emitted during the transition of electron from n=3 to n=1 state, is incident on a photosensitive material of unknown work function .The photoelectrons are emitted from the material with the maximum kinetic energy of 9eV.Calculate the threshold wavelength of the material used.	
25	(a)Draw equipotential surfaces for (i)an electric dipole and (ii) two identical positive charges placed near each other. (b) In a parallel plate capacitor with air between the plates, each plate has an area of 6 x 10-3m2 and the separation between the plates is 3 mm. (i) Calculate the capacitance of the capacitor. (ii) If the capacitor is connected to 100V supply, what would be the the charge on each plate? (iii) How would charge on the plate be affected if a 3 mm thick mica sheet of k=6 is inserted between the plates while the voltage supply remains connected ?.	
26	(a) State the two Kirchhoff's rules used in the analysis of electric circuits and explain them. (b) Derive the equation of the balanced state in a Wheatstone bridge using Kirchhoff's laws.	
27	Draw V-I characteristic of a p-n junction diode in (i) forward bias and (ii) reverse bias	
28	Where on the surface of Earth is the vertical component of Earth's magnetic field zero?	
29	Current flows through a circular loop. Depict the north and south pole of its equivalent magnetic dipole.	
30	A straight wire extending from east to west falls with a speed v at right angles to the horizontal component of the Earth's magnetic field. Which end of the wire would be at the higher	

	electrical potential and why?	

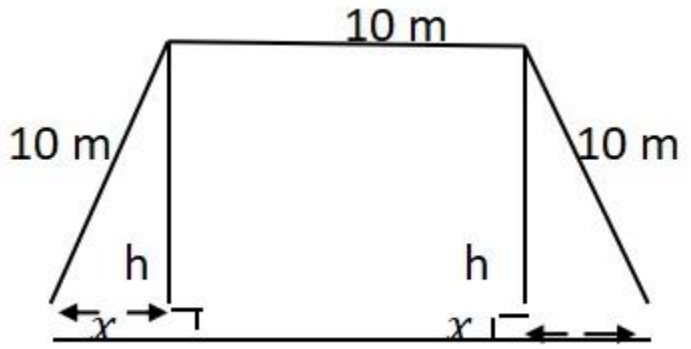
Mathematics

1	Determine the product $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix}\begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$ and use it to solve the system of equations : $x - y + z = 4,\quad x - 2y - 2x = 9,\qquad 2x + y + 3z = 1$	
2	The prices of three commodities P, Q and R areRsx, y and z per unit respective.A purchases 4 units of R and sells 3 units of P and 5 units of Q. B purchases 3 units of Q and sells 2 units of P and 1 unit of R. C purchases 1 unit of P and sells 4 units of Q and 6 units of R. In the process A, B and C earn Rs 6000, Rs 5000 and Rs 13000 respectively. If selling the units is positive earning and buying the units is negative earnings, find the price per unit of three commodities by using matrix method.	
3	Examine the function f(x) given by $f(t) = \begin{cases} \dfrac{\cos t}{\pi/2 - t}; & t \neq \pi/2 \\ 1; & t = \pi/2 \end{cases}$ for continuity at $t = \pi/2$	
4	Show that the function f(x) given by $f(x) = \begin{cases} \dfrac{e^{1/x} - 1}{e^{1/x} + 1}, & \text{when } x \neq 0 \\ 0, & \text{when } x = 0 \end{cases}$ is continuous at x = 0	
5	If the function f(x) defined by $f(x) = \begin{cases} \dfrac{\log(1+ax) - \log(1-bx)}{x}, & \text{if } x \neq 0 \\ k, & \text{if } x = 0 \end{cases}$ is continuous at x = 0, find k.	
6	Let $f(x) = \begin{cases} \dfrac{1-\cos 4x}{x^2}, & \text{if } x < 0 \\ a, & \text{if } x = 0 \\ \dfrac{\sqrt{x}}{\sqrt{16+\sqrt{x}} - 4}, & \text{if } x > 0 \end{cases}$ Determine the value of a so that f(x) is continuous at x = 0	
7	Determine f(0) so that the function f(x) defined by $f(x) = \dfrac{(4^x - 1)^3}{\sin\frac{x}{4}\log\left(1 + \frac{x^2}{3}\right)}$ becomes continuous at x = 0.	

8	Show that $f(x)=\begin{cases}\dfrac{\sin 3x}{\tan 2x} & , \text{ if } x<0\\ \dfrac{3}{2} & , \text{ if } x=0\\ \dfrac{\log(1+3x)}{e^{2x}-1} & , \text{ if } x>0\end{cases}$ is continuous at x = 0	
9	Prove that the function $f(x)=\begin{cases}\dfrac{x}{\lvert x\rvert+2x^2}, & x\neq 0\\ k, & x=0\end{cases}$ remains discontinuous at x = 0, regardless the choice of k.	
10	Find the value of k for which $f(x)=\begin{cases}\dfrac{1-\cos 4x}{8x^2}, & \text{when } x\neq 0\\ k, & \text{when } x=0\end{cases}$ is continuous at x = 0;	
11	Let $f(x)=\begin{cases}\dfrac{1-\sin^3 x}{3\cos^2 x} & , \text{ if } x<\dfrac{\pi}{2}\\ a & , \text{ if } x=\dfrac{\pi}{2}\\ \dfrac{b(1-\sin x)}{(\pi-2x)^2} & , \text{ if } x>\dfrac{\pi}{2}\end{cases}$. If f(x) is continuous at $x=\dfrac{\pi}{2}$ find a and b.	
12	Show that the function $f(x)=\begin{cases}x^2\sin\left(\dfrac{1}{x}\right), & \text{if } x\neq 0\\ 0, & \text{if } x=0\end{cases}$ is differentiable at x = 0 and f'(0) = 0	
13	Show that the function f defined as follows, is continuous at x = 2, but not differentiable thereat: $f(x)=\begin{cases}3x-2 & , \ 0<x\leq 1\\ 2x^2-x & , \ 1<x\leq 2\\ 5x-4 & , \ x>2\end{cases}$	
14	For what choice of a and b is the function $f(x)=\begin{cases}x^2, & x\leq c\\ ax+b, & x>c\end{cases}$ is differentiable at x = c	
15	Find the intervals in which the function $f(x)=x^4-\dfrac{x^3}{3}$ is increasing or decreasing	
16	Find the intervals in which $f(x)=\dfrac{4x^2+1}{x}$ is increasing or decreasing.	
17	Show that of all the rectangles of given area, the square has the smallest perimeter.	
18	If the sum of the lengths of the hypotenuse and a side of a right angled triangles is given,show that the area of the triangle is maximum when the angle between them is $\pi/3$.	
19	Show that a cylinder of a given volume which is open at the top, has minimum total surface area, provided its height is equal to the radius of its base.	
20	An open box with a square base is to be made out of a given quantity of card board of area c^2 square units. Show that the maximum volume of the box is $\dfrac{c^3}{6\sqrt{3}}$ cubic units	

21	A given quantity of metal is to be cast into a half cylinder with a rectangular base and semicircular ends. Show that in order that the total surface area may be minimum, the ratio of the length of the cylinder to the diameter of its semi-circular ends is $\pi : (\pi + 2)$.	
22	A straight line is drawn through a given point P (1,4). Determine the least value of the sumof the intercepts on the coordinate axes.	
23	Evaluate : $\int \tan^{-1}\left\{\sqrt{\frac{1-\sin x}{1+\sin x}}\right\} dx$, $-\pi/2 < x < \pi/2$	
24	$\int \frac{x^2+1}{(x+1)^2} dx$	
25	$\int \frac{1}{\sqrt{x+3}-\sqrt{x+2}} dx$	
26	$\int \frac{\sin 2x}{a^2 \sin^2 x + b^2 \cos^2 x} dx$	
27	$\int \frac{\sin(x-\alpha)}{\sin(x+\alpha)} dx$	
28	$\int \frac{1+\tan x}{x+\log \sec x} dx$	
29	$\int \frac{x^4+1}{x^2+1} dx$	
30	$\int \frac{\sin x - \cos x}{\sqrt{\sin 2x}} dx$	
31	Evaluate : $\int_{\pi/4}^{\pi/2} \cos 2x \log \sin x \; dx$	
32	$\int_0^2 \lvert x^2 + 2x - 3 \rvert dx$	
33	Prove that : $\int_0^{\pi/2} \frac{\sin x}{\sin x + \cos x} dx = \frac{\pi}{4}$	
34	Find the area of the region bounded by the curves $y = x^2 + 2$, $y = x$, $x = 0$ and $x = 3$.	
35	Find the area of the region $\{(x, y) : x^2 \le y \le x\}$.	
36	Find the area of region $\{(x, y) : x^2 + y^2 \le 1 \le x + y\}$.	
37	Solve the differential equation $(1 + y^2)(1 + \log x) dx + x dy = 0$ given that when $x = 1$, $y = 1$.	
38	Solve the initial value problem :$dy = e^{2x+y} dx$, $y(0) = 0$.	
39	Solve the differential equation $\frac{dy}{dx} = \frac{2x(\log x + 1)}{\sin y + y \cos y}$, given that $y = 0$, when $x = 1$.	
40	Solve the differential equation $(x + 2y^2) \frac{dy}{dx} = y$, give that when $x = 2$, $y = 1$	
41	Express the vector $\vec{a} = 5\hat{i} - 2\hat{j} + 5\hat{k}$ as the sum of two vectors such that one is parallel to the vector $\vec{b} = 3\hat{i} + \hat{k}$ and other is perpendicular to $\vec{b}$.	
42	If $\vec{a} = i + jf + k$, $\vec{c} = j - k$ are given vectors, then find a vector $\vec{b}$ satisfying the equations $\vec{a} \times \vec{b} = \vec{c}$ and $\vec{a} . \vec{b} = 3$.	
43	Find the vector equation of a line passing through a point with position vector $2i - j + k$, and parallel to the line joining the points $-i + 4j + k$ and $i + 2j + 2k$. Also, find the Cartesian equivalent of this equation.	

44	Find the point on the line $\frac{x+2}{3}=\frac{y+1}{2}=\frac{z-3}{2}$ at a distance of $3\sqrt{2}$ from the point (1, 2, 3).	
45	Find the Cartesian and vector equations of a line which passes through the point (1, 2, 3) and is parallel to the line $\frac{-x-2}{1}=\frac{y+3}{7}=\frac{2z-6}{3}$.	
46	The cartesian equations of a line are 3x + 1 = 6y - 2 = 1 - z. Find the fixed point through which it passes, its direction ratios and also its vector equation.	
47	Find the equation of the line passing through the point (-1, 3, -2) and perpendicular to the lines $\frac{x}{1}=\frac{y}{2}=\frac{z}{3}$ and $\frac{x+2}{-3}=\frac{y-1}{2}=\frac{z+1}{5}$	
48	Show that the lines $\frac{x-1}{3}=\frac{y+1}{2}=\frac{z-1}{5}$ and $\frac{x+2}{4}=\frac{y-1}{3}=\frac{z+1}{-2}$ do not intersect.	
49	Find the image of the point (1, 6, 3) in the line $\frac{x}{1}=\frac{y-1}{2}=\frac{z-2}{3}$. Also, write the equation of the line joining the given point and its image and find the length of the segment joining the given point and its image.	
50	Find the perpendicular distance of the point (1, 0, 0) from the line $\frac{x-1}{2}=\frac{y+1}{-3}=\frac{z+10}{8}$. Also, find the coordinates of the foot of the perpendicular and the equation of the perpendicular.	
51	A bag contains 5 white, 7 red and 3 black balls. If three balls are drawn one by one without replacement, find the probability that none is red.	
52	A can hit a target 4 times in 5 shots, B 3 times in 4 shots, and C 2 times in 3 shots. Calculate the probability that (i) A, B, C all may hit (ii) B, C may hit and A may lose . (iii) any two of A, B and C will hit the target	
53	A speaks truth in 60% of the cases and B in 90% of the cases. In what percentage of cases are they likely to contradict each other in stating the same fact?	
54	Out of 100 students, two sections of 40 and 60 are formed. If you and your friend are among 100 students, what is the probability that: (i) you both enter the same section? (ii) you both enter the different section?	
55	One bag contains 4 yellow and 5 red balls. Another bag contains 6 yellow and 3 red balls. A ball is transferred from the first bag to the second bag and then a ball is drawn from the second bag. Find the probability that ball drawn is yellow.	
56	In a bolt factory, machines A, B and C manufacture respectively 25%, 35% and 40% of the total bolts. Of their output 5, 4 and 2 percent are respectively defective bolls. A bolt is drawn at random from the product. If the bolt drawn is found to be defective, what is the probability that it is manufactured by the machine B ?	
57	A card front a pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be hearts. Find the probability of the missing card to be a heart.	
58	The contents of urns I, II, III are as follows: Urn I:1 white, 2 black and 3 red balls Urn II: 2 white, 1 black and 1 red balls Urn III: 4 white, 5 black and 3 red balls. One urn is chosen at random and two balls are drawn. They happen to be white and red. What is the probability that they come from Urns I, II, III?	
59	**Read the following and answer the questions given below** The front gate of a building is in the shape of a trapezium as shown below. Its three sides other than base are of 10 m each. The height of the gate is h meter. On the basis of below figure, answer the following questions:	

	 (i) Write the Area (A) of the gate in terms of . (ii) Write the value of when Area (A) is maximum. (iii) Write the value of h when Area (A) is maximum . **OR** Write the Maximum value of Area (A) .	
60	Peter's father wants to construct a rectangular garden with a rock wall on one side of the garden and wire fencing for the other three sides. He has 100 feet of wire fencing. Based on the above information, answer the following questions. (i) To construct a garden such that the largest green carpet can be laid down in the garden, using the available 100 feet of fencing, we need to maximise its (a) volume (b) area (c) perimeter (d) Height of the wall (ii) If x denotes the length of side of garden perpendicular to rock wall and y denote the length of side parallel to rock wall, then find the relation representing total amount of fencing (a) $x + 2y = 100$ (b) $x + 2y = 50$ (c) $y + 2x = 100$ (d) $y + 2x = 50$ (iii) Area of the garden as a function of x i.e., A(x) can be represented as (a) $100 + 2x^2$ (b) $x - 2x^2$ (c) $100x - 2x^2$ (d) $100 - x^2$ (iv) Maximum value of A(x) occurs at x equals (a) 25 feet (b) 30 feet (c) 26 feet (d) 31 feet (v) Maximum area of garden will be (a) 1200 sq. ft (b) 1000 sq. ft (c) 1250 sq. ft (d) 1500 sq. ft	

SUBJECT-CHEMISTRY

1	Which of the following solutions will have the highest conductivity at 298 K? (a) 0.01 M HCl solution (b) 0.1 M HCl solution (c) 0.01 M CH_3COOH solution (d) 0.1 M CH_3COOH solution
2	The vitamins which can be stored in our body are: (a) Vitamin A, B, D and E (b) Vitamin A, C, D and K (c) Vitamin A, B, C and D (d) Vitamin A, D, E and K
3	Which of the following statement is true? (a) molecularity of reaction can be zero or a fraction. (b) molecularity has no meaning for complex reactions. (c) molecularity of a reaction is an experimental quantity (d) reactions with the molecularity three are very rare but are fast.
4	If the initial concentration of substance A is 1.5 M and after 120 seconds the concentration of substance A is 0.75 M, the rate constant for the reaction if it follows zero - order kinetics is: (a) 0.00625 molL-1s -1 (b) 0.00625 s -1 (c) 0.00578 molL-1s -1 (d) 0.00578 s -1
5	In which of the following solvents, the $C_4H_8NH^{3+}X–$ is soluble; (a) ether (b) acetone (c) water (d) bromine water
6	Anisole undergoes bromination with bromine in ethanoic acid even in the absence of iron (III) bromide catalyst: (a) Due to the activation of benzene ring by the methoxy group. (b) Due to the de-activation of benzene ring by the methoxy group. (c) Due to the increase in electron density at ortho and para positions (d) Due to the formation of stable carbocation.
7	Cd is not regarded as transition element due to (a) completely filled d-orbital in the excited state. (b) completely filled orbital in ground state as well as in its common oxidation state. (c) completely filled s-orbital. (d) completely filled 5d-orbital.
8	Which one of the following compound is more reactive towards S_N2 reaction? [1] (a) $CH_3CH_2CH_2CH_2Br$ (b) $CH_3CH_2CH(Br)CH_3$ (c) $(CH_3)_3CBr$ (d) $(CH_3)_2CHCH_2Br$
9	The number of chloride ion produced by complex tetraamminedichloroplatinum (IV) chloride in an aqueous solution is (a) two (b) four (c) one (d) three
10	Rate law for reaction A + 2B → C is found to be Rate = k[A] [B] If concentration of the reactant 'B' is doubled on keeping the concentration of 'A' constant, then the value of rate constant will be (a) the same (b) doubled (c) quadrupled (d) halved
11	Given below are two statements labelled as Assertion (A) and Reason (R) **Assertion (A):** Alcohols react both as nucleophiles and electrophiles. **Reason (R):** The bond between C–O is broken when alcohols react as nucleophiles. Select the most appropriate answer from the options given below: (a) Both A and R are true and R is the correct explanation of A

12	(b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true. Given below are two statements labelled as Assertion (A) and Reason (R) **Assertion (A)**: Strong oxidising agents oxidise toluene and its derivatives to benzoic acids. **Reason (R):** It is possible to stop the oxidation of toluene at the aldehyde stage with suitable reagents. Select the most appropriate answer from the options given below: (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.
13	Given below are two statements labelled as Assertion (A) and Reason (R) **Assertion (A)**: Enzymes are very specific for a particular reaction and for a particular substrate. **Reason (R):** Enzymes are biocatalysts. Select the most appropriate answer from the options given below: (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.
14	Given below are two statements labelled as Assertion (A) and Reason (R) **Assertion (A):** During electrolysis of aqueous copper sulphate solution using copper electrodes hydrogen gas is released at the cathode. **Reason (R):** The electrode potential of Cu2+ /Cu is greater than that of H +/H 2 Select the most appropriate answer from the options given below: (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.
	SECTION C
15	a. Radioactive decay follows first - order kinetics. The initial amount of two radioactive elements X and Y is 1 gm each. What will be the ratio of X and Y after two days if their half lives are 12 hours and 16 hours respectively? b. The hypothetical reaction P + Q -------→ R is half order w.r.t 'P' and zero order w.r.t 'Q'. What is the unit of rate constant for this reaction?
16	A 5% solution of $Na_2SO_4.10H_2O$ is isotonic with 2% solution of non- electrolytic, non volatile substance X. Find out the molecular weight of X.

17	(a) Arrange the isomeric dichlorobenzene in the increasing order of their boiling point and melting points. (b) Explain why the electrophilic substitution reactions in haloarenes occur slowly and require more drastic conditions as compared to those in benzene.
18	(a) Out of p-tolualdehyde and p-nitrobenzaldehyde, which one is more reactive towards nucleophilic addition reactions, why? (b) Write the structure of the product formed when acetone reacts with 2,4 DNP reagent. Calculate the mole fraction value of $MgCl_2$ and H_2O;if two moles of $MgCl_2$ are dissolve in 1000 grams of water.
19	(a) Write the formula for the following coordination compound Bis(ethane-1,2-diamine) dihydroxidochromium(III) chloride (b) Does ionization isomer for the following compound exist? Justify your answer. Hg[Co(SCN) 4] (c) Is the central metal atom in coordination complexes a Lewis acid or a Lewis base? Explain.
20	(a) Can we construct an electrochemical cell with two half-cells composed of ZnSO4 solution and zinc electrodes? Explain your answer. (b) Calculate the λ^0m for Cl^- ion from the data given below: Λ^0m $MgCl_2$ = 258.6 Scm2mol–1 and λ^0m Mg^{2+} = 106 Scm2mol–1 (c) The cell constant of a conductivity cell is 0.146 cm-1. What is the conductivity of 0.01 M solution of an electrolyte at 298 K, if the resistance of the cell is 1000 ohm?
21	The lead-acid battery represents the oldest rechargeable battery technology. Lead acid batteries can be found in a wide variety of applications including small-scale power storage such as UPS systems, ignition power sources for automobiles, along with large, grid-scale power systems. The spongy lead act as the anode and lead dioxide as the cathode. Aqueous sulphuric acid is used as an electrolyte. The half-reactions during discharging of lead storage cells are: Anode: Pb(s) + SO2– (aq) → PbSO (s) + 2e– Cathode: PbO (s) +4H+ (aq) + SO2– (aq) + 2e– → PbSO (s) + 2H O There is no safe way of disposal and these batteries end - up in landfills. Lead and sulphuric acid are extremely hazardous and pollute soil, water as well as air. Irrespective of the environmental challenges it poses, lead-acid batteries have remained an important source of energy. Designing green and sustainable battery systems as alternatives to conventional means remains relevant. Fuel cells are seen as the future source of energy. Hydrogen is considered a green fuel. Problem with fuel cells at present is the storage of hydrogen. Currently, ammonia and methanol are being used as a source of hydrogen for fuel cell. These are obtained industrially, so add to the environmental issues. If the problem of storage of hydrogen is overcome, is it still a "green fuel?" Despite being the most abundant element in the Universe, hydrogen does not exist on its own so needs to be extracted from the water using electrolysis or separated from carbon fossil fuels. Both of these processes require a significant amount of energy which is currently more than that gained from the hydrogen itself. In addition, this extraction typically requires the use of fossil fuels. More research is being conducted in this field to solve these problems. Despite the problem of no good means to extract Hydrogen, it is a uniquely abundant and renewable source of energy, perfect for our future zero-carbon needs. Answer the following questions: (a) How many coulombs have been transferred from anode to cathode in order to consume one mole of sulphuric acid during the discharging of lead storage cell? (b) How much work can be extracted by using lead

	storage cell if each cell delivers about 2.0 V of voltage? (1 F = 96500 C) (c) Do you agree with the statement – "Hydrogen is a green fuel." Give your comments for and against this statement and justify your views. OR Imagine you are a member of an agency funding scientific research. Which of the following projects will you fund and why? (i) safe recycling of lead batteries (ii) extraction of hydrogen.
22.	(a) What is the effect of temperature on the solubility of glucose in water? (b) Ibrahim collected a 10mL each of fresh water and ocean water. He observed that one sample labeled "P" froze at 0 ^{o}C while the other "Q" at -1.3^{o}C. Ibrahim forgot which of the two, "P" or "Q" was ocean water. Help him identify which container contains ocean water, giving rationalization for your answer. (c) Calculate Van't Hoff factor for an aqueous solution of K3 [Fe(CN)6] if the degree of dissociation (α) is 0.852. What will be boiling point of this solution if its concentration is 1 molal? (Kb=0.52 K kg/mol)
23.	Various isomeric haloalkanes with the general formula C4H9Cl undergo hydrolysis reaction. Among them, compound "A" is the most reactive through SN 1 mechanism. Identify "A" citing the reason for your choice. Write the mechanism for the reaction.
24.	The equilibrium constant of cell reaction : Sn^{4+} (.aq) + Al(s) → Al^{3+} + Sn^{2+} (aq) is 4.617 x 10184 , at 25 ^{o}C a. Calculate the standard emf of the cell. (Given: log 4.617 x 10184 = 184.6644) b. What will be the E o of the half cell Al^{3+} /Al , if E ^{o} of half cell Sn^{4+} /Sn^{2+} is 0.15 V. 2 1 S
25.	Convert: (i) Toluene to 3-nitrobenzoic acid. (ii) Benzene to m-nitroacetophenone.

BIOLOGY

1.	A group of populations of two or more species occupying the same geographical area at the same time is called 1.Ecosystem 2.Commensalism 3.Interaction 4. Community	
2.	Biotic factors include 1.Plants and animals 2.Water temperature, fish 3.Plants, animals and physical environment 4.None of the abov	
3.	An organism that lives in or on another organism and derives nutrients for itself at the expense of the host organism is called _____ 1.Scavenger 2. Prey 3. Predator 4. Parasite	
4.	A population that exhibits birth rates that are identical to the death rate implies 1.Initial growth 2.Plateau phase 3.Acceleration Phase 4.None of the above	
5.	An example of a terrestrial gastropod is 1.Sea hares 2. Nudibranch 3. Garden snail 4.None of the above	
6.	Niche Density is _____ 1.Extinction of species in a new habitat 2.A New emerging population of species in a new habitat 3.The abundance of a population of species outside its habitat 4.The abundance of a population of species within its habitat	
7.	How many biogeographic does India have? 1.5 2.6 3. 8 4. 10	

8.	_____ is one of the most prevalent hotspots of biodiversity in India. 1.Himalayas 2.Western Ghats 3.Ganges 4.None of the above	
9.	_____ is a non-renewable resource. 1.Crude oil 2. Uranium 3. Hot spring 4. Silica	
10.	_____ is the forest cover to be maintained as per the National Forest Policy (1988) 1.67% for hills & 33% for plains 2.37% for hills & 11% for plains 3. 17% for hills & 23% for plains 4.None of the above	
11.	Which of the following animals is now extinct? 1.Tasmanian tiger 2.Tasmanian devil 3.Pademelon 4.Quoll	
12.	Which of these processes does not give off CO2? 1.Lactate fermentation 2.Aerobic respiration 3.Alcoholic fermentation 4.None of the above.	
13.	he guts of various ruminants contain _____ 1.Acidophiles 2.Halophiles 3.Methanogens 4.All of the above	
14.	Ethanol can be produced using _____ 1.Saccharomyces cerevisiae 2.Escherichia coli 3.seudomonas syringae 4.None of the above	
15.	Bacillus thuringiensis is used for 1.Fermentation of beer 2.Biopesticide 3.Antibiotic 4.None of the above	
16.	Example of a natural insect repellent 1.Citronella oil 2.Coconut oil 3.Linseed oil 4.None of the above	
17.	Before antibiotics, the first commercial antibacterial available was _____ 1. Penicillin 2. Prontosil 3.Azithromycin 4.None of the above	
18.	The genetically modified brinjal in India has been developed for. 1.Drought resistance 2. Enhancing mineral content 3. Enhancing shelf life 4. Insect resistance	
19.	Which kind of therapy was given in 1990 to a four-year-old girl with ADA deficiency? (Adenosine Deaminase) 1.Radiation Therapy 2. Gene Therapy 3. Radiation Therapy 4. Immunotherapy	
20.	The process of RNA interference has been used in the development of plants resistant to _____ A. Insects B. Nematodes C. Fungi D. Viruses	
21.	The DNA molecule to which the gene of interest is integrated for cloning is called a) Vector b) Carrier c) Template d) Transformer	
22.	The linking of antibiotic resistance gene with the plasmid vector became possible with a) Exonucleases b) Endonucleases c) DNA polymerase d) DNA ligase	
23.	The linking of antibiotic resistance gene with the plasmid vector became possible with a) Exonucleases b) Endonucleases c) DNA polymerase d) DNA ligase	
24.	In bacterial chromosomes, the nucleic acid polymers are	

	a) Linear RNA molecule b) Of two types – DNA and RNA c) Circular DNA molecule d) Linear DNA molecule	
25.	The cutting of DNA at a specific location became possible with the discovery of a) Probes b) Restriction enzymes c) Ligases d) Selectable markers	

PHYSICAL EDUCATION

1	Draw a Knock-out Fixture foe 13 teams
2	Draw a League Fixture 7 teams by using staircase method
3	Explain Seeding
4	Mention the various Committees And their role to conduct Tournament
5	Explain Knock-out and League Tournament With Advantages and Disadvantages
6	Describe British league and American League Method
7	Describe Intramural and its advantages
8	Describe Extramural and its benefits
9	Write a note on Community sports
10	What do you mean by Planning
10	Describe the Postural deformities of spine
11	Explain the deformities of Legs
12	Explain Menarche and Menstrual Dysfunction
13	Describe Female athlete traid
14	What are the causes of less participation of women in sports
15	Highlight the advantages of sports participation for women
16	Explain the causes of Diabetes. Explain any one asana with Procedure to overcome Diabetes
17	Explain Hypertension. Explain any one asana with Procedure to cure Hypertension
18	What is Obesity .Mention the asanas to cure
19	Explain the advantages of Physical activities for CWSN
20	Discuss Special Olympics and Deaflympics.
21	Describe the meaning of Balanced Diet .What is the importance of Balanced Diet
22	What are the functions of Micro nutrients
23	Describe the non nutritive components of diet
24	What is Food intolerance
25	Mention the factors affecting diet
26	Explain Rikli and jones test
27	Describe Harverd Step test
28	Highlight the factors determining Endurance and speed
29	Describe Abrasion, Incision and Laceration
30	What is cramp
31	Write a short note on Fracture and Dislocation
32	Highlight the objectives of Frist Aid
33	Discuss Newton's laws if motion with examples from sports
34	Describe the Lever and types of lever with examples
35	What is Friction .Discuss the role of Friction in sports
35	Explain Projectile and factors affecting Projectile
36	What is Motivation .Explain its types
37	Mention the techniques of Motivation
38	Mention the types of Personality according to the Carl Jung
39	What do you mean by Aggression .Explain its types
40	Write the Aggression management techniques
41	What are the Principles of Sports Training
42	Define Strength. discuss its types

43	Explain Isometric and Isotonic
44	What is Endurance.Mention Interval method of developing Endurance
45	Discuss the Speed and its type
46	Explain Flexibility in detail
47	Write the factors for Talent Identification