(Biology 30)

1. How brain is protected in our body?   2
   Name the part of brain responsible for precision of voluntary actions and maintaining body posture and balance of the body.
2. Write two difference between zygote and gametes.   2
3. What changes occur in a flower after pollination and fertilization?   2
4. "Evolution occur in stages", Explain with example.   2
5. Name the hormone responsible for   2
   a) Trophic movement in plants
   b) Cell division in plant
   c) Growth inhibition
   d) Development of secondary sexual character in male of human being.
6. a) Give an example of a unisexual and a bisexual flower.   2
   b) Mention the changes flower undergoes after fertilization.
7. a) Why organic farming is considered beneficial?   3
   b) What is crop rotation?
8. Write a note on how forest influence the quality of soil, air and water resources.   3
9. Define role of diaphragm in process of respiration   3
10. What causes tendrils to encircle or coil around the object in contact with it? Explain the process involved.   3
11. a) What is meant by evolution of species?   1
    b) List and describe any two evidences for evolution.   2
12. State the sequence of changes that take place in human body when it prepares itself to protect from a scary or dangerous situation.   3

(Physics 15)

13. A 5 cm tall object is placed perpendicular to the principal axis of a convex lens of focal- length 20 cm. The distance of the object from the lens is 30 cm. Find the: 3
    (i) Position
    (ii) Nature
    (iii) Size of the image formed.
14. Explain why do stars twinkle and planets do not?   3
15. Explain term (A) Resistance, (B) Resistivity. Give there mathematical form and relation.   3
16. What are magnetic field lines? How is the direction of magnetic field at a point determined? Mention two important properties of magnetic field lines?   3
17. Describe the steps involved in obtaining biogas and explain the meaning of anaerobic decomposition.   3

(Chemistry 15)

18. a) Identify type of reaction for following reactions   3
    i) $A + B \rightarrow AB$ ii) $AB + CD \rightarrow AD + CB$ iii) $AB \rightarrow A + B$ iv) $AB + C \rightarrow CB + A$
    b) Why a chemical reaction must be balanced.
19. a) Which gas usually liberated when an acid reacts with a metal , how will you test the presence of this gas.   3
    b) Why do HCl, HNO_3 etc. show acidic characters in aqueous solutions, while compounds like alcohol and glucose do not show acidic character.
    c) Write two differences between soap and detergent.
20. An element X (atomic no. 12) reacts with element Y (atomic no. 17) and element Z (atomic no. 8), Identity X, Y, Z and write the formulas of compound formed by X with Y & Z. Identify nature of bond in above compounds.   3
21. a) Write IUPAC names of following   3
    $CH \equiv CH$ CH_3-CH_2-OH
    b) Write common molecular formula of alkane and alkene family.

c) Write structure of aldehyde and ketonic group.

22.

Group 15	group 16	group 17	group 18	3
A				
	C	D		
B			E	

a formula part of periodic table is given above , with the help of this answer following questions
a) Compare the size of A,C,B
b) which are is more electronegative C or D
c) Identify the element those have same chemical properties.
d) Identify Nobel gas.
e) Which type of ion can be formed by D.
f) What will be valency of E.

Mathematics (20)

23. Three coins are tossed once. Find the probability of getting two heads. 1

24. The mean of 25 observations is 20. If each observation is subtracted by 3, then find the new mean. 1

25. Find the value of 'k' for which the points *(8, 1), (k, –4)* and *(2, –5)* are collinear. 1

26. The sum of a number and its reciprocal is $2\dfrac{1}{30}$. Find the number. 2

27. Prove that the area of the equilateral triangle described on one side of a square is equal to one half the area of the equilateral triangle described on one of its diagonal 2

28. If *p, q, r* are zeroes of $P(x) = 9x^3 - 3x^2 - 7x + 1$, then find the value of $p^{-1} + q^{-1} + r^{-1}$. 2

29. If a hexagon ABCDEF circumscribe a circle, prove that $AB + CD + EF = BC + DE + FA$. 2

30. The angle of elevation of the top of a tower from two distinct points at a distance s and t from its foot are complementary. Prove that the height of the tower is $\sqrt{st}$. 3

31. On selling a T.V. at 5% gain and a fridge at 10% gain, a shopkeeper gains Rs.2000. But if he sells the T.V. at 10% gain and the fridge at 5% loss. He gains Rs.1500 on the transaction. Find the actual prices of T.V. and fridge. 3

32. If $\dfrac{x}{a}\cos\theta + \dfrac{y}{b}\sin\theta = 1$ and $\dfrac{x}{a}\sin\theta - \dfrac{y}{b}\cos\theta = 1$, prove that $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 2$ 3

English (20)

33. **Read the following passage carefully and answer the question given:**

Mr. Oliver. an Anglo-Indian teacher, was returning to his school late one night, on the out- skirts of the hill station of Shimla. The school was conducted on English public school lines and the boys, most of them from well-to-do Indian families, wore blazers. caps and ties. Life magazine, in a feature on India, had once called this school the 'Eton of the East'. Mr. Oliver had been teaching in this school for several years. The Shimla bazaar, with its cinemas and restaurants, was about two miles from the school: and Mr. Oliver, a bachelor. usually strolled into the town in the evening returning after dark, when he would take a short-cut through a pine forest.

When there was a strong wind, the pine trees made sad, eerie sounds that kept most people to the main road. But Mr. Oliver was not a nervous or imaginative man. He carried a torch and on the night I write of, its pale gleam — the batteries were running down—moved fitfully over the narrow forest path. When its flickering light fell on the figure of a boy, who was

sitting alone on a rock, Mr. Oliver stopped. Boys were not supposed to be out of school after 7 p.m. and it was now well past nine. 'What are you doing out here, boy ?' asked Mr. Oliver sharply. moving closer so that he could recognise the miscreant. But even as he approached near the boy, Mr. Oliver sensed that something was wrong. The boy appeared to be crying.

His head hung down, the held his face in his hands and his body shook convulsively. It was a strange. Soundless weeping and Mr. Oliver felt distinctly uneasy. Well—what's the matter?' he asked, his anger giving way to concern. What are you crying for ?' The boy would not answer or look up. His body continued.

to be rocked with silent sobbing. Come on boy, you shouldn't be out here at this hour. Tell me the trouble. Look up.' The boy looked up. He took his hands from his face and looked up at his teacher. The light from Mr. Oliver's torch fell on the boy's face. If you could call it a face. He had no eyes, ears nose at mouth. It was just a round smooth head with

a school cap on top of it. And that's where the story should end-as indeed it has, for several people who have had similar experiences and dropped dead of inexplicable heart-attacks. But for Mr. Oliver it did not end there. The torch fell from his trembling hand. He turned and scrambled down the path, running blindly through the trees and calling for help. He was still

running towards the school buildings when he saw a lantern swinging in the middle of the path. Mr. Oliver had never before been so pleased to see the night-watchman. He stumbled up to the watchman, gasping for breath and speaking incoherently. What is it, Sahib? asked the watchman. 'Has there been an accident ? Why are you running?'

'I saw something—something horrible—a boy weeping in the forest— and he had no face' No face, Sahib ?"No eyes. nose, mouth-nothing'.

'Do you mean it was like this, Sahib ?' asked the watchman, and raised the lamp to his own face. The watchman had no eyes, no ears, no features at all—not even an eyebrow 1 The wind blew the lamp out, and Mr. Oliver had his heart attack.

(a) The school was called the 'Eton of the East' because :   1
(b) The boy whom Mr. Oliver met is referred to as a miscreant because :   1
(c) 'If you could call it a face' (line 28).The writer is doubtful because :   1
(d) 'For Mr. Oliver, it did not end there' (line 32). The story would have ended at this point of   1
(e) Do you mean it was like this?" (line 40-42). What does 'this' refer to?   1

34. There is an error in each line. Marks the error and write the correct word.   4

		Incorrect question	Correct questions
There was a king. He used to ask three question	e.g.		
of all the people who came to him. The	(a)	------------	------------
first question is: Who is the best of all humans?	(b)	------------	------------
The second was: What is a best time? And	(c)	------------	------------
the third: What is the best in all actions?	(d)	------------	------------
The king was very anxious to know a answer	(e)	------------	------------
to these questions. One day he went to a forest	(f)	------------	------------
and was moving about the hills or plains.	(g)	------------	------------
He saw a ashram and wanted to take some rest there.	(h)	------------	------------

35. Rearrange the following words and phrases to form meaningful sentences.   2
    1. of mankind / the habit / reading is / one of / resources / of / the greatest /
    2. are / we enjoy / that / belong to us / than if / much more / they / borrowed / reading books/

36. Rewrite the following sentences by changing the voices.   3
    1. Malini bought a colorful hat for her daughter.
    2. The dog was locked up in the kennel by its master.
    3. The winners were praised by the principal.

37. You are asked by your teacher to write an article on the profession you would like to follow after   3
    completing your studies. You have always been fond of an outdoor life and want to join a
    profession that would give you a chance to serve your country. You therefore feel that becoming
    an officer in the Indian Navy is the best option for you.

38. Complete the following story in about 150-200 words.   3
    Anuj had gone on a holiday for one month and when he returns, he turns the key in the lock and
    opens the door. To his horror, he finds......................