Name :_____   UID: _____   Std: XI _____

Subject: English

1. Read the given passage and answer the questions that follow:

From time immemorial, the basic purpose of physical education and sports has been three-fold to obtain physical fitness, to inculcate team-spirit, discipline, and co-operation and thereby to provide lasting harmony and balance in one's outlook in life. It is for this reason that in some institutions, the competition component in sports is encouraged. There, the stress is on excellence in sports and studies since the cardinal aim is overall development of personality and integrated development of body, mind and spirit.

The new education policy also seeks to realise these objectives. It outlines several inputs in the areas- evaluation of performances, nationwide infrastructure, sports institutions and hotels, due encouragement to talented sportsmen and women, and marked emphasis on indigenous traditional games. In the programmes of Action (POA) therefore, several new strategies were chalked out. A sub-committee of the Central Advisory Board of Education was constituted and its recommendations were discussed in great detail.

The sub-committee made concrete suggestions. The major among them are introduction of annual physical fitness test for all students and teachers, daily physical exercise for students, physical education as a subject at various levels, mass participation of students on monthly and weekly basis, sports funds in schools, leadership role for some categories of schools, more sports hostels, training of teachers, 100 sports colleges for maintaining and nurturing sports talent, regular yoga teaching in schools, accommodation of sports in the academic calendars, due weight age to achievements in sports and games for admission to higher courses/ classes and recruitment in services, and optimum utilisation of existing facilities and infrastructure.

The urgent requirement is the maximum use of existing facilities. At the micro level, it has to be ascertained how the present infrastructure can be utilised to its optimum level. Each scheme and institute has to be evaluated. It is most advisable to concentrate fully on physical education at the elementary education stage.

It is an accepted fact that maximum sport potential is in the rural regions. However, this repository has not been adequately exploited and enriched. All roads tend to lead to the urban areas. In fact, a major part of sport activities should be shifted to the rural arena. In the process, this will help to provide necessary facilities there.

a) On the basis of reading the above passage, make notes in points, using headings and sub-headings. Use recognizable abbreviations wherever necessary and supply a suitable title to it.
                                                                                                                                [5]

b) Make a summary of the passage in about 100 words.   [5]

2. You are the General Manager of a reputed company. The company requires posh bungalows on company lease as guest houses. Draft an advertisement under the classified columns to be published in a leading daily. [4]

3. You are Upendra Kumar. You want information regarding courses at New Institute of Learning Languages. Write a letter to the director enquiring about the same. Invent necessary details. [6]

4. Read the conversation given below and complete the following passage by filling in the blanks appropriately. [5]

Customer : Can I have a small bottle of tomato sauce?

Shopkeeper : Sorry, I have only big bottles.

Customer : When will it be available?

Shopkeeper : I can give it to you tomorrow?

Customer : Thank you, then I will get it tomorrow.

The customer asked the shopkeeper for_____. The shopkeeper said _____.
The customer wanted to know _____. The shopkeeper said that _____. The customer thanked him and said that _____.

Subject : Mathematics

1. For all sets A, B and C, show that $(A - B) \cap (A - C) = A - (B \cup C)$. [2]

2. Let $T = \left\{ x , \frac{x+5}{x-7} - 5 = \frac{4x-40}{13-x} \right\}$. Is T is an empty set? Justify your answer. [2]

3. Find the domain of each of the following functions given by : [3]

   a) $f(x) = x|x|$

   b) $f(x) = \frac{1}{\sqrt{x+|x|}}$

4. Find the range of each of the following functions given by : [3]

   a) $f(x) = 1 - |x - 2|$

   b) $f(x) = \frac{3}{2 - x^2}$.

5. If $f(x) = y = \frac{ax-b}{cx-a}$, then prove that $f(y) = x$. [2]

6. If $a\cos\theta + b\sin\theta = m$ and $a\sin\theta - b\cos\theta = n$, then show that $a^2 + b^2 = m^2 + n^2$ [2]

7. Find the general solution of the equation $\cos^2\theta + 7\sin^2\theta - 6 = 0$. [2]

8. Show that $\frac{n^5}{5} + \frac{n^3}{3} + \frac{7n}{15}$ is a natural number for all $n \in N$. [3]

9. Prove that :$\frac{1}{n+1} + \frac{1}{n+2} + \cdots + \frac{1}{2n} > \frac{13}{24}$ for all natural numbers, $n > 1$. [3]

10. If $f(z) = \frac{7-z}{1-z^2}$, where $z = 1 + 2i$, then find $|f(z)|$. [3]

Subject : Physics

1. What are the fundamental and supplementary quantities in SI system of units? [1]

2. Give an example where the rate of change of velocity is constant while the velocity changes both in magnitude and direction. [1]

3. An object travels at a steady speed for a time t_1.Then decelerates uniformly for time t_2 until it comes to rest. Sketch the following graphs for the motion [2]

   a) Displacement vs time   b) Velocity vs time   c) Acceleration vs time.

4. Is it possible that the resultant of the two vectors be smaller than the smallest of the two vectors?If so under what condition ? [2]

5. Why do we fall forward when a moving train decelerates to a stop and fall backward

when it accelerates from rest? What would happen if the train rounded a curve at constant speed? [2]

6. The radius of a circle is 0.51 cm. Calculate its area with due regard to significant figures. [3]

7. If the fundamental quantities are velocity V, mass M. What will be the dimensions of η in the equation V is equal to $V = \dfrac{\pi p \, r^4}{8\eta l}$ where, p = pressure difference, r= radius, l= length of tube. [3]

8. A body moving along X-direction has at any instant its x co-ordinate given by x= a + bt+ct². What is the velocity and acceleration at time t? [3]

9. A boatman can row with a speed of 10 km/hr in still water. If the river flows steadily at 5 km/hr. In which direction should the boatman row in order to reach a point on the other bank directly opposite to the point from where he started. The width of the river is 2 km. [3]

10. A body of mass 5 kg is hanging from a string of negligible weight. A horizontal force F is applied on two parts of string due to which two parts of string include an angle of 150^0. If g =10m/s². Find the force applied and also the tension in the upper part of the string. [5]

Subject : Chemistry

1. Which ion have similar spectrum as that of H-atom? [1]
2. Ne and Na+ are isoelectronic, which has greater ionization enthalpy and why. [1]
3. Draw the Lewis dot structure for H_3PO_3. [1]
4. How many σ and π bonds are present in benzene? [1]
5. 0.11 g of an oxide of nitrogen gives 56 ml N_2 at STP. 0.15 g of another oxide of nitrogen Gives 56 ml N_2 at STP. Show that these data confirm the la of multiple proportions. [2]
6. An aqueous solution of HCL is 38% by mass and its density is 1.19 g/ml. Calculate the Molarity of the solution (HCL = 36). [2]
7. Give two limitations of law of constant proportions. [2]
8. (i) Explain resonance in case of O_3 molecule. [3]
   (ii) With the help of molecular orbital theory explain why does He_2 does not exist.
9. (i) State and explain de-Broglie's relation and derive de-Broglie equation. [3]
   (ii) Why do atoms with half- filled and completely filled orbitals have extra stability?
   (iii) Give the values of all the four quantum numbers of unpaired electron of Fluorine.
10. H_2O is a covalent molecule and the two O-H bonds are of polar nature. The H_2O molecules are involved in intermolecular hydrogen bonding both in water and ice which differ in their relative densities. [4]
    (i) What type of structure does ice possess?
    (ii) Out of ice and water, which is heavier?
    (iii) At what temperature, does water have maximum density?
    (iv) What is the value associate with this characteristic of water?

Subject : Biology

1. Mention the function of epiglottis. [1]
2. Give the names of any one glucocorticoid and one mineralocorticoid. [1]
3. What are the two modes through which the hypothalamus causes the release of hormones by pituitary gland? [2]

4. In which part of the digestive enzyme system me, the absorption of following substances takes place? [2]
   a) Certain drugs
   b) Glucose, fructose and fatty acids
   c) Water, some minerals and drugs
   d) Simple sugar and alcohol
5. Explain the process of micturition. [3]
6. Describe the different methods of transport of oxygen in human body. [3]
7. Mention the factor which is responsible for the following : [3]
   a) Tetany
   b) Gout
   c) osteoporosis
8. What is cardiac cycle? Describe the events that occur during it. [5]
9. Describe in detail, how conduction of nerve impulse takes place through a nerve fibre. [5]

Subject : Computer Science

1. Do as Directed
   a) $(123)_{10} \rightarrow (?)_2 \rightarrow (?)_{16}$
   b) $(10A)_{16} \rightarrow (?)_{10} \rightarrow (?)_2$ [8]
   c) $(222)10 \rightarrow (?)_8 \rightarrow (?)_2$
   d) $(FA)_{16} \rightarrow (?)_2 \rightarrow (?)_{10}$
2. Write the difference between if else and switch case statement . [2]
3. Define the following with example: [6]
   a) Keyword
   b) Operator
   c) Separator.
4. Write a program to input a number and check (Separate programs) [3+3]
   a) it is PRIME or not.
   b) it is Armstrong or not
5. Define the following with example: [3]
   a) Infinite loop
   b) Empty loop

Subject : IP

1. What is Input Device? Give example. [2]
2. What are the categories of Printer? Give examples. [2]
3. How many types of categories of software's are available? Give example of each. [4]
4. How many types of computer are available as per their size? [2]
5. Differentiate between the followings: [10]
   a) Input and output device
   b) RAM and ROM
   c) Applications and System Software
   d) Primary and Secondary Storage Devices
   e) Open source software and Proprietary Software
6. Give the name of the software(s) used for the followings: [5]
   a) To edit the images
   b) To do painting
   c) To work with tables and database
   d) For sending email
   e) To manage the accounts and Inventory

Subject : PE

1. What do you mean by soft skill? Discuss any five soft skills which are required for the career in the field of games and sports.
2. What is biomechanics? Explain the importance of biomechanics in physical education and sports.
3. State the functions of bones.
4. What are the side effects of anabolic steroids? Explain in brief.