Atomic Energy Central School No. 4 Rawatbhata

Confidence Test II (2017-18)

M.M: 80 Class: X, Mathematics Time -3Hours

Name of the Student:_____Roll No._____Class/Sec____

General Instructions

(*i*) All questions are compulsory.

(*ii*) The question paper consists of 30 questions, divided into four sections—A, B, C & D

(*iii*) Section A contains 6 questions of 1 mark each, section B contains 6 questions of 2 marks each, Section C contains 10 questions of 3 marks each and Section D contains 8 questions of 4 marks each.

(*iv*) Use of calculator is not permitted.

SECTION-A

1. Write maximum number of zeroes for $p(x) = x^3 + 3x^2 - 3x + 1$

2. If $\Delta ABC \sim \Delta PQR$ ar $(\Delta ABC) = 16$ cm^2 and ar $(PQR) = 81$ cm^2, AB = 2 cm find PQ.

3. The ratio of the height of a tower and the length of its shadow on the ground is $\sqrt{3}:1$. What is the angle of the sun?

4. Volume and surface area of a solid hemisphere are numerically equal. What is the diameter of hemisphere.

5. A number is chosen at random from the numbers –3, –2, –1, 0, 1, 2, 3. What will be the probability that square of this number is less than or equal to 1?

6. If the distance between the points $(4, k)$ and $(1, 0)$ is 5, then what can be the possible values of k?

SECTION-B

7. Find the sum of all 2 digit positive numbers divisible by 3.

8. A dice is thrown once. Find the probability of getting *a*) aprime number *b*) a number divisible by 2.

9. Find the ratio in which the line segment joining the points A (3, –6) and B (5, 3) is divided by x axis.

10. If $3 \cot A = 4$ then find the value of $\dfrac{\text{Cosec}^2 A + 1}{\text{Cosec}^2 A - 1}$

11. Prove $\dfrac{\text{Sin}\,\theta}{\text{Sin}\,(90-\theta)} + \dfrac{\text{Cos}\,\theta}{\text{Cos}\,(90-\theta)} = \text{Sec}\,\theta\,\text{cosce}\,\theta$

12. Find HCF of 455 and 84 by Endils division lemma.

SECTION-C

13. Prove that $5 - \sqrt{3}$ is an imational number

14. Find all the zeroes of polynomial,
$p(x) = x^4 - 5x^3 + 2x^2 + 10x - 8$ if its two zeroes are $\sqrt{2}$ and $-\sqrt{2}$

Or

Find zeroes of $3\sqrt{2}\,x^2 + 13x + 6\sqrt{2}$ and verify the relation between the zeroes and the coefficients.

15. Solve for x and y

$$\frac{x}{a} + \frac{y}{b} = 2$$
$$ax - by = a^2 - b^2$$

16. Find the value of k for which the equation $x^2 + k(2x + k - 1) + 2 = 0$ has real and equal roots

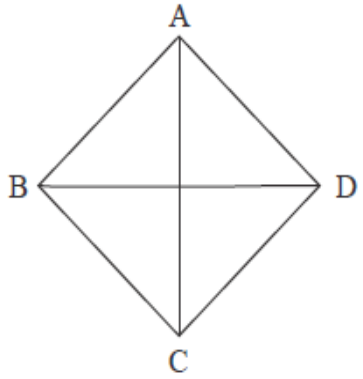
Or

Solve the following equation for x—

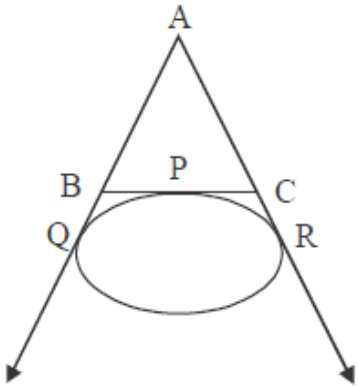
$$\frac{1}{a} + \frac{1}{b} + \frac{1}{x} = \frac{1}{a+b+x}$$

17. If sum of first n teims of an A.P is $5n^2 - 3n$ find the A.P and also find its sixteenth term.

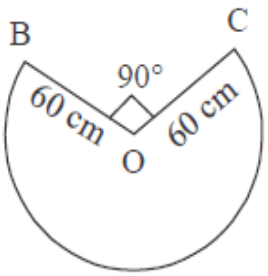
18. In the given figure ABCD is a rhombus than prove that $4\,AB^2 = AC^2 + BD^2$



19. In the given figure, a circle touches the side BC of ΔABC at P and tonches AB and AC produced at Q and R respectindy. If AQ = 5 cm, find the perimeter of ΔABC.



20. In the given figure the shape of the top of a table in a restaurant is that of a sector of circle with centre 0 and $\angle BOD = 90°$, If OB = OD = 60 cm find the perimeter of the table top [use $\pi = 3.14$]



21. A solid cylinder of nadius r and height h is placed over other cylinder of same height and radius. Find the total surface Area of the shape so formed.

22. If median of the following distribution is 35 find the value of x & y

C.I	0–10	10–20	20–30	30–40	40–50	50–60	60–70	Total
f	10	20	x	40	y	25	15	170

SECTION-D

23. $\sec\theta = x + \frac{1}{4x}$ then prove that

$\sec\theta + \tan\theta = 2x$ or $\frac{1}{2x}$.

Or

The angle of elevation of a jet plane from a point A an the ground is 60°. After a flight of 15 seconds the angle of elevation changes to 30°. If the jet plane is flying at a constant height of $1500\sqrt{3}\ m$ find the speed of the jet plane.

24. A Shopkeeper buys a number of books for Rs. 1200. If he had bought 10 more books for the same amount, each book would have cost Rs 20less. How many books did he buy?

Or

A boat travels 24 km upstream and 28 km downstream in 6 hours. If it travel 30 km upstream and 21 km down stream in 6 hours and 30 minutes. Find the speed of boat in still water.

25. Construct a pair of tangents to a circle of radius 4 cm inclined at an angle of 45°

26. A cone of radius 10 cm is divided into two parts by a plane parallel to its base through the mid point of its height. Compare the volumes of the two parts.

27. Peter throws two different dice together and finds the product of the two numbers obtained. Rina throws a die and squares the number obtained. Who has the better chance to get the number 25?

28. State and prove Basic Proportionality theorem.

Or

Prove that the lengths of tangents drawn from an external point to a circle are equal.

29. The following distribution gives annual profit of 30 shops

Profit (In lakhs)	0–5	5–10	10–15	15–20	20–25
No. of Shops	3	14	5	6	2

Draw less than ogive and more than ogive of above distribution and also find the median from the graph.

30. The points A (2, 9), B (a, 5), C (5, 5) are the vertices of a ΔABC, right angled at B. find the value of a and hence find the area of ΔABC.

Atomic Energy Central School No. 4 Rawatbhata
Confidence Test II (2017-18)

M.M: 80 Class: X, Science Time -3Hours

Name of the Student:_____Roll No._____Class/Sec____

General Instructions:

1. All questions are compulsory.
2. The question paper comprises of two Sections, A and B. You are to attempt both the sections.
3. All questions of Section-A and Section-B are to be attempted separately.
4. There is an internal choice in three questions of three marks each and two question of five marks.
5. Question number 1 to 2 in Section-A are one mark question. These are to be answered in one word or in one sentence.
6. Question numbers 3 to 5 in Section-A are two marks questions. These are to be answered in about 30 words each.
7. Question numbers 6 to 15 in Section-A are three marks questions. These are to be answered in about 50 words each.
8. Question numbers 16 to 21 in Section-A are five marks questions. These are to be answered in about 70 words each.
9. Question numbers 22 to 27 in Section-B are questions based on practical skills and are two marks questions.

SECTION – A

1. Why are endocrine glands called ductless glands?
2. Why is DNA copying necessary during reproduction?
3. Why is bio-gas considered an ideal domestic fuel?
4. An element 'M' has atomic number 11.

(a) Write its electronic configuration.

(b) State the group to which 'M' belongs.

(c) Is 'M' a metal or a non-metal?

(d) Write the formula of its chloride.

5. What is the minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.
6. Name the electric device that converts electrical energy into mechanical energy. Draw labelled diagram and explain the principle involved in this device.

OR

(a) Distinguish between the terms "overloading and short circuiting" as used in domestic circuits.

(b) Why are the coils of electric toasters made of an alloy rather than a pure metal?

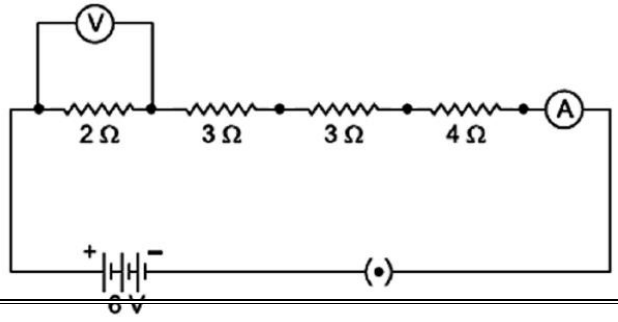
7. Write balanced equations for the following, mentioning the type of reaction involved.

(a) Aluminium + Bromine → Aluminium bromide

(b) Calcium carbonate → Calcium oxide + Carbon dioxide

(c) Silver chloride → Silver + Chlorine

8. Why is atomic number considered to be a more appropriate parameter than atomic mass for the classification of elements in a periodic table? How does the metallic character of elements vary as we move (i) from left to right in a period, and (ii) top to bottom in a group in the modern periodic table? Give reasons to justify your answers.



9. Find out the reading of ammeter and voltmeter in the circuit given in the adjacent figure:

10. Draw a diagram of human alimentary canal and label on it: Oesophagus, Gallbladder, Liver and Pancreas.

OR

Draw a diagram of excretory system in human beings and label on it: Aorta, vena cava, urinary bladder, urethra.

11. List any three factors and mention how they could lead to the rise of a new species.

12. What are fossils? How do they act as an evidence for organic evolution?

13. (a) If the image formed by a mirror for all positions of the object placed in front of it is always diminished, erect and virtual, state the type of the mirror and also draw a ray diagram to justify your answer.

(b) Define the radius of curvature of spherical mirrors. Find the nature and focal length of a spherical mirror whose radius of curvature is +24cm.

14. (a) The pH of soil A is 7.5 while that of soil B is 4.5. Which of the two soils A or B should be treated with powdered chalk to adjust its pH and why?

(b) Explain how the pH change in the river water can endanger the lives of aquatic animals like fish?

OR

(a) State the chemical properties on which the following uses of baking soda are based:

(i) as an antacid (ii) as soda-acid fire extinguisher

(iii) to make bread and cake soft and spongy.

(b) How washing soda is obtained from baking soda? Write balanced chemical equation.

15. List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family?

16. (a) What is a magnetic field? How can the direction of magnetic field lines at a placed by determined?

(b) State the rule for the direction of the magnetic field produced around a current carrying conductor. Draw a sketch of the pattern of field lines due to a current carrying conductor. Draw a sketch of the pattern of filed lines due to a current flowing through a straight conductor.

17. (a) What are hydrocarbons? Write the general formula of (i) saturated hydrocarbons, and (ii)unsaturated hydrocarbons and draw the structure of one hydrocarbon of each type.

(b) Explain, giving reason, why carbon neither forms C^{4+} cations nor C^{4-} anions, but forms covalent compounds which are bad conductors of electricity and have low melting point and low boiling point.

OR

(a) Write the structural formula of ethanol. What happens when it is heated with excess of conc. H_2SO_4 at 443 K? Write the chemical equation for the reaction stating the role of conc. H_2SO_4 in this reaction.

(b) Distinguish between esterfication and saponification reaction with the help of the chemical equations for each. State one use of each (i) esters, and (ii) saponification process.

18. (a) Draw neat diagram of human brain and label on it the following parts: (i) Midbrain (ii)Pituitary gland

(b) How is brain protected from injury and shock?

(c) Name two main parts of hind brain and state the functions of each.

19. (a) Write the functions of each of the following parts of the human eye:

(i) Cornea (ii) Iris (iii) Crystalline (Eye) lens (iv) Ciliary muscles (v) Retina

(b) A person is unable to see distinctly the objects closer than 1 m. Name the defect of vision he is suffering from. Draw ray diagrams to illustrate the cause of the defect and its correction by suitable lens.

20. (a) Distinguish between 'roasting' and 'calcination'. Which of these two is used for sulphide ores and why?

(b) Write a chemical equation to illustrate the use of aluminium for joining cracked railway lines.

(c) Name the anode, the cathode and the electrolyte used in the electrolytic refining of impure copper.

21. (a) Water is an elixir of life, a very important natural resource. Your Science teacher wants you to prepare a plan for a formative assessment activity, "How to save water, the vital natural resource". Write any two ways that you will suggest to bring awareness in your neighbourhood, on 'how to save water'.

(b) Name and explain any one way by which the underground water table does not go down further.

(c) Explain two main advantages associated with water harvesting at the community level.

OR

(a)What is meant by food chain?

(b) Give reason to justify the following:

(i) The existence of decomposers is essential in a biosphere.

(ii) The number of trophic levels in a food chain is limited.

(iii) Flow of energy in a food chain is unidirectional.

SECTION – B

22. If you take a pinch of sodium hydrogen carbonate powder in a test-tube and add drop-by-drop acetic acid to it, what would you observe immediately? List any two main observations.

23. Draw in sequence (showing the four stages), the process of binary fission in Amoeba.

24. Mention the essential material (chemicals) to prepare soap in the laboratory. Describe in brief the test of determining the nature (acidic/alkaline) of the reaction mixture of saponification reaction.

25. You have to perform the experiment, "To identify the different parts of an embryo of a gram seed." Describe the procedure that you would follow.

26. The magnification of an image formed by a lens is −1. If the distance between the object and its image is 60 cm, what is the distance of the object from the optical centre of the lens? Find the nature and focal length of the lens. If the object is displaced 20 cm towards the optical centre of the lens, where would the image be formed and what would be its nature? Draw a ray diagram to justify your answer.

27. Two lamps, one related 60 W at 220 W at 220 V and the other 40 W at 220 V, are connected in parallel to the electric supply at 220 V. Draw a circuit diagram to show the connections. Calculate the current drawn from the electric supply.

OR

Draw a schematic diagrams of an electric circuit comprising of 3 cells and an electric bulb, ammeter, plug-key in the ON mode and another with same components but with two bulbs in parallel and a voltmeter across the combination.

Atomic Energy Central School No. 4 Rawatbhata

Confidence Test II (2017-18)

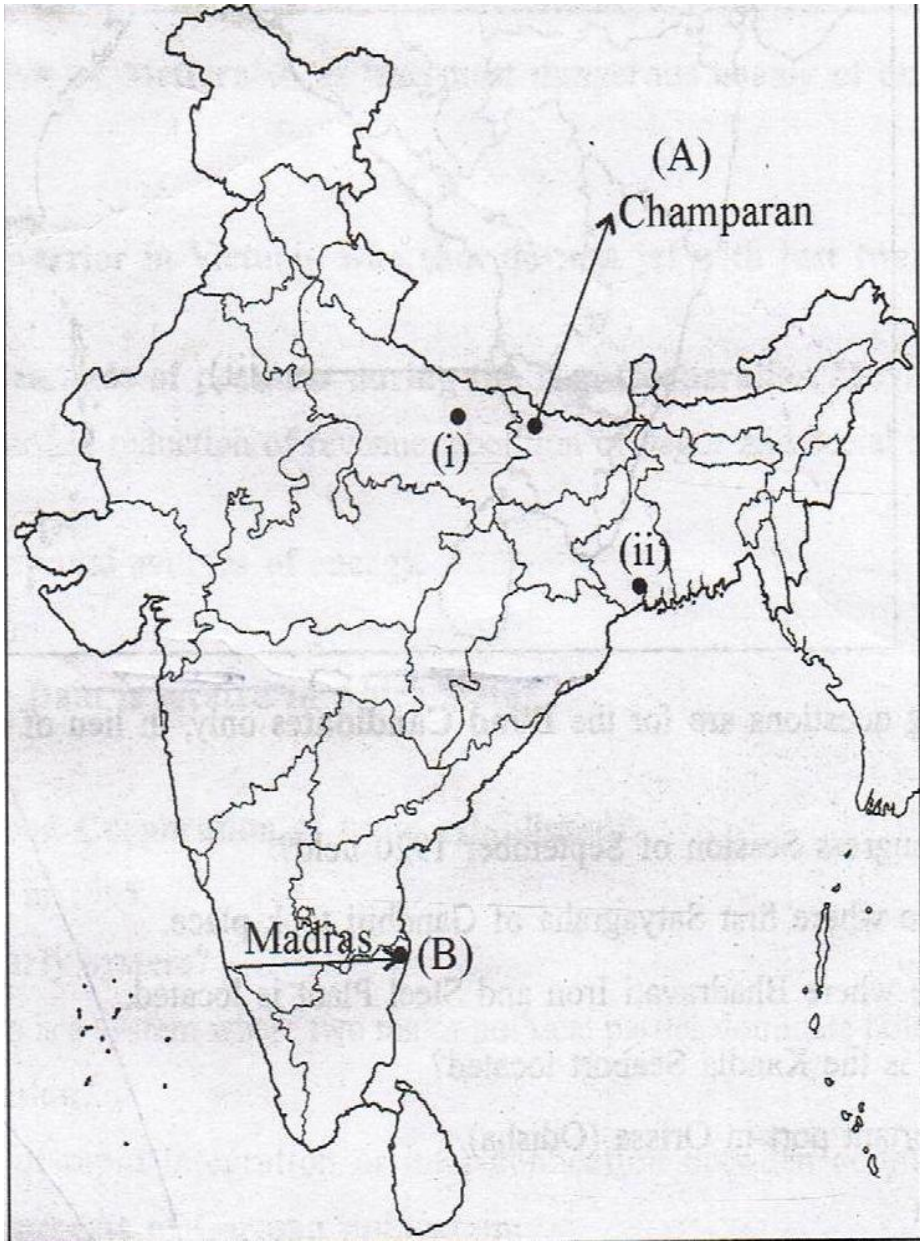
M.M: 80 Class: X, Social Science Time -3Hours

General Instructions:-

(1) The Questions Paper has 28 questions in all. All questions are compulsory.
(2) Questions from serial numbers 1 to 7 are very short Answer Questions each questions carries I mark.
(3) Questions from serial number 8 to 18 are 3 marks questions. Answer of these Questions should not exceed 80 words each.
(4) Questions from serial 19 to 25 are 5 are marks questions. Answer of these Questions should not exceed 120 words each.
(5) Question number 26, 27 & 28 are map questions of 2 marks from History and 3 marks from Geography. Attach the maps inside your answer book.

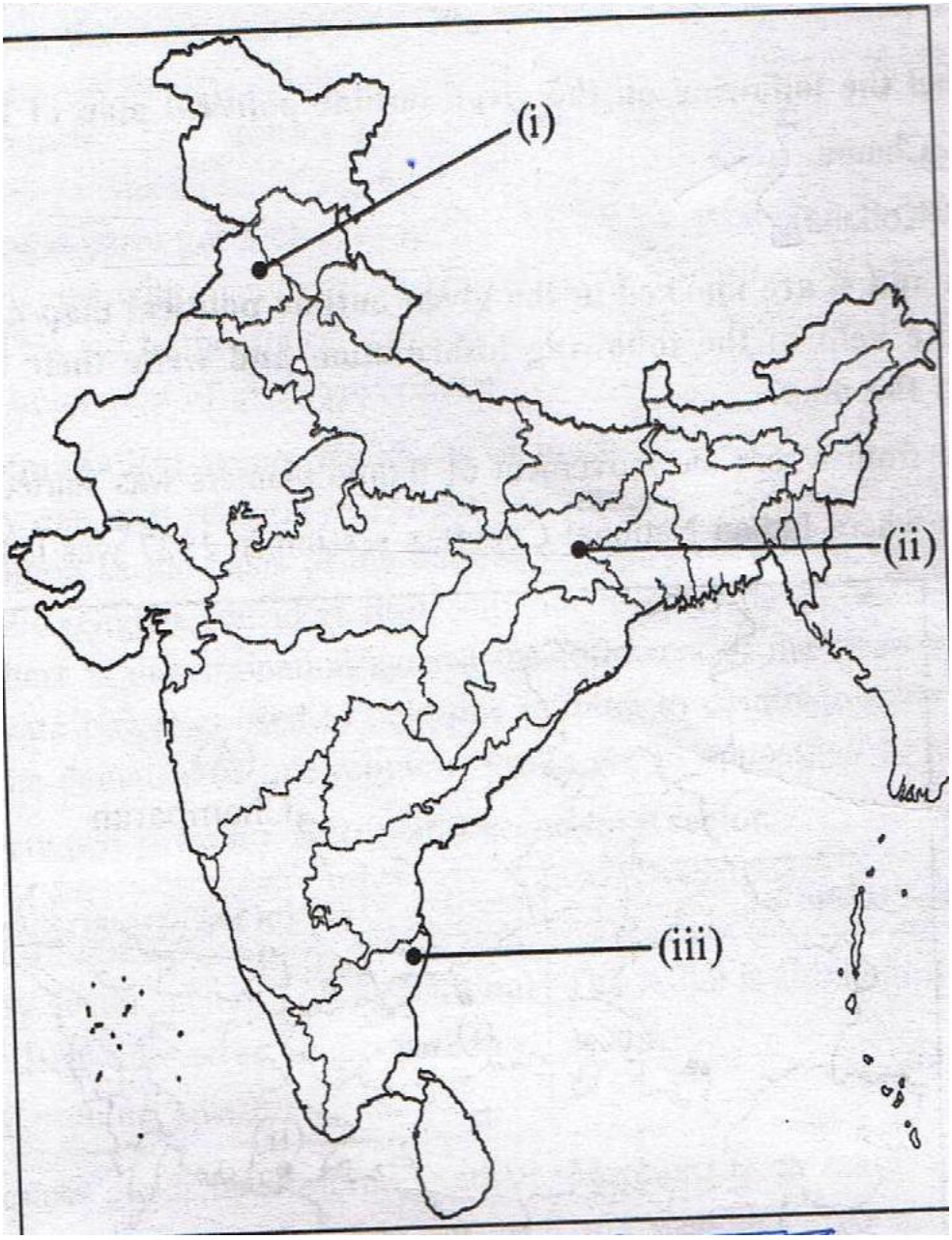
1. Who was made the first Chairman of Democratic Republic of Vietnam. (1)
2. Name the war that has been called the first television war. (1)
3. The first metro train was set up in which Indian city? (1)
4. Which state is the largest Producer of mineral oil? (1)
5. Which is the major source of irrigation in peninsular India? (1)
6. Which method is used to find out if an adult is undernourished? (1)
7. Who allots a symbol to the political parties? (1)
8. What were the results of the colonization of Vietnam by the French? (3)
9. Explain the two important factors that shaped Indian politics during the 1920s.(3)
10. Why is mica considered to be an indispensable mineral for the electronics industry?Mention the names of the main mica – producing areas of India.(3)
11. Mention any three problems faced by cotton textile industries in India. (3)
12. What is the difference between personal communication and mass communication? State any two points of importance of mass communication. (3)
13. How does Power sharing help in democracy? Mention three points. (3)
14. What could be the two possible outcomes of politics of social divisions?(3)
15. Some people think that democracy produces less efficient and effective Government. Do you agree with their views? (3)
16. What do the banks do with the public deposits ? Describe their Working mechanism? (3)
17. How does the Reserve Bank of india supervise the functioning of banks? Why is this Necessary ? (3)
18. Explain any thee ways in which MNCs set up or control production in other countries. (3)
19. What were the problems in reading handwritten manuscripts in india? (5)
20. Explain any three problems faced by the Indian weavers by the turn of the 19^{th} century.(5)
21. Mention four geographical requirements each for the growth of tea and sugarcane.(5)
22. How can you say that Power – sharing is more effective today than it was in the early years after the Constitution came into force ? (5)
23. How does communalism create problems in politics ? (5)

24. Distinguish between primary sector and secondary sector. (5)
25. What is tertiary sector ? who are employed in this sector ? (5)
26. Locate and label the following on the given outline political map of India.



27. Two features A and B are marked in the given outline political map of India Identify these Features with the help of the following information and write their correct names on the lines marked in the map.
(A) The place from where the movement of indigo planters was started.
(B) The place where Indian National Congress session in 1927 was held.(5)

28. Locate and label the following items on the same map with appropriate symbols.
(i) Mohali – Software Technology Park
(ii) Bokaro - Iron And Steel Industry
(iii) Kalpakkam Nuclear Power Plant


(i)
(ii)
(iii)
