

**SARASWATI INTER COLLEGE  
HOLIDAYS' HOMEWORK  
SESSION 2025-26  
CLASS – X**



**MATHEMATICS**

1) - Write twenty balanced chemical equation on A4 size chart paper.

2- Write activities 1.1 to 1.3 from chapter -1. (With chemical equation)

Q2 Answer the following questions

1) State one basic difference between physical change and chemical change?

2) What happens chemically when quicklime is added to water filled in a bucket?

3) What is meant by I) precipitation reaction give 2 example?

4) State the types of chemical reactions give 4 examples of each?

5) Describe an activity to demonstrate the change that takes place when white silver chloride is kept in sunlight. State the types of chemical reaction which takes place?

## PHYSICS

### ELECTRICITY

1. What does an electric circuit mean?
2. Define the unit of electric current.
3. Calculate the number of electrons in 1 coulomb of charge.
4. Name a device used to maintain potential difference across a conductor.
5. What is meant by saying that the potential difference between 2 points is 1 V?
6. How much energy is given to each coulomb of charge passing through a 6 V battery?
7. On what factors does the resistance of a conductor depend?
8. Will current flow more easily through a thick wire or a thin wire of the same material, when it is connected to the same source? Why?
9. Let the electrical resistance of an electrical component remain constant while the potential difference across the two ends decreases to half its former value. What change will occur in the current through it?
10. Why are coils of electric toasters and irons made of an alloy rather than of a pure metal?
11. A current of 0.5 A is drawn by a filament of an electric bulb for 10 minutes. Find the amount of electric charge that flows through the circuit.
12. How much work is done in moving a charge of 2 C across two points having a potential difference 12 V?
13. (a) How much current will an electric bulb draw from a 220 V source, if the resistance of the bulb filament is  $1200 \Omega$ ? (b) How much current will an electric heater coil draw from a 220 V source, if the resistance of the heater coil is  $100 \Omega$ ?
14. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 120 V?

15. Resistance of a metal wire of length 1 m is  $26 \Omega$  at  $20^\circ\text{C}$ . If the diameter of the wire is 0.3mm, what will be the resistivity of the metal at that temperature?

## BIOLOGY

1. The leaves of a plant first prepare “Food A” by photosynthesis then food A gets converted into “Food B” What are A and B?
2. What will happen to a plant if its xylem is removed?
3. Why do the walls of trachea do not collapse when there is less air in it?
4. Where is pyruvic acid converted into lactic acid during the deficiency of oxygen in tissues of human being?
5. Where does oxygen come from when it is liberated during photosynthesis?
6. If salivary amylase is lacking in saliva which event in the mouth cavity will be affected?
7. Name the organ that performs the following functions in humans
  - a) Absorption of digested food
  - b) Excretion of nitrogenous waste
8. How does respiration occur in the leaves?
9. What are the common features of all respiratory organs?
10. What is the role of guard cells in transpiration?

## HINDI

काव्य खण्ड-

1. पद
2. राम-लक्ष्मण परशुराम सवांद
3. आत्मकथ्य
4. उत्साह, अट नहीं रही है

5. यह दंतुरित मुस्कान, फसल

6. संगतकार

गद्य-खण्ड

7. नेताजी का चश्मा

8. बालगोविन भगत

9. लखनवी अंदाज

10. एक कहानी यह भी

11. नौबतखाने में इबादत

12. संस्कृति

(सभी पाठ के 10-10 प्रश्न और उत्तर पिछले प्रश्न पत्रों में से लिखें और याद करें)

② A4 आकार सीट पर किसी भी विषय का विज्ञापन तैयार करें।

[12:58, 5/16/2025] Chandan Sir Sic Pratihast: 10th UP ( Hindi )

1. पिछले प्रश्न पत्र के बहुविकल्पीय प्रश्न लिखिए। (लगभग 150) और याद करो।

2. किन्ही एक लेखक का जीवन परिचय तथा लेखक का चित्र चार्ट पर बनायें।

3. मोहल्ले में गंदगी बढ़ने हेतु नगर निगम अध्यक्ष को शिकायती पत्र।

4. आप रमेश/अशोक, व्यास कॉलोनी, अजमेर, राजस्थान के निवासी हैं। अपने छोटे भाई शशांक के कक्षा अध्यापक के पत्र से आपको पता चला कि आपका छोटा भाई विद्यालय में अनुपस्थित रहता है। अपने छोटे भाई को लगभग 100 शब्दों में पत्र लिखिए कि वह अपने स्कूल में सदा उपस्थित रहे और परीक्षा की भली-भाँति तैयारी करें।

**CHEMISTRY**

## Assignment Questions

- 1) - Write twenty balanced chemical equation on A4 size chart paper.
- 2- Write activities 1.1 to 1.3 from chapter -1. (With chemical equation)

### Q2 Answer the following questions

- 1) State one basic difference between physical change and chemical change?
- 2) What happens chemically when quicklime is added to water filled in a bucket?
- 3) What is meant by I) precipitation reaction give 2 example?
- 4) State the types of chemical reactions give 4 examples of each?
- 5) Describe an activity to demonstrate the change that takes place when white silver chloride is kept in sunlight. State the types of chemical reaction which takes place?

## BIOLOGY

1. Draw any of human's body system(digestive /respiratory/circulatory/excretory) on chart paper.
2. Complete all intext and ncert questions of chapter 'LIFE PROCESS ' in your fair copy.
3. Read and make notes of chapter 'CONTROL AND COORDINATION '.
4. Why do herbivores have longer, small intestine than carnivores?
5. Write the balanced chemical equation for the process of photosynthesis.
6. How photosynthesis occurs in desert plants?
7. In single celled organisms diffusion is sufficient to meet all their requirements of food, exchange of gases or removal of wastes but it is not in case of multicellular organisms. Explain the reason for this difference.

## PHYSICS

1. Complete intext questions, NCERT questions, examples and numerical of chapter 'ELECTRICITY' in your fair copy.
2. Draw a chart pair on any suitable topic from electricity.
3. Read chapter 'LIGHT' and highlight important points.
4. What is the power of torch bulb rated at 2.5V and 500mA?
5. Why series arrangement not used for connecting domestic electrical appliances in a circuit?
6. Which has higher resistance – a 50W bulb or a 2.5W bulb and how many times?
7. What is the direction of flow of conventional current?
8. Why is it not advisable to handle electrical appliances with wet hands?
9. Two electric bulbs marked 100W 220V and 200W 200V have tungsten filament of same length. Which of the two bulbs will have thicker filament?
10. How does the resistance of a wire vary with its area of cross section?
11. Draw the following symbols
  - i) Battery
  - ii) Switch closed
  - iii) Resistor of resistance R
  - iv) Voltmeter

## **SOCIAL SCIENCE**

**Instructions: Divide your time wisely across the 4 subjects.**

**Complete all tasks neatly in your Social Science notebook or a separate folder. Add maps, drawings, or pictures wherever required.**

### **GEOGRAPHY –**

Resources and Development (Ch 1 Revision).

Prepare a mind map of all types of resources (natural, human-made, human).

Draw and color a resource distribution map of India (forest, water, minerals).

Research and write a report on one local resource in your area – its usage, overuse, and conservation tips. Create a poster on sustainable development (use slogans and images).

### **HISTORY –**

The Rise of Nationalism in Europe (Ch 1 Revision).

Write a short biography of Giuseppe Mazzini or Otto von Bismarck.

Make a timeline of major events from 1789 to 1871 related to European nationalism.

Create a comic strip or storyboard showing the unification of Italy or Germany.

Practice 5 map work questions from the chapter.

### **POLITICAL SCIENCE –**

Power Sharing (Ch 1 Revision).

Make a comparison chart between Belgium and Sri Lanka (language, ethnicity, governance).

Prepare a speech: “Why power sharing is essential in democracy”.

Write 5 HOTS (Higher Order Thinking Skills) questions and answers from the chapter.

Create a role play script on a discussion between leaders of Sri Lanka and Belgium.

### **ECONOMICS –**

Development (Ch 1 Revision)

Interview 2 people (family or neighbors) on what development means to them. Write answers.

Prepare a development comparison chart between any two states of India (like Kerala & Bihar).

Make a bar graph showing literacy rate, income, and life expectancy of 5 countries.

Create a newspaper front page with 3 fictional articles on development success stories.

Revise all four chapters and prepare 10 quiz questions (2 or 3 from each chapter).

## Introduction to Trigonometry

### 1 Mark:

1. If  $3x = \operatorname{cosec} \theta$  and  $\frac{3}{x} = \cot \theta$ , find the value of  $3 \left( x^2 - \frac{1}{x^2} \right)$ . CBSE 2010, Delhi (30/1/1)
2. If  $6x = \sec \theta$  and  $\frac{6}{x} = \tan \theta$ , find the value of  $9 \left( x^2 - \frac{1}{x^2} \right)$ . CBSE 2010, Foreign (30/2/1)
3. If  $\sec^2 \theta (1 + \sin \theta)(1 - \sin \theta) = k$ , then find the value of  $k$ . CBSE 2009, Outside Delhi (30/1)
4. If  $\sin \theta = \frac{1}{3}$ , then find the value of  $(2 \cot^2 \theta + 2)$ . CBSE 2009, Delhi (30/1/1)
5. If  $\sec A = \frac{15}{7}$  and  $A + B = 90^\circ$ , find the value of  $\operatorname{cosec} B$ . CBSE 2009, Foreign (30/2/1)
6. What is the maximum value of  $\frac{1}{\sec \theta}$ ? CBSE Sample Paper III 2008
7. If  $\tan A = \frac{3}{4}$  and  $A + B = 90^\circ$ , then what is the value of  $\cot B$ ? CBSE Sample Paper III 2008
8. Given  $\tan \theta = \frac{1}{\sqrt{5}}$ , what is the value of  $\frac{\operatorname{cosec}^2 \theta - \sec^2 \theta}{\operatorname{cosec}^2 \theta + \sec^2 \theta}$  CBSE Sample Paper I 2008
9. If  $\tan A = \frac{5}{12}$ , find the value of  $(\sin A + \cos A) \sec A$ . CBSE 2008, Foreign (30/2/1), (30/2/3)
10. If  $\cos A = \frac{7}{25}$ , find the value of  $\tan A + \cot A$ . CBSE 2008, Foreign (30/2/2)

### 2 Marks :

1. Without using trigonometric tables, find the value of the following expression:  

$$\frac{\sec(90^\circ - \theta) \cdot \operatorname{cosec} \theta - \tan(90^\circ - \theta) \cdot \cot \theta + \cos^2 25^\circ + \cos^2 65^\circ}{3 \tan 27^\circ \cdot \tan 63^\circ}$$
 CBSE 2010, Delhi (30/1/1)
2. Find the value of  $\operatorname{cosec} 30^\circ$ , geometrically. CBSE 2010, Delhi (30/1/1)
3. Without using trigonometric tables, find the value of the following:  

$$\cot \theta \cdot \tan(90^\circ - \theta) - \sec(90^\circ - \theta) \cdot \operatorname{cosec} \theta + \sqrt{3} \cdot \tan 12^\circ \cdot \tan 60^\circ \cdot \tan 78^\circ$$
 CBSE 2010, Foreign (30/2/1)
4. Find the value of  $\sec 45^\circ$  geometrically. CBSE 2010, Foreign (30/2/1)
5. Simplify: 
$$\frac{\sin^3 \theta + \cos^3 \theta}{\sin \theta + \cos \theta} + \sin \theta \cos \theta$$
 CBSE 2009, Delhi (30/1/1)
6. If  $\cot \theta = \frac{15}{8}$ , then evaluate 
$$\frac{(2+2 \sin \theta)(1-\sin \theta)}{(1+\cos \theta)(2-2 \cos \theta)}$$
. CBSE 2009, Outside Delhi (30/1)
7. Find the value of  $\tan 60^\circ$ , geometrically. CBSE 2009, Outside Delhi (30/1)
8. Without using trigonometric tables, evaluate:  

$$\frac{7 \cos 70^\circ}{2 \sin 20^\circ} + \frac{3}{2 \tan 5^\circ \tan 25^\circ \tan 45^\circ \tan 85^\circ \tan 65^\circ} \cos 55^\circ \operatorname{cosec} 35^\circ$$
 CBSE 2009, Foreign (30/2/1)
9. Express  $\sin 67^\circ + \cos 75^\circ$  in terms of trigonometric ratios of angles between  $0^\circ$  and  $45^\circ$  CBSE Sample Paper II 2008
10. If  $A, B, C$  are interior angles of  $\Delta ABC$ , then show that  

$$\cos \left( \frac{B+C}{2} \right) = \sin \frac{A}{2}$$
 CBSE Sample Paper II 2008
11. Without using trigonometric tables, find the value of 
$$\frac{\cos 70^\circ}{\sin 20^\circ} + \cos 57^\circ \operatorname{cosec} 33^\circ - 2 \cos 60^\circ$$
 CBSE Sample Paper I 2008
12. If  $\sec 4A = \operatorname{cosec}(A - 20^\circ)$ , where  $4A$  is an acute angle, find the value of  $A$ . CBSE 2008, Foreign (30/2/1), (30/2/3)

13. In a  $\Delta ABC$ , right-angled at  $C$ , if  $\tan A = \frac{1}{\sqrt{3}}$ , find the value of  $\sin A \cos B + \cos A \sin B$  CBSE 2008, Foreign (30/2/1), (30/2/3)

14. If  $\sec 2A = \operatorname{cosec}(A - 42^\circ)$ , where  $2A$  is an acute angle, find the value of  $A$ . CBSE 2008, Foreign (30/2/2)

15. In  $\Delta ABC$ , right angled at  $A$ , if  $\tan C = \sqrt{3}$ , find the value of  $\sin B \cos C + \cos B \sin C$ . CBSE 2008, Foreign (30/2/2)

### 3 Marks:

1. Prove the following:  

$$\frac{\tan A}{1-\cot A} + \frac{\cot A}{1-\tan A} = 1 + \tan A + \cot A$$
 CBSE 2010, Delhi (30/1/1)

2. Prove the following:  

$$(\operatorname{cosec} A - \sin A)(\sec A - \cos A) = \frac{1}{\tan A + \cot A}$$
 CBSE 2010, Delhi (30/1/1)

3. If  $\tan \theta + \sin \theta = m$  &  $\tan \theta - \sin \theta = n$ , show that  $m^2 - n^2 = 4\sqrt{mn}$ . CBSE 2010, Foreign (30/2/1)

4. Show that:  

$$\left(1 + \frac{1}{\tan^2 \theta}\right) \left(1 + \frac{1}{\cot^2 \theta}\right) = \frac{1}{\sin^2 \theta - \sin^4 \theta}$$
 CBSE 2010, Foreign (30/2/1)

5. Find the value of  $\sin 30^\circ$  geometrically. CBSE 2009, Delhi (30/1/1)

6. Without using trigonometrical tables, evaluate:  

$$\frac{\cos 58^\circ}{\sin 32^\circ} + \frac{\sin 22^\circ}{\cos 68^\circ} - \frac{\cos 30^\circ \operatorname{cosec} 52^\circ}{\tan 18^\circ \tan 35^\circ \tan 60^\circ \tan 72^\circ \tan 55^\circ}$$
 CBSE 2009, Delhi (30/1/1)

7. Prove that  

$$\sec^2 \theta - \frac{\sin^2 \theta - 2 \sin^4 \theta}{2 \cos^4 \theta - \cos^2 \theta} = 1$$
 CBSE 2009, Foreign (30/2/1)

8. Evaluate:  

$$\frac{2}{3} \operatorname{cosec}^2 58^\circ - \frac{2}{3} \cot 58^\circ \tan 32^\circ - \frac{5}{3} \tan 13^\circ \tan 37^\circ \tan 45^\circ \tan 53^\circ \tan 77^\circ$$
 CBSE 2009, Outside Delhi (30/1)

9. Prove that:  $(1 + \cot A + \tan A)(\sin A - \cos A) = \sin A \tan A - \cot A \cos A$ . CBSE 2008, Foreign (30/2/1), (30/2/2), (30/2/3)

10. Without using trigonometric tables, evaluate the following:  

$$2 \left( \frac{\cos 58^\circ}{\sin 32^\circ} \right) - \sqrt{3} \left( \frac{\cos 38^\circ \operatorname{cosec} 52^\circ}{\tan 15^\circ \tan 60^\circ \tan 75^\circ} \right)$$
 CBSE 2008, Foreign (30/2/1), (30/2/2), (30/2/3)

11. Prove that  

$$\frac{\sin \theta}{\cot \theta + \operatorname{cosec} \theta} = 2 + \frac{\sin \theta}{\cot \theta - \operatorname{cosec} \theta}$$
 CBSE Sample Paper III 2008

12. Evaluate  

$$\frac{\sec 29^\circ}{\operatorname{cosec} 61^\circ} + 2 \cot 8^\circ \cot 17^\circ \cot 45^\circ \cot 73^\circ \cot 82^\circ - 3(\sin^2 38^\circ + \sin^2 52^\circ)$$
 CBSE Sample Paper III 2008

13. Prove that  

$$\sqrt{\frac{\sec A - 1}{\sec A + 1}} + \sqrt{\frac{\sec A + 1}{\sec A - 1}} = 2 \operatorname{cosec} A$$
 CBSE Sample Paper II 2008

14. Prove that:  $\frac{1+\cos A}{\sin A} + \frac{\sin A}{1+\cos A} = 2 \operatorname{cosec} A$  CBSE Sample Paper I 2008

15. Prove that:  $\frac{\sin A + \cos A}{\sin A - \cos A} + \frac{\sin A - \cos A}{\sin A + \cos A} = \frac{2}{\sin^2 A - \cos^2 A}$  CBSE Sample Paper I 2008

## Previous Year Boards Questions

### Chapter 5 – Arithmetic Progressions

#### 1 Mark:

- Find the 17th term from the end of the AP: 1, 6, 11, 16 ... ... 211, 216. CBSE Sample Paper 2017
- What is the common difference of an A.P. in which  $a_{21} - a_7 = 84$ ? Mathematics 2017 (30/1)
- Find the tenth term of the sequence  $\sqrt{2}, \sqrt{8}, \sqrt{18}, \dots$  CBSE Sample Paper 2016
- For what value of  $k$  will the consecutive terms  $2k + 1, 3k + 3$  and  $5k - 1$  form an A.P.? CBSE 2016, Foreign (30/2/1)
- Find the 9<sup>th</sup> term from the end (towards the first term) of the A.P. 5, 9, 13, ... ..., 185. CBSE 2016, Delhi (30/1/1)
- For what value of  $k$  will  $k + 9, 2k - 1$  and  $2k + 7$  are the consecutive terms of an A.P.? CBSE 2016, Outside Delhi (30/1)
- If the common difference of an AP is 3, then what is  $a_{15} - a_9$ ? CBSE Sample Paper 2015
- Find the 25<sup>th</sup> term of the A.P.  $-5, \frac{-5}{2}, 0, \frac{5}{2}, \dots$  CBSE 2015, Foreign (30/2/1)
- If  $k, 2k - 1$  and  $2k + 1$  are three consecutive terms of an A.P., the value of  $k$  is  
A) 2      B) 3      C) -3      D) 5  
CBSE 2014 (30/1), (30/2), (30/3)
- The common difference of the AP  $\frac{1}{p}, \frac{1-p}{p}, \frac{1-2p}{p}, \dots$  is: CBSE 2013, Delhi (30/1/1)  
A)  $p$       B)  $-p$       C)  $-1$       D) 1
- If the  $n^{\text{th}}$  term of an A. P. is  $(2n + 1)$ , then the sum of its first three terms is  
A)  $6n + 3$       B) 15      C) 12      D) 21  
CBSE 2012, Outside Delhi (30/1)
- The next term of the A. P.  $\sqrt{18}, \sqrt{50}, \sqrt{98}, \dots$  is  
A)  $\sqrt{146}$       B)  $\sqrt{128}$       C)  $\sqrt{162}$       D)  $\sqrt{200}$ CBSE 2012, Foreign (30/2/1)
- The sum of first 20 odd natural numbers is:  
A) 100      B) 210      C) 400      D) 420CBSE 2012, Delhi (30/1/1)
- If the common difference of an A.P. is 3, then  $a_{20} - a_{15}$  is  
A) 5      B) 3      C) 15      D) 20CBSE 2011 Outside Delhi (30/1)
- The value of  $a_{30} - a_{20}$  for the A.P. 2, 7, 12, 17, ... is  
A) 100      B) 10      C) 50      D) 20CBSE 2011, Foreign (30/2/1)
- In an AP, if  $d = -2$ ,  $n = 5$  and  $a_n = 0$ , then the value of  $a$  is  
A) 10      B) 5      C) -8      D) 8CBSE 2011, Delhi (30/1/1)
- If the sum of first  $m$  terms of an A.P. is  $2m^2 + 3m$ , then what is its second term?  
CBSE 2010, Foreign (30/2/1)
- If the sum of first  $p$  terms of an A.P., is  $ap^2 + bp$ , find its common difference.  
CBSE 2010, Delhi (30/1/1)

19. If  $\frac{4}{5}, a, 2$  are three consecutive terms of an A.P., then find the value of  $a$ .

CBSE 2009, Outside Delhi (30/1)

20. For what value of  $k$ , are the numbers  $x, 2x + k$  and  $3x + 6$  three consecutive terms of an A.P.?

CBSE 2009, Foreign (30/2/1)

21. For what value of  $p$ , are  $2p - 1, 7$  and  $3p$  three consecutive terms of an A.P.?

CBSE 2009, Delhi (30/1/1)

22. The first term of an A.P. is  $p$  and its common difference is  $q$ . Find its 10<sup>th</sup> term.

CBSE 2008 (30/2/1), (30/2/2), (30/2/2)

23. Which term of the sequence 114, 109, 104, ... is the first negative term? CBSE Sample Paper I 2008

## 2 Marks:

1. Find the sum of all natural numbers that are less than 100 and divisible by 4.

CBSE Sample Paper 2017

2. If seven times the 7<sup>th</sup> term of an A.P. is equal to eleven times the 11<sup>th</sup> term, then what will be its 18<sup>th</sup> term? CBSE 2017, Foreign (30/2/1)

3. Find how many integers between 200 and 500 are divisible by 8. CBSE 2017, Delhi (30/1/1)

4. Which term of the progression  $20, 19\frac{1}{4}, 18\frac{1}{2}, 17\frac{3}{4}, \dots$  is the first negative term? CBSE 2017, Outside Delhi (30/1)

5. How many two digit numbers are divisible by 7? CBSE Sample Paper 2016

6. If the ratio of sum of the first  $m$  and  $n$  terms of an A.P. is  $m^2 : n^2$ , show that the ratio of its  $m^{\text{th}}$  and  $n^{\text{th}}$  terms is  $(2m - 1) : (2n - 1)$ . CBSE 2016, Foreign (30/2/1)

7. How many terms of the A.P. 18, 16, 14, ... be taken so that their sum is zero? CBSE 2016, Delhi (30/1/1)

8. The 4<sup>th</sup> term of an A.P. is zero. Prove that the 25<sup>th</sup> term of the A.P. is three times its 11<sup>th</sup> term. CBSE 2016, Outside Delhi (30/1)

9. Find the 4<sup>th</sup> term from the end of the A.P.  $-11, -8, -5, \dots, 49$ . CBSE Sample Paper 2015

10. In an AP, if  $S_5 + S_7 = 167$  and  $S_{10} = 235$ , then find the AP, where  $S_n$  denotes the sum of its first  $n$  terms. CBSE 2015, Outside Delhi (30/1)

11. The fourth term of an A.P. is 11. The sum of the fifth and seventh terms of the A.P. is 34. Find its common difference. CBSE 2015, Foreign (30/2/1)

12. Find the middle term of the A.P. 6, 13, 20, ..., 216. CBSE 2015, Delhi (30/1/1)

13. Find the number of natural numbers between 101 and 999 which are divisible by both 2 and 5. CBSE 2014 (30/1), (30/2), (30/3)

14. How many three-digit natural numbers are divisible by 7? CBSE 2013 Delhi (30/1/1)

15. How many two-digit numbers are divisible by 3? CBSE 2012, Outside Delhi (30/1)

16. In an AP, the first term is 12 and the common difference is 6. If the last term of the A.P. is 252, find its middle term. CBSE 2012, Foreign (30/2/1)

17. Find the sum of all three digit natural numbers, which are multiples of 11. CBSE 2012, Delhi (30/1/1)

18. Find how many two-digit numbers are divisible by 6. **CBSE 2011, Outside (30/1)**

19. Find whether  $-150$  is a term of the AP  $17, 12, 7, 2, \dots$ ? **CBSE 2011, Delhi (30/1/1)**

20. In an AP, the first term is  $-4$ , the last term is  $29$  and the sum of all its terms is  $150$ . Find its common difference. **CBSE 2010 Foreign (30/2/1)**

21. In an AP, the first term is  $2$ , the last term is  $29$  and sum of the terms is  $155$ . Find the common difference of the A.P. **CBSE 2010 Delhi (30/1/1)**

22. Which term of the A.P.  $3, 15, 27, 39, \dots$  will be  $120$  more than its  $21^{\text{st}}$  term? **CBSE 2009 Outside Delhi (30/1)**

23. The  $17^{\text{th}}$  term of an A.P. exceeds its  $10^{\text{th}}$  term by  $7$ . Find the common difference. **CBSE 2009 Foreign (30/2/1)**

24. If  $S_n$ , the sum of first  $n$  terms of an A.P. is given by  $S_n = 3n^2 - 4n$ , then find its  $n^{\text{th}}$  term. **CBSE 2009 Delhi (30/1/1)**

### 3 Marks:

1. The sum of first six terms of an A.P. is  $42$ . The ratio of its  $10^{\text{th}}$  term to its  $30^{\text{th}}$  term is  $1 : 3$ . Find the first term of the A.P. **CBSE Sample Paper 2017**

2. Find the sum of the following series:  
 $5 + (-41) + 9 + (-39) + 13 + (-37) + 17 + \dots + (-5) + 81 + (-3)$ . **CBSE 2017, Foreign (30/2/1)**

3. If  $m^{\text{th}}$  term of an A.P. is  $\frac{1}{n}$  and  $n^{\text{th}}$  term is  $\frac{1}{m}$ , then find the sum of its first  $mn$  terms. **CBSE 2017, Delhi (30/1/1)**

4. Find the sum of  $n$  terms of the series  $\left(4 - \frac{1}{n}\right) + \left(4 - \frac{2}{n}\right) + \left(4 - \frac{3}{n}\right) + \dots$  **CBSE 2017, Delhi (30/1/1)**

5. The first term of an A.P. is  $5$ , the last term is  $45$  and the sum of all its terms is  $400$ . Find the number of terms and the common difference of the A.P. **CBSE 2017, Outside Delhi (30/1)**

6. In an A.P., the sum of first  $n$  terms is  $\frac{3n^2}{2} + \frac{13n}{2}$ . Find the  $25^{\text{th}}$  term. **CBSE Sample Paper 2016**

7. The ninth term of an A.P. is equal to seven times the second term and twelfth term exceeds five times the third term by  $2$ . Find the first term and the common difference. **CBSE Sample Paper 2016**

8. Divide  $56$  in four parts in A.P. such that the ratio of the product of their extremes ( $1^{\text{st}}$  and  $4^{\text{th}}$ ) to the product of means ( $2^{\text{nd}}$  and  $3^{\text{rd}}$ ) is  $5 : 6$ . **CBSE 2016, Foreign (30/2/1)**

9. If the sum of first  $7$  terms of an A.P. is  $49$  and that of its first  $17$  terms is  $289$ , find the sum of first  $n$  terms of the A.P. **CBSE 2016, Delhi (30/1/1)**

10. If the ratio of the sum of first  $n$  terms of two A.P.s is  $(7n + 1) : (4n + 27)$ , find the ratio of their  $m^{\text{th}}$  terms. **CBSE 2016, Outside Delhi (30/1)**

11. Find the sum of the two middle most terms of the AP  $\frac{-4}{3}, -1, \frac{-2}{3}, \dots, 4\frac{1}{3}$  **CBSE Sample Paper 2015**

12. The  $14^{\text{th}}$  term of an AP is twice its  $8^{\text{th}}$  term. If its  $6^{\text{th}}$  term is  $-8$ , then find the sum of its first  $20$  terms. **CBSE 2015, Outside Delhi (30/1)**

13. In an A.P., if the  $12^{\text{th}}$  term is  $-13$  and the sum of its first four terms is  $24$ , find the sum of its first ten terms. CBSE 2015, Foreign (30/2/1)

14. If  $S_n$ , denotes the sum of first  $n$  terms of an A.P., prove that  $S_{12} = 3(S_8 - S_4)$ . CBSE 2015, Delhi (30/1/1)

15. The sum of the first seven terms of an AP is  $182$ . If its  $4^{\text{th}}$  and the  $17^{\text{th}}$  terms are in the ratio  $1:5$ , find the AP. CBSE 2014, Outside Delhi (30/3)

16. The sum of the  $2^{\text{nd}}$  and the  $7^{\text{th}}$  terms of an AP is  $30$ . If its  $15^{\text{th}}$  term is  $1$  less than twice its  $8^{\text{th}}$  term, find the AP. CBSE 2014, Outside Delhi (30/2)

17. The sum of the  $5^{\text{th}}$  and the  $9^{\text{th}}$  terms of an AP is  $30$ . If its  $25^{\text{th}}$  term is three times its  $8^{\text{th}}$  term, find the A.P. CBSE 2014, Outside Delhi (30/1)

18. Find the number of terms of the AP  $18, 15\frac{1}{2}, 13, \dots, -49\frac{1}{2}$  and find the sum of all its terms. CBSE 2013, Delhi (30/1/1)

19. Find the sum of all multiples of  $7$  lying between  $500$  and  $900$ . CBSE 2012, Outside Delhi (30/1)

20. Find the sum of first  $40$  positive integers divisible by  $6$ . CBSE 2012, Foreign (30/2/1)

21. If  $4$  times the fourth term of an A. P. is equal to  $18$  times its  $18^{\text{th}}$  term, then find its  $22^{\text{nd}}$  term. CBSE 2012, Foreign (30/2/1)

22. The  $17^{\text{th}}$  term of an AP is  $5$  more than twice its  $8^{\text{th}}$  term. If the  $11^{\text{th}}$  term of the AP is  $43$ , then find the  $n^{\text{th}}$  term. CBSE 2012, Delhi (30/1/1)

23. Find an A.P. whose fourth term is  $9$  and the sum of its sixth term and thirteenth term is  $40$ . CBSE 2011, Outside Delhi (30/1)

24. Find the sum of first  $n$  terms of an A.P. whose  $n^{\text{th}}$  term is  $5n - 1$ . Hence find the sum of first  $20$  terms. CBSE 2011, Foreign (30/2/1)

25. Find the value of the middle term of the following AP  $-6, -2, 2, \dots, 58$ . CBSE 2011, Delhi (30/1/1)

26. Determine the AP whose fourth term is  $18$  and the difference of the ninth term from the fifteenth term is  $30$ . CBSE 2011, Delhi (30/1/1)

27. The sum of the first sixteen terms of an A.P. is  $112$  and the sum of its next fourteen terms is  $518$ . Find the A.P. CBSE 2010, Foreign (30/2/1)

28. In an A.P., the sum of first ten terms is  $-150$  and the sum of its next ten terms is  $-550$ . Find the A.P. CBSE 2010, Delhi (30/1/1)

29. The sum of first six terms of an arithmetic progression is  $42$ . The ratio of its  $10^{\text{th}}$  term to its  $30^{\text{th}}$  term is  $1 : 3$ . Calculate the first and the thirteenth term of the A.P. CBSE 2009, Outside Delhi (30/1)

30. If  $9^{\text{th}}$  term of an A.P. is zero, prove that its  $29^{\text{th}}$  term is double of its  $19^{\text{th}}$  term. CBSE 2009, Foreign (30/2/1)

31. The sum of 4th and 8th terms of an A.P. is  $24$  and sum of 6th and 10th terms is  $44$ . Find A.P. CBSE 2009, Delhi (30/1/1)

32. For what value of  $n$  are the  $n^{\text{th}}$  terms of two A.P.s  $63, 65, 67, \dots$  and  $3, 10, 17, \dots$  equal? CBSE 2008 (30/2/1), (30/2/2), (30/2/3)

33. If  $m$  times the  $m$ th term of an A.P. is equal to  $n$  times its  $n$ th term, find the  $(m + n)$ th term of the A.P.  
**CBSE 2008 (30/2/1), (30/2/2), (30/2/3)**

34. In an A.P., the first term is 8,  $n$ th term is 33 and sum to first  $n$  terms is 123. Find  $n$  and  $d$ , the common difference.  
**CBSE 2008, Foreign (30/2/1)**

35. A contract on construction job specifies a penalty for delay of completion beyond a certain date as follows: Rs. 200 for 1st day, Rs. 250 for second day, Rs. 300 for third day and so on. If the contractor pays Rs. 27750 as penalty, find the number of days for which the construction work is delayed.  
**CBSE Sample Paper 2008**

**4 marks:**

1. A manufacturer of TV sets produced 600 units in the 3<sup>rd</sup> year and 700 units in the 7<sup>th</sup> year. Assuming that, production increases uniformly by a fixed number of units every year. Find  
I. The production in 1<sup>st</sup> year.  
II. The production in 10<sup>th</sup> year.  
III. The total production in 7 years.  
**CBSE Sample Paper 2017**

2. If  $1 + 4 + 7 + 10 + \dots + x = 287$ , find the value of  $x$ .  
**CBSE 2017, Foreign (30/2/1)**

3. A child puts one five-rupee coin of her saving in the piggy bank on the first day. She increases her saving by one five-rupee coin daily. If the piggy bank can hold 190 coins of five rupees in all, find the number of days she can continue to put the five-rupee coins into it and find the total money she saved. Write your views on the habit of saving.  
**CBSE 2017, Foreign (30/2/1)**

4. The ratio of the sums of first  $m$  and first  $n$  terms of an A.P. is  $m^2 : n^2$ . Show that the ratio of its  $m^{th}$  and  $n^{th}$  terms is  $(2m - 1) : (2n - 1)$ .  
**CBSE 2017, Delhi (30/1/1)**

5. If the ratio of the sum of the first  $n$  terms of two A.P.s is  $(7n + 1) : (4n + 27)$ , then find the ratio of their 9<sup>th</sup> terms.  
**CBSE 2017, Outside Delhi (30/1)**

6. The minimum age of children to be eligible to participate in a painting competition is 8 years. It is observed that the age of youngest boy was 8 years and the ages of rest of participants are having a common difference of 4 months. If the sum of ages of all the participants is 168 years, find the age of eldest participant in the painting competition.  
**CBSE Sample Paper 2016**

7. Reshma wanted to save at least ₹ 6,500 for sending her daughter to school next year (after 12 months). She saved ₹ 450 in the first month and raised her saving by ₹ 20 every next month. How much will she be able to save in next 12 months? Will she be able to send her daughter to the school next year? What value is reflected in this question?  
**CBSE 2016, Foreign (30/2/1)**

8. A thief runs with a uniform speed of 100 m/minute. After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will catch the thief.  
**CBSE 2016, Delhi (30/1/1)**

9. The houses in a row are numbered consecutively from 1 to 49. Show that there exists a value of  $X$  such that sum of numbers of houses preceding the house numbered  $X$  is equal to sum of the numbers of houses following  $X$ .  
**CBSE 2016, Outside Delhi (30/1)**

10. Yasmeen saves Rs.32 during the first month, Rs.36 in the second month and Rs.40 in the third month. If she continues to save in this manner, in how many months she will save Rs.2000, which she has intended to give for the college fee of her maid's daughter. What value is reflected here.  
**CBSE Sample Paper 2015**

11. Find the  $60^{\text{th}}$  term of the AP  $8, 10, 12, \dots$ , if it has a total of 60 terms and hence find the sum of its last 10 terms. **CBSE 2015, Outside Delhi (30/1)**

12. Find the middle term of the sequence formed by all three-digit numbers which leave a remainder 3, when divided by 4. Also find the sum of all numbers on both sides of the middle term separately. **CBSE 2015, Foreign (30/2/1)**

13. Ramkali required ₹ 2500 after 12 weeks to send her daughter to school. She saved ₹ 100 in the first week and increased her weekly saving by ₹ 20 every week. Find whether she will be able to send her daughter to school after 12 weeks. What value is generated in the above situation? **CBSE 2015, Delhi (30/1/1)**

14. In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in the school and each class has two sections, find how many trees were planted by the students. Which value is shown in this question? **CBSE 2014 (30/1), (30/2), (30/3)**

15. If the sum of first 7 terms of an AP is 49 and that of first 17 terms is 289, find the sum of its first  $n$  terms. **CBSE 2013, Delhi (30/1/1)**

16. Find the common difference of an A.P. whose first term is 5 and the sum of its first four terms is half the sum of the next four terms. **CBSE 2012, Outside Delhi (30/1)**

17. The sum of  $4^{\text{th}}$  and  $8^{\text{th}}$  terms of an A.P. is 24 and the sum of its  $6^{\text{th}}$  and  $10^{\text{th}}$  terms is 44. Find the sum of first ten terms of the A.P. **CBSE 2012, Foreign (30/2/1)**

18. Sum of the first 14 terms of an AP is 1505 and its first term is 10. Find its 25th term. **CBSE 2012, Delhi (30/1/1)**

19. The first and the last terms of an A.P. are 8 and 350 respectively. If its common difference is 9, how many terms are there and what is their sum? **CBSE 2011, Outside Delhi (30/1)**

20. How many multiples of 4 lie between 10 and 250? Also find their sum. **CBSE 2011, Outside Delhi (30/1)**

21. In an A.P., if the  $6^{\text{th}}$  and  $13^{\text{th}}$  terms are 35 and 70 respectively, find the sum of its first 20 terms. **CBSE 2011, Foreign (30/2/1)**