

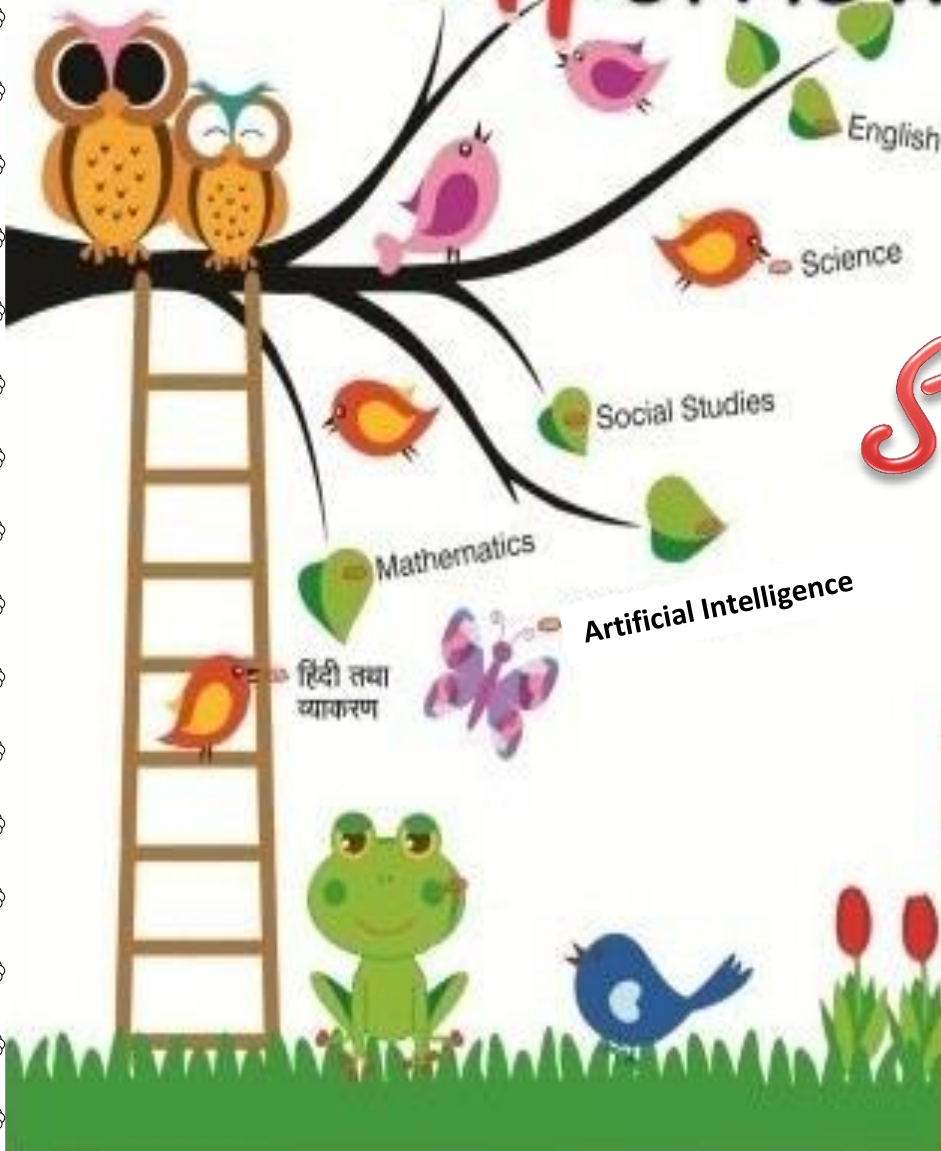


BCM School, Pakhowal Road,  
Basant City, Ludhiana

# Holidays Homework

2023

STD. X



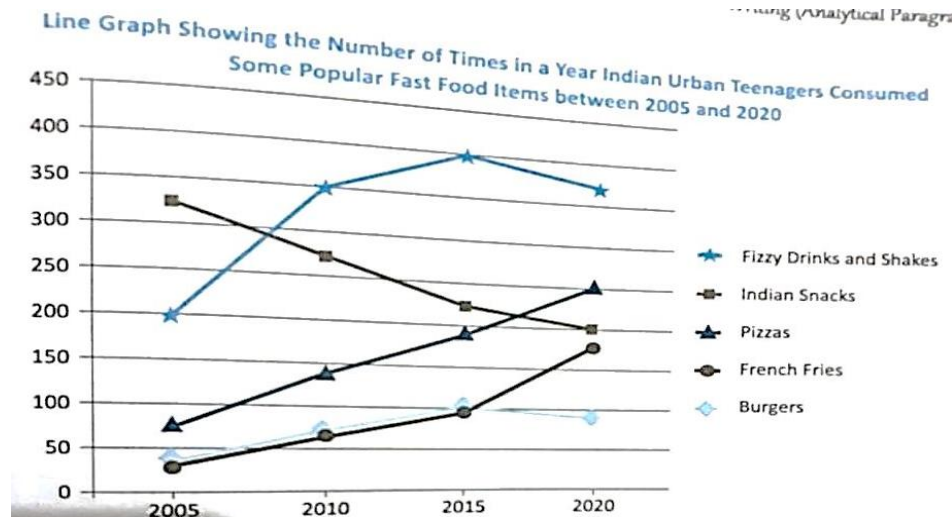
# ENGLISH

- A. Read 1 to 5 Unseen passages from bbc Compacta and solve them.
- B. The best part about cooking without fire is that it is healthy, easy and quick and can be made as your mood permits. Try any non-fire cooking recipe. Mention the ingredients and procedure of making that recipe in detail using passive voice. Write and decorate it on A4 size sheet.
- C. Write a paragraph on any one of the following topics in about 150 words:
- ❖ Man and the Environment.
  - ❖ Family time imbibes Values in Children.
  - ❖ Cultural diversification between Punjab and Odisha
- D. Analytical Paragraphs in 120- 150 words. (Do on A4 size sheets to put in English folder).

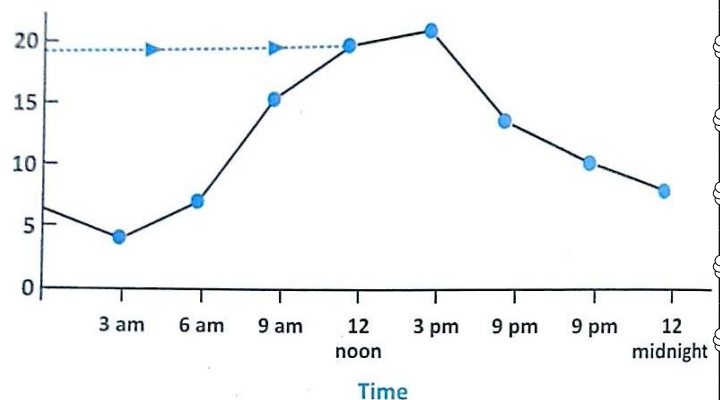
1. The table below shows the average daily consumption of coffee and tea on weekdays by six employees in a company. Study the information carefully and then write a paragraph analyzing the data. Make comparison and draw conclusion as appropriate.

Employee	Coffee		Tea		Total No. of Cups	
	AM	PM	AM	PM	Coffee	Tea
Bhushan	0	0	2	2	0	4
Chaitali	1	2	0	0	3	0
Evan	1	1	1	1	2	2
Mahmood	0	0	2	3	0	5
Sukhwinder	2	0	0	2	2	2
Mohanani	2	2	0	0	4	0

2. The line graph below shows the consumption of fast food by Indian urban teenagers between 2005 and 2020. Study the information carefully and then write an analytical paragraph.



3. The line graph shows temperature fluctuations on a particular day in a city. Carefully study the information and then write a paragraph analyzing the data.



- E. Make a picture illustration of the poem 'Dust of Snow' on A4 size sheet and maintain it in English File.
- F. Complete all the Assignments of Gap Filling in bbc Compacta.
- G. Revise rules of Tenses and Determiners and do Practice from bbc Compacta.
- H. Read Chapter no 3 to 5 of 'First Flight'.
- I. Prepare a File Folder ( Portfolio ) of English and put all the activities ( Point B,C,D & E ) of English in it.

# CHEMISTRY

1. Complete lab manual.
2. Make project on different types of salts, their preparation and uses.
3. Solve the given assignment of chapter 2 and write answers in your notebook.

## Assignment Chapter-2 (Acid, Base, Salts)

### MCQ

1. Which Acid is present in Tomato?  
(A) Citric Acid (B) Oxalic Acid (C) Lactic Acid (D) HCl
2. Which of the following is a strong acid?  
(A) HCl pH 1 (B)  $\text{CH}_3\text{COOH}$  pH 5 (C) Lemon juice pH 2.2 (D) Pure Milk pH 6
3.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  is known as –  
(A) Baking soda (B) Baking powder (C) Washing soda (D) Bleaching powder
4. pH value less than 7 indicates that the solution is –  
(A) Acidic (B) Basic (C) Neutral (D) No effect
5. Which of the following is neutral salt?  
(A)  $\text{NH}_4\text{Cl}$  (B)  $\text{CH}_3\text{COONH}_4$  (C)  $\text{CH}_3\text{COONa}$  (D)  $\text{Na}_2\text{CF}$
6. Farmers neutralise the effect of Acidity on the soil by adding –  
(A) Slaked lime (B) Gypsum (C) Caustic soda (D) Baking soda
7. Which of the following are present in a dilute Aqueous solution of hydrochloric acid?  
(A)  $\text{H}_3\text{O} + \text{Cl}^-$  (B)  $\text{H}_3\text{O} + \text{OH}^-$  (C)  $\text{Cl}^- + \text{OH}^-$  (D) Unionised HCl
8.  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ : In this Compound, the water molecule is called –  
(A) Pure water (B) Water of crystallization (C) Soda water (D) None of these
9. Aqueous solution turns the red litmus solution blue. Excess addition of which of the following solutions would reverse the change?  
(A) Baking powder (B) Lime (C) Ammonium hydroxide solution (D) Hydrochloric acid
10. Which pH range does our body work to survive in the atmosphere?  
(A) 5.5 to 8.5 (B) 7.0 to 7.8 (C) 2.3 to 7.0 (D) 7.5 to 12.5
11. What happens when a solution of an acid is mixed with a solution of a base in a test tube?  
(i) The temperature of the solution increases (ii) The temperature of the solution decreases  
(iii) The temperature of the solution remains the same (iv) Salt formation takes place  
(A) (i) only (B) (i) and (iii) (C) (ii) and (iii) (D) (i) and (iv)
12. Which salt is acidic in nature?  
(A)  $\text{NH}_4\text{Cl}$  (B)  $\text{CH}_3\text{COONH}_4$  (C) NaCl (D)  $\text{Na}_2\text{CO}_3$
13. When a base reacts with a metal, it forms a salt, and hydrogen gas is released. By what method can the presence of hydrogen be detected?  
(A) by water (B) by litmus paper (C) by methyl orange (D) by a burning candle
14. Sodium carbonate reacts with hydrochloric acid and produces –  
(A) NaCl (B)  $\text{CO}_2$  (C)  $\text{H}_2\text{O}$  (D) All of the above
- 15....Which acid is present in tamarind?  
(A) Tartaric acid (B) Oxalic Acid (C) Lactic Acid (D) Citric Acid

### Important questions.....

Q1. What will be the action of the following substances on litmus paper?

Dry HCl gas	Moistened $\text{NH}_3$ gas	Lemon juice
Carbonated soft drinks	Curd	Soap solution

Q2. Name the acid present in ant sting and give its chemical formula. Also, give the common method to get relief from the discomfort caused by the ant sting.

Q3. What happens when nitric acid is added to the eggshells?

Q4. Student prepared solutions of (i) an acid and (ii) a base in two separate beakers. She forgot to label the solutions, and litmus paper was not available in the laboratory. Since both the solutions are colourless, how will she distinguish between the two?

Q5. How would you distinguish between baking powder and washing soda by heating?

Q6. Salt A is commonly used in bakery products on heating gets converted into another salt B, which is used to remove the hardness of water, and a gas C is evolved. The gas C, when passed through lime water, turns it milky. Identify A, B and C.

- Q7. One of the industrial processes used to manufacture sodium hydroxide, a gas X is formed as a byproduct. The gas X reacts with lime water to give a compound Y used as a bleaching agent in the chemical industry. Identify X and Y giving the chemical equation of the reactions involved.
- Q8. What are strong and weak acids? In the following list of acids, separate strong acids from weak acids. Hydrochloric acid, citric acid, acetic acid, nitric acid, formic acid, sulphuric acid.
- Q9. When zinc metal is treated with a dilute solution of a strong acid, a gas is evolved, which is utilised in the hydrogenation of oil. Name the gas evolved. Write the chemical equation of the reaction involved and also write a test to detect the gas formed.
- Q10. Metal carbonate X reacting with acid gives a gas that gives the carbonate back when passed through a solution Y. On the other hand, a gas G obtained at the anode during electrolysis of brine is passed on dry Y, it gives a compound Z, used for disinfecting drinking water. Identify X, Y, G and Z.

## **PHYSICS**

1. Draw a Labelled diagram of human eye.
2. Write functions of following parts of human eye:
  - a) Cornea
  - b) Iris
  - c) Pupil
  - d) ciliary Muscles
  - e) Eye lens
  - f) Retina
  - g) Optic nerve
3. What is the cause of night blindness and colour blindness?
4. How do ciliary muscles help in adjusting focal length of human eye ?
5. Define Power of accomodation of human eye.
6. What is Myopia ? Write it's causes? How could it be corrected? Explain with help of labelled diagram.

## **BIOLOGY**

1. Complete your lab manual.
2. Read the chapter Control and coordination and frame atleast 30 questions. Write in bio notebook.
3. Draw well labelled diagrams of
  1. Excretory System
  2. Heart
  3. Respiratory System
  4. Neuron
 Draw diagrams on A4 sheets.
4. Prepare a project on MANAGEMENT OF NATURAL RESOURCES.

## **SOCIAL SCIENCE**

1. Compare the image of Bharat Mata and Germania on A4 size sheet. (From roll no. 1 to 6)
2. Draw National Flag used during Swadeshi movement on A4 size sheet. (From roll no. 7 to 12)
3. Prepare the chart on classification of sectors with the help of pictures. (From roll no. 13 to 19)
4. Prepare a chart on different cropping seasons. (From roll no. 20 to 25)
5. Compare the Organized and Unorganized sector with the help of picture. (From roll no 26 to 30)
6. Compare the employment opportunities in three sectors in the form of Bar Graph. (From roll no. 31 onwards)
7. Map Work: (Common for all the students)
  - i. Types of soils (use colours for different soils) Chapter-1
  - ii. Major Dams Chapter – 3 (Water Resources) Dams:
 

a. Salal	b. Bhakra Nangal	c. Tehri
d. Rana Pratap Sagar	e. Sardar Sarovar	f. Hirakud
g. Nagarjuna Sagar	h. Tungabhadra	
  - iii. Major Crops Chapter-4(Agriculture)
    - a. Major areas of Rice and Wheat
    - b. Largest/Major producer states of Sugarcane, Tea, Coffee, Rubber, Cotton and Jute.
8. Draw a sample of cheque on A4 size sheet. (Common for all students)
9. Art Integrated Activity:- (Common for all Students)  
Compare the soil type and crops of Punjab and Andhra Pradesh with the help of pictures.
10. Project Work (List is attached)

## TOPICS FOR PROJECT SESSION

- ✓ Students will choose the topic according to their Roll No.
- ✓ Any project submitted that is not according to the Roll Number will not be accepted.

Roll No	Topic for Project
1	CONSUMER RIGHTS
2	SUSTAINABLE DEVELOPMENT – NEED OF THE HOUR
3	DRUG ADDICTION
4	CHILD LABOUR
5	ILLEGAL IMMIGRATION
6	HUMAN RIGHTS VIOLATION
7	TERRORISM
8	INEQUALITY ON THE BASIS OF GENDER
9	COMMUNALISM
10	ECOLOGICAL CRISIS
11	ILLITERACY – LACK OF EDUCATIONAL FACILITY
12	CONQUERING DISEASES
13	CRIME AGAINST WOMEN
14	REVERSING POVERTY
15	NATURAL DISASTER
16	MAN MADE DISASTERS
17	STANDARDIZATION OF PRODUCT
18	CONSUMER RIGHTS
19	SUSTAINABLE DEVELOPMENT – NEED OF THE HOUR
20	DRUG ADDICTION
21	CHILD LABOUR
22	ILLEGAL IMMIGRATION
23	HUMAN RIGHTS VIOLATION
24	TERRORISM
25	INEQUALITY ON THE BASIS OF GENDER
26	COMMUNALISM
27	ECOLOGICAL CRISIS
28	ILLITERACY – LACK OF EDUCATIONAL FACILITY
29	CONQUERING DISEASES
30	CRIME AGAINST WOMEN
31	REVERSING POVERTY
32	NATURAL DISASTER
33	MANMADE DISASTERS
34	ECOLOGICAL CRISIS
35	TERRORISM
36	IMPACT OF COVID19
37	CHILD LABOUR

**FORMAT OF PROJECT:**



**BCM SCHOOL**

**BASANT CITY, LUDHIANA**

**SOCIAL SCIENCE PROJECT REPORT**

**SESSION – 2023–2024**

**TOPIC**

**Submitted To:**

**Submitted By:**

**Name:-** .....

**Class:-** .....

**Roll No.:-** .....

**BCM SCHOOL, BASANT CITY, LUDHIANA**

**DEPARTMENT OF SOCIAL SCIENCE**

**CERTIFICATE**

This is to certify that \_\_\_\_\_(name of student), a student of class X has successfully conducted the report on the project \_\_\_\_\_(topic of Project) under the guidance of \_\_\_\_\_(Subject Teacher) during the year 2023 – 2024 in partial fulfillment of SOCIAL Science practical examination conducted by AISSE, New Delhi.

Name of Examiner

Name of Subject Teacher

\_\_\_\_\_

\_\_\_\_\_

Signature of Examiner

Signature of Subject Teacher

\_\_\_\_\_

\_\_\_\_\_

## ACKNOWLEDGEMENT

In the present world of competition there is a race of existence in which those are having will to come forward succeed. Project is like a bridge between theoretical and practical working. With this willing I joined this particular project.

First of all, I am grateful to The Almighty God for establishing me to complete this project.

I wish to express my sincere thanks to **Mr. J.P. Singh (Principal) of BCM School, Basant City, Ludhiana** for providing me with all necessary facilities.

I place on record, my sincere gratitude to **Mrs. KIRAN GARG (Coordinator)** for his constant encouragement.

I also thank \_\_\_\_\_ (Social Science Teacher), Department of Social Science. I am extremely grateful and indebted to him for his expert, sincere and valuable guidance and encouragement extended to me.

I take this opportunity to record my sincere thanks to all the faculty members for their help and encouragement. I also thank my parents for their unceasing encouragement and support.

I also place on record my sense of gratitude to one and all who directly or indirectly have lent their helping in this venture.



# INDEX (TABLE OF CONTENTS)

Sr. No.	Content	Page No.
1	Introduction	1

**Page No. 5–18**

INTRODUCTION AND SUBJECT MATTER ALONG WITH PICTURES, MAPS AND GRAPH

**Page No. 19 –SUMMARY**

**Page No. 20 –BIBLIOGRAPHY**

**Special Note:-**

- ✓ The project should have a good presentation and creativity.
- ✓ Use single line assignment sheets for your project report.
- ✓ Use glitter pens if necessary.
- ✓ Decorate your file in well manner.

Natural Disasters

1.	Floods	Roll No. 1 – 4
2.	Landslides	Roll No. 5 – 8
3.	Earthquake	Roll No. 9 – 12
4.	Volume Eruption	Roll No. 13 – 16
5.	Cloud Burst	Roll No. 17 – 20
6.	Forest Fire	Roll No. 21 – 24

Man-Made Disasters

1.	Nuclear Explosion	Roll No. 25 – 28
2.	Industrial Accidents	Roll No. 29 – 32
3.	Pollution	Roll No. 33 – 36
4.	Cyber Attacks	Roll No. 37 – 40
5.	Terrorism	Roll No. 40 onwards

## HINDI

- 1 किन्ही पाँच सुषिर वाद्ययंत्र बजाने वाले कलाकारों पर परियोजना बनाए।
- 2 पंजाब और आंध्र प्रदेश राज्य के संगीत और वाद्ययंत्रों का कोलाज तैयार करे।
- 3 दो व्यवसायिक (commercial) और दो लोक कल्याण (Non commercial) विज्ञापन तैयार करें।
- 4 चार औपचारिक और चार अनौपचारिक पत्र लिखें।

### (GRAMMAR)

#### श्लेष अलंकार

जब काव्य में कोई शब्द एक ही बार आता है, परंतु उसके एक से अधिक अर्थ होते हैं तब वहाँ श्लेष अलंकार होता है जैसे सुबरन को खोजत फिरत, कवि व्यभिचारी चोर।

यहाँ सुबरन शब्द का एक बार प्रयोग हुआ है, परंतु उसके एक से अधिक अर्थ प्रकट हो रहे हैं-

सुबरन-सुंदर वर्ण या अक्षर-कवि के संबंध में

सुंदर रूप-रंग - व्यभिचारी के संबंध में

स्वर्ण या सोना-चोर के संबंध में

#### उत्प्रेक्षा अलंकार-

जहाँ प्रस्तुत (उपमेय) पर अप्रस्तुत (उपमान) का भेद रूप आरोप होता है, वहाँ उत्प्रेक्षा अलंकार होता है। अर्थात् उपमेय और उपमान की गुण, धर्म की समानता के कारण समान होने की संभावना कर ली जाती है या उपमेय को उपमान जैसा मान लिया जाता है।

पहचान- उत्प्रेक्षा अलंकार में वाचक शब्द मानो, मनहुँ, जानो, जनहुँ, ज्यों, जनु जैसे आदि का प्रयोग होता है, जैसे- सोहत ओढे पीत-पट स्याम सलौने गाता।

मनहुँ नीलमणि सैल पर आतप परयौ प्रभात।

यहाँ श्रीकृष्ण के सुंदर श्याम मे नीलमणि पर्वत की और उनके शरीर पर लिपटे हुए पीतंबर मे प्रभात की धूप की मनोरम संभावना की कल्पना की गई है। इसमें वाचक शब्द मनहुँ है। इसलिए यहाँ उत्प्रेक्षा अलंकार है

#### अतिशयोक्ति अलंकार

जहाँ किसी बात को इतना बढ़ा-चढ़ाकर कहा जाए कि जिसका होना सामान्य और असामान्य स्थितियों में संभव न हो, वहाँ अतिशयोक्ति अलंकार होता है। जैसे

हनुमान की पूँछ में, लगन न पाई आग।

लंका सिगरी जल गई, गए निशाचर भाग।

#### मानवीकरण अलंकार

जहाँ जड़ पदार्थ को जीवमत मानव की तरह कार्य करते हुए दिखाया जाता है, वहाँ मानवीकरण अलंकार होता है।

मेघ आए बड़े बन-ठनकर सँवर के

यहाँ मेघ को शहरी मेहमान के रूप में प्रस्तुत करने से मानवीकरण अलंकार है।

प्र 1 निम्नलिखित पंक्तियों में निहित अलंकारों को पहचानकर उनके नाम लिखिए-

- 1 मधुवन की छाती को देखो, सूखी इसकी कितनी कलियाँ।
- 2 हरषाया ताल लाया पानी परात भरके।
- 3 सिर फट गया उसका वहीं मानो अरूण रंग का घड़ा।
- 4 बारे उजियारो करे बड़े अँधेरो होया।
- 5 है वसुंधरा बिखरे देती, मोती सबके सोने पर।
- 6 पानी गए न ऊबरै मोती, मानुष, चून।
- 7 बोली अकुलाई लता ओट हो किवार की
- 8 मनहुँ रंक निधि लूटल लागी।
- 9 मानो तरु भी झूम रहे हैं मंद पवन के झोंकों से।
- 10 हैं कई पत्थर किनारे, पी रहे चुपचाप पानी।

## PUNJABI

- 1.ਆਪਣੀ ਪਾਠ ਪੁਸਤਕ ਵਿਚ ਦਰਜ ਇਕਾਂਗੀ ਦੂਜਾ ਵਿਆਹ ਵਿਚਲੀਆਂ ਮੁੱਖ ਸਮਾਜਿਕ ਸਮੱਸਿਆਵਾਂ ਨੂੰ ਸਮਝੋ ਤੇ ਲਿਖੋ।
- 2.ਆਪਣੇ ਸਕੂਲ ਮੈਗਜ਼ੀਨ ਲਈ 'ਸਫਲਤਾ' ਵਿਸ਼ੇ ਨੂੰ ਦਰਸਾਉਂਦੀ ਕਹਾਣੀ ਲਿਖੋ।
- 3.ਆਪਣੀ ਵਿਆਕਰਨ ਪਾਠ ਪੁਸਤਕ ਵਿਚ ਦਰਜ ਗ ਤੋਂ ਝ ਤਕ ਮੁਹਾਵਰੇ ਪੜ੍ਹੋ ਤੇ ਯਾਦ ਕਰੋ।
4. ਆਪਣੀ ਪਾਠ ਪੁਸਤਕ ਵਿੱਚੋਂ ਸਮਾਸੀ ਸ਼ਬਦ, ਬਹੁ ਅਰਥਕ ਸ਼ਬਦ, ਅਗੇਤਰ ਪਛੇਤਰ ਨੂੰ ਧਿਆਨਪੂਰਵਕ ਪੜ੍ਹੋ ਤੇ ਯਾਦ ਕਰੋ।
- 5.ਕੋਈ ਇੱਕ ਇੱਕ ਨਿੱਜੀ, ਦਫਤਰੀ ਤੇ ਬਿਨੈ ਪੱਤਰ ਲਿਖੋ।

ਹੇਠ ਲਿਖੇ ਵਿਸ਼ਿਆਂ ਤੇ ਲੇਖ ਲਿਖੋ।

- ਮਨ ਜੀਤੈ ਜਗੁ ਜੀਤੁ
- ਹਰਿਆਵਲ ਲਹਿਰ ਲੋੜ ਤੇ ਸਾਰਥਕਤਾ।
- ਬੇਟੀ ਬਚਾਓ, ਬੇਟੀ ਪੜ੍ਹਾਓ

ਹੇਠ ਲਿਖੇ ਵਿਸ਼ੇ ਤੇ ਪ੍ਰਾਜੈਕਟ ਬਣਾਓ:-

ਪੰਜਾਬ ਤੇ ਆਂਧਰਾ ਪ੍ਰਦੇਸ਼ ਦੇ ਪਹਿਰਾਵੇ ਤੇ ਰਸਮ-ਰਿਵਾਜਾਂ ਨੂੰ ਦਰਸਾਉਂਦਾ ਕੋਲਾਜ਼ ਬਣਾਓ।

## ARTIFICIAL INTELLIGENCE

Q1. Prepare a presentation using PowerPoint/Canva/Google Slides (Minimum 15 Slides) on one of the following Topic according to the mentioned roll numbers:

Roll No. 1 - 11	Artificial Intelligence Applications present and future with special mention on any three latest applications useful for students.
Roll No. 12 - 22	Applications and Drawbacks of Artificial Intelligence
Roll No. 23 - 33	AI applications using Natural Language Processing giving special emphasis on various chatbots and virtual assistants.
Roll No. 34 - 44	SDG(Sustainable Development Goals) with special emphasis on its practical implementation around the world

Q2. Write advantages and disadvantages of various chatbots after comparing any 5 chatbots

Q3. Learn these important concepts:

- a) Evaluation methods: advantages and disadvantages of each method.
- b) Costly errors.
- c) List of factors which affects efficiency of prototypes.

# MATHEMATICS

- Solve the given assignment in your assignment notebook.
- Revise the syllabus covered in the month of April and May.
- Do the following activities in your practical notebook.

## Activities

1. To make a graphical exploration of zeroes of a quadratic polynomial.
2. For given a system of simultaneous linear equations graphically such that system is in-consistent.
3. To derive a formula for the sum of the first n natural numbers.
4. Given a sequence of numbers, to find out whether it is an arithmetic progression or not.
5. To verify Basic Proportionality Theorem.
6. To verify that the lengths of tangents drawn from an external point to a circle are equal.
7. To verify the fundamental identity:  
$$\sin^2 A + \cos^2 A = 1$$
8. To calculate the height of a tree by using trigonometry.
9. To derive the section formula.
10. To obtain a formula for the volume of sphere.

## Assignment (ch 1 to 5)

1. Split 207 into three parts such that these are in A.P. and the product of two smaller parts is 4623.
2. For what value of k,  $2k-7$ ,  $k+5$  and  $3k+2$  are three consecutive terms of A.P.?
3. Find the value of middle most term(s) of the A.P.  $-11, -7, -3, \dots, 49$
4. The sum of first m terms of an A.P. is  $4m^2 - m$ . If its nth term is 107, find the value of n. Also find the 21<sup>st</sup> term of this AP.
5. Find a, b and c such that the following numbers are in AP: a, 7, b, 23, c.
6. Solve for x:  $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$
7. If the equation  $(1+m^2)x^2 + 2mcx + c^2 - a^2 = 0$  has equal roots then show that  $c^2 = a^2(1+m^2)$
8. The sum of two numbers is 9 and the sum of their reciprocals is  $\frac{1}{2}$  Find the numbers.
9. Find the value of k for which the roots of equation  $3x^2 - 10x + k = 0$  are reciprocal of each other.
10. Find the value of p such that the quadratic equation  $(p-12)x^2 - 2(p-12)x + 2 = 0$  has equal roots.
11. What is the HCF of smallest composite number and smallest prime number?
12. LCM of coprime number is always \_\_\_\_\_.
13. What is HCF (a,b) = ? If  $a = x^3y^2$  and  $b = xy^3$ ; x and y are prime numbers.
14. If  $\text{LCM}(480, 672) = 3360$ , Find HCF (480, 672).
15. Explain why  $3 \times 5 \times 7 + 7$  is a composite number.
16. A circular field has a circumference of 360 km. Three cyclist start together and can 48, 60 and 72 km a day round the field. When will they meet again?
17. Prove that  $\sqrt{7}$  is irrational. Hence find  $2 - \sqrt{7}$  is also irrational.
18. If sum of LCM & HCF of two numbers is 1260 and their LCM is 900 more than their HCF. Find the product of two numbers.
19. If  $\alpha$  &  $\beta$  are zeroes of the polynomial  $2x^2 + 5x + k$  satisfying  $\alpha^2 + \beta^2 + \alpha\beta = 21/4$  then find the value of k.
20. If  $\alpha$  &  $\beta$  are zeroes of the polynomial  $x^2 + x - 2$ , then find the polynomial whose zeroes are  $(2\alpha+1)$  and  $(2\beta+1)$ .
21. Find the zeroes of  $p(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3}$  and verify relationship between zeroes and its coefficients.
22. Place A, B are 90 km apart. Car A starts at point A & car B at B if they go in same directions they meet after 9 hrs & in opposite direction in  $9/4$  hrs. Find their speed. S
23. Two pipes together can fill in  $3\frac{1}{13}$  hrs. If one pipe take 3 minutes more than other to fill the tank. Find the time taken by each separately.
24. Solve graphically the following pair of linear equations:  
 $2y - 3x = 14$ ;  $2x + 3y = 8$  Hence, shade the region enclosed by these lines and Y axis.
25. Rs 9000 were divided equally among a certain number of persons. Had there been 20 more persons, each would have got Rs 160 less. Find the original number of persons.

## CHAPTER 5 ARITHMETIC PROGRESSION

1 Which term of the AP:- 5,9,13,17.....is 81.

2 Find the 10th term from the end of the AP :- 4,9,14.....254 3 If

7th term of an AP is -4 and 13 term is -16 find the AP

4 Find k for which  $8k+4$ ,  $6k-2$  and  $2k+7$  are in AP.

5 If  $a=7$ ,  $a_{60} = 125$ , find  $a_{32}$ .

6 Find AP whose 3rd term is 16 and difference of 5th term from 7th term is 12. 7

Which term of the AP: 3,15,27,39.....will be 132 more than its 60th term.

8 The 7th term of an AP is 32 and its 13th term is 62. Find the AP. 9 If  $S_n = 4n^2 -$

$3n$ . Find its nth term.

9 Find the number of integers between 50 and 500 which are divisible by 7.

10 . If five times the 5th term of an A.P. is equal to 8 times the 8th term, show that its 13th term is zero.

11.The sum of 4th and 8th terms of an A.P. is 24 and the sum of the 6th and 10th terms is 34.Find the first term and the common difference of the A.P.

12.Which term of the A.P. 3, 11, 19,..... is 195 ?

13 .Find sum of the following series: (a)  $72 + 70 + 68 + \dots + 40$

(b)  $5 + 5.5 + 6 + \dots$  to 20 terms (c)  $-11 -5 + 1 + \dots$  to 10 terms

(d)  $-25 -21 -17 \dots$  to 24 terms

14 .Find the sum of the: (a) first 50 even numbers (b) first 50 odd numbers

15.How many terms of A.P.  $-6, -11/2, -5, \dots$  are needed to give the sum  $-25$  ?.

16.In an A.P., if the 5th and 12th terms are 30 and 65 respectively, what is the sum of first 20 terms?

17 A man saves Rs 32,000 during first year, Rs 36,000 in the next year and Rs 40,000 in the third year. If he continues his savings in this sequence, in how many years will he saves Rs 2,00,000 ?

18 .Find the middle term of A.P. 1, 4, 7, ....., 97.

19.The sum of three numbers in A.P. is 36 and the sum of their squares is 450. Find the numbers.

20Find the first negative term of the A.P. 2000, 1990, 1980, 1970,.....

- Q01. If a, b, c are in AP, then:  
 (a)  $a + c = 2b$       (b)  $b + a = 2c$       (c)  $c = \frac{a+b}{2}$       (d)  $a + c = b$
- Q02. Next term of the AP - 9, 11, 13, 15, ... is:  
 (a) 20      (b) 17      (c) 18      (d) 19
- Q03. The sum of 6<sup>th</sup> and 7<sup>th</sup> terms of an AP is 39 and the common difference is 3, then the first term of AP is:  
 (a) 2      (b) -3      (c) 4      (d) 3
- Q04. The sum of three numbers in AP is 30. If the greatest is 13 then, its common difference is:  
 (a) 2      (b) 4      (c) 5      (d) 3
- Q05. The 9<sup>th</sup> term from the end of the AP - 7, 11, 15, ..., 147 is:  
 (a) 135      (b) 125      (c) 115      (d) 110
- Q06. The sum of first 10 natural numbers is:  
 (a) 50      (b) 60      (c) 55      (d) 65
- Q07. The common difference of the AP -  $8\frac{1}{8}, 8\frac{2}{8}, 8\frac{3}{8}, \dots$  is:  
 (a)  $\frac{1}{8}$       (b)  $1\frac{1}{8}$       (c)  $8\frac{1}{8}$       (d) 1
- Q08. How many natural numbers up to 300 are divisible by 17?  
 (a) 13      (b) 15      (c) 17      (d) 19
- Q09. The sum of first n natural number is:  
 (a)  $0.5n(n+1)$       (b)  $\frac{n^2}{2}$       (c)  $n+2$       (d)  $0.5+(n+1)$
- Q10. The fifteenth term of the arithmetic progression -23, -19, -15, ... is:  
 (a) 30      (b) 31      (c) 32      (d) 33
- Q11. The first negative term of the AP -  $\frac{81}{5}, \frac{77}{5}, \frac{73}{5}, \dots$  is:  
 (a) 23      (b) 20      (c) 21      (d) 22
- Q12. The sum of n terms of an AP is  $n(n-1)$ , then the nth term will be:  
 (a) 2n      (b)  $2n-1$       (c)  $2n-2$       (d)  $2n-4$
- Q13. If 1<sup>st</sup> and 6<sup>th</sup> terms of an AP are -12 and 8 and, sum of n terms is 120, then the number of terms is:  
 (a) 10      (b) 11      (c) 12      (d) 13
- Q14. Which term of the AP - 21, 18, 15, ... is -78?  
 (a) 5<sup>th</sup>      (b) 53<sup>rd</sup>      (c) 37<sup>th</sup>      (d) 34<sup>th</sup>
- Q15. How many two-digit numbers are divisible by 3?  
 (a) 23      (b) 25      (c) 30      (d) 33
- Q16. How many terms of the A.P. - 9, 17, 25, ... must taken to give a sum of 636?  
 (a) 13      (b) 14      (c) 12      (d) 15
- Q17. The sum of the first 25 terms of an AP whose n<sup>th</sup> term is given by  $t_n = 2 - 3n$ , is:  
 (a) 925      (b) -925      (c) 875      (d) None of these
- Q18. If  $2x$ ,  $(x+10)$  and  $(3x+2)$  are in AP then  $x = \dots\dots?$   
 (a) 4      (b) 5      (c) 6      (d) 8
- Q19. The first term of an arithmetic progression is 6 and its common difference is 5. Then 8<sup>th</sup> term is:  
 (a) 5      (b) 41      (c) 46      (d) None of these
- Q20. In an AP if m times the m<sup>th</sup> term is equal to n times the n<sup>th</sup> term, then  $(m+n)$ <sup>th</sup> term is:  
 (a) 0      (b) 1      (c) 2      (d) 3
- Q21. If 1<sup>st</sup> term of an AP is m and common difference is n, then the tenth term is:  
 (a)  $(m+10n)$       (b)  $(m+9n)$       (c)  $(m-9n)$       (d)  $(2m+9)$
- Q22. The 10<sup>th</sup> term of the A.P. - 2, 7, 12, ... is:  
 (a) 47      (b) 74      (c) 37      (d) 43
- Q23. Which term of the A.P. - 21, 18, 15, ... is -81?  
 (a) 27      (b) 23      (c) 35      (d) None of these
- Q24. How many two digit numbers are divisible by 3?  
 (a) 25      (b) 30      (c) 37      (d) None of these
- Q25. What is the 11<sup>th</sup> term from last term of the AP - 10, 7, 4, ..., -62?  
 (a) -36      (b) -26      (c) -32      (d) -11
- Q26. The sum of first 24 terms of the list of numbers whose n<sup>th</sup> term is  $a_n = 3 + 2n$  :  
 (a) 642      (b) 6420      (c) 672      (d) None of these

- Q27. If  $(p+1)$ ,  $3p$ ,  $(4p+2)$  are in arithmetic progression then the value of  $p$  will be:  
 (a) 1 (b) 2 (c) 3 (d) 4
- Q28. If  $\frac{a^{n+1} + b^{n+1}}{a^n + b^n}$  is the arithmetic mean between 'a' and 'b', then value of  $n$  will be:  
 (a) 0 (b) 1 (c) -1 (d) Can't be determined
- Q29. The sum of all even numbers between 100 and 200 will be:  
 (a) 5640 (b) 7350 (c) 6750 (d) None of these
- Q30. The common difference of the AP whose general term is  $a_n = 2n + 1$  is:  
 (a) 1 (b) 2 (c) -2 (d) -1
- Q31. The number of terms in 2, 5, 8, ..., 59 is:  
 (a) 12 (b) 19 (c) 20 (d) 25
- Q32. The first positive term of the arithmetic progression  $-11, -8, -5, \dots$  is:  
 (a) -2 (b) 1 (c) -4 (d) 3
- Q33. The 4<sup>th</sup> term from the end of the AP given as 2, 5, 8, ..., 35 is:  
 (a) 29 (b) 26 (c) 23 (d) 32
- Q34. The 11<sup>th</sup> and 13<sup>th</sup> terms of an AP are 35 and 41 respectively. Its common difference is:  
 (a) 38 (b) 32 (c) 6 (d) 3
- Q35. The next term of the AP -  $\sqrt{8}, \sqrt{18}, \sqrt{32}, \dots$  is:  
 (a)  $5\sqrt{2}$  (b)  $2\sqrt{5}$  (c)  $3\sqrt{3}$  (d)  $5\sqrt{3}$
- Q36. If for an AP,  $a_5 + a_{25} = 56$ , then  $a_{15}$  is:  
 (a) 28 (b) 82 (c) 76 (d) 67
- Q37. Which of the following is not an AP?  
 (a) 1, 4, 7, ... (b) -5, -2, 1, ... (c) 3, 7, 12, 18, ... (d) 11, 14, 17, 20, ...
- Q38. The sum of the first 20 odd natural numbers is:  
 (a) 281 (b) 285 (c) 400 (d) 421
- Q39. The sum of first 20 natural numbers is:  
 (a) 110 (b) 170 (c) 190 (d) 210
- Q40. The sum of first 10 multiples of 7 is:  
 (a) 315 (b) 371 (c) 385 (d) 406
- Q41. The sum of the AP represented by 3, 7, 11, ... is 210. The number of terms in this AP is:  
 (a) 10 (b) 12 (c) 15 (d) 22
- Q42. The 30<sup>th</sup> term of AP - 10, 7, 4, ..., is:  
 (a) 97 (b) 7 (c) -77 (d) -97



Q43. 11<sup>th</sup> term of the arithmetic progression  $-3, -\frac{1}{2}, 2, \dots$ , is:

- (a) 28                      (b) 22                      (c) -38                      (d) -28

Q44. Which term of AP  $-3, 10, 17, \dots$  will be 84 more than its 13<sup>th</sup> term?

- (a)  $t_{25}$                       (b)  $t_{24}$                       (c)  $t_{22}$                       (d)  $t_{26}$

Q45. What is the sum of first  $n$  odd natural numbers?

- (a)  $n^2 - 1$                       (b)  $n^2$                       (c)  $n^2 - 2$                       (d) None of these

Q46. The sum of  $n$  terms of an AP is  $2n^2 + 3n$ . The sum of its first 10 terms is:

- (a) 230                      (b) 320                      (c) 420                      (d) 240

Q47. In an AP, the 3<sup>rd</sup> term is 4 times its 1<sup>st</sup> term and 6<sup>th</sup> term is 17. The first term is:

- (a) 2                      (b) 5                      (c) 8                      (d) 11

Q48. The sum of first  $n$  natural numbers and, first 14 natural numbers are, respectively:

- (a)  $\frac{n(n+1)}{2}, 105$                       (b)  $105, \frac{n(n+1)}{2}$                       (c)  $\frac{n(n+1)}{2}$                       (d) 105

Q49. If  $t_{10} - t_5 = 200$  then the common difference is:

- (a) 30                      (b) 40                      (c) 50                      (d) 60

Q50. How many 2 digit numbers are divisible by 5?

- (a) 18                      (b) 19                      (c) 21                      (d) 22

Q51. If the sides of a right angled triangle are in AP, then they will be equal to:

- (a) 2, 4, 5                      (b) 3, 4, 5                      (c) 1, 2, 3                      (d) 2, 3, 5

Q52. The sum of first 9 natural numbers is:

- (a) 54                      (b) 45                      (c) 90                      (d) 55

Q53. The sum of all the numbers between 1 and 1000, which are divisible by 5 but not by 2, is:

- (a) 101100                      (b) 50050                      (c) 50000                      (d) 10100

Q54. An arithmetic progression is such that the sum of first 8 numbers is  $-100$  and the c.d. is 1. For what value of  $n$  would the sum of first  $n$  numbers be  $-100$  again?

- (a) 25                      (b) 30                      (c) 24                      (d) There is no such value of  $n$ , other than  $n = 8$

Q55. The sum to 100 terms of  $(1 - 2 + 3 - 4 + 5 - \dots)$  is:

- (a)  $-500$                       (b)  $-50$                       (c)  $-100$                       (d)  $-1000$

## ANSWERS KEY

Q01. a	Q02. b	Q03. d	Q04. d	Q05. c	Q06. c	Q07. a
Q08. c	Q09. a	Q10. d	Q11. d	Q12. c	Q13. d	Q14. d
Q15. c	Q16. c	Q17. b	Q18. c	Q19. b	Q20. a	Q21. b
Q22. a	Q23. c	Q24. b	Q25. c	Q26. c	Q27. c	Q28. a
Q29. b	Q30. b	Q31. c	Q32. b	Q33. b	Q34. d	Q35. a
Q36. a	Q37. c	Q38. c	Q39. d	Q40. c	Q41. a	Q42. c
Q43. b	Q44. a	Q45. b	Q46. a	Q47. a	Q48. a	Q49. b
Q50. a	Q51. b	Q52. b	Q53. c	Q54. a	Q55. b	

☆ Multiple Choice Questions, with **only** one correct option.

- Q01. The general form of a quadratic equation is:  
(a)  $ax^2 + bx + c$       (b)  $ax^2 + bx + c = 0$       (c)  $a^2x + b$       (d)  $ax^2 + bx + c = 0, a \neq 0$
- Q02. The number of possible solutions of a quadratic equation are:  
(a) exactly two      (b) at most two      (c) at least two      (d) None of these
- Q03. The discriminant of the equation  $bx^2 + ax + c = 0, b \neq 0$  is given by:  
(a)  $\sqrt{b^2 - 4ac}$       (b)  $\sqrt{a^2 + 4bc}$       (c)  $\sqrt{a^2 - 4bc}$       (d)  $\sqrt{b^2 + 4ac}$
- Q04. If the roots of a quadratic equation are equal, then the discriminant is:  
(a) 1      (b) 0      (c) greater than 0      (d) less than 0
- Q05. The roots of  $3x^2 - 7x + 4 = 0$  are:  
(a) rationals      (b) irrationals      (c) positive integers      (d) negative integers
- Q06. The roots of equation  $x + \frac{16}{x} = 10$  are:  
(a) 4, 6      (b) 4, 4      (c) 4, 5      (d) 2, 8
- Q07. If  $\alpha, \beta$  are the roots of  $x^2 + px + q = 0$ , then the value of  $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$  is:  
(a)  $\frac{p^2 - 2q}{q}$       (b)  $\frac{2q - p^2}{q}$       (c)  $\frac{p^2 + 2q}{q}$       (d) None of these
- Q08. If the roots of  $ax^2 + bx + c = 0$  be equal, then the value of c is:  
(a)  $-\frac{b}{2a}$       (b)  $\frac{b}{2a}$       (c)  $-\frac{b^2}{4a}$       (d)  $\frac{b^2}{4a}$
- Q09. If the sum of the roots of an equation is 6 and one root is  $3 - \sqrt{5}$ , then the equation is:  
(a)  $x^2 - 6x + 4 = 0$       (b)  $x^2 - 4x + 6 = 0$       (c)  $x^2 - 6x + 5 = 0$       (d) None of these

Q10. If  $\alpha, \beta$  be the roots of  $ax^2 + bx + c = 0$ , then the value of  $\alpha^2 + \beta^2$  is:

- (a)  $\frac{b^2 - 2ac}{2a}$       (b)  $\frac{b^2 - 4ac}{2a}$       (c)  $\frac{b^2 - 2ac}{a^2}$       (d)  $\frac{b^2 + 4ac}{2ac}$

Q11. The quadratic equation whose roots are  $a, \frac{1}{a}$  is:

- (a)  $ax^2 - (a^2 + 1)x + a = 0$       (b)  $ax^2 - (a^2 - 1)x + a = 0$   
(c)  $ax^2 - (a^2 - 1)x - a = 0$       (d) None of these

Q12. The sum of the age of a son and his father is 35 years and the product is 150. Their ages are:

- (a) 15 years, 20 years      (b) 15 years, 10 years  
(c) 5 years, 30 years      (d) 6 years, 30 years

Q13. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. The speed of the train is:

- (a) 30 km/h      (b) 35 km/h      (c) 12 km/h      (d) 40 km/h

Q14. The value of  $x$  on solving  $\frac{x}{x-1} + \frac{x-1}{x} = 2\frac{1}{2}$  will be:

- (a) -2, 1      (b) -2, -1      (c) 2, -1      (d) None of these

Q15. What is the sum of the roots of the equation  $x(3x + 8) = 3$ ?

- (a)  $\frac{8}{3}$       (b)  $-\frac{8}{3}$       (c) 8      (d) 3

Q16. The roots of the equation  $\sqrt{2x+9} + x = 13$  are:

- (a) 8, -20      (b) 20, -8      (c) -20, -8      (d) 20, 8

Q17. The values of  $x$  on solving  $15x + \frac{3}{x} = 18$  are:

- (a) 5, 1      (b)  $\frac{2}{5}, \frac{1}{2}$       (c) 2, 3      (d)  $1, \frac{1}{5}$

Q18. If  $\sqrt{x-7} + \sqrt{x-3} = 2$  then the value of  $x$  is:

- (a) 9      (b) 7      (c) 19      (d) 3

Q19. If  $\frac{x}{2} + \frac{6}{x} = 4$ , then the value of  $x$  are:

- (a) -6 and -2      (b) +6 and -2      (c) -6 and 2      (d) 6 and 2

Q20. If the sum of squares of two consecutive even numbers is 100, then the numbers are:

- (a) 4 and 6      (b) 8 and 10      (c) 10 and 12      (d) None of these

Q21. The nature of the roots of quadratic equation  $x^2 - 8x + 12 = 0$  is:

- (a) real and equal      (b) real and unequal      (c) doesn't exist      (d) can't say

Q22. If  $\alpha$  and  $\beta$  are the roots of  $ax^2 + bx + c = 0$ , then value of  $\alpha^2 + \beta^2 + 2\alpha\beta$  is:

(a)  $\frac{a^2}{b^2}$

(b)  $\frac{b^2}{a^2}$

(c)  $-\frac{b^2}{a^2}$

(d) Data insufficient

Q23. Sum of the areas of two squares is  $468 \text{ m}^2$ . If the difference of their perimeter is 24 m, then the sides of the two squares are:

(a) 18 m, 14 m

(b) 13 m, 12 m

(c) 18 m, 12 m

(d) None of these

Q24. If  $\frac{x}{16} - \frac{4}{x} = 0$ , then x is:

(a)  $\pm 3$

(b)  $\pm 8$

(c)  $\pm 16$

(d)  $\pm 4$

Q25. If  $x^2 + y^2 = 17$  and  $xy = 4$  then the value of  $\frac{x}{y} + \frac{y}{x}$  is:

(a)  $\frac{4}{17}$

(b)  $\frac{17}{4}$

(c)  $\frac{5}{4}$

(d) None of these

Q26. Sum of a number and its reciprocal is  $\frac{17}{4}$ , the number is:

(a) 4

(b)  $\frac{1}{4}$

(c) 5

(d) options (a) and (b) both

Q27. Sum of the squares of two consecutive natural numbers is 221 then, the numbers are:

(a) 9, 10

(b) 10, 11

(c) 11, 12

(d) 12, 13

Q28. If  $\alpha$  and  $\beta$  are the roots of equation  $2x^2 - 5x + 3 = 0$  then  $\alpha^2\beta + \beta^2\alpha = \dots\dots?$

(a)  $\frac{5}{2}$

(b)  $\frac{15}{4}$

(c)  $\frac{3}{2}$

(d)  $-\frac{15}{4}$

Q29. Product of the age of a child five years ago with his age nine years after is 15. His present age is:

(a) 4 years

(b) 6 years

(c) 5 years

(d) None of these

Q30. If usual speed of a passenger train is increased by 5 km/h then, it takes 2 hour less in covering the distance of 300 km. Its usual speed is:

(a) 25 km/h

(b) 20 km/h

(c) 30 km/h

(d) None of these

Q31. Which of the following is not a quadratic equation:

(a)  $3x - \frac{5}{x} = x^2$

(b)  $3 - x^2 - 8x = 0$

(c)  $x + \frac{1}{x} = 8$

(d)  $x^2 - 3 = 4x^2 - 4x$

Q32. The equation which is not a quadratic equation in the followings is:

(a)  $x - \frac{3}{x} = 3$

(b)  $x + \frac{1}{x} = 3$

(c)  $3x + \frac{3}{x} = x^2$

(d)  $3x^2 - 1 = 4x^2 - 4x$

Q33. The value of k for which the equation  $2x^2 + 8kx + 8 = 0$  has equal roots is:

(a) Only 3

(b) Only -3

(c)  $\pm 3$

(d)  $\pm 1$

Q34. The value of k for which  $x = -2$  is a root of the equation  $kx^2 + x - 6 = 0$ :

(a)  $-\frac{3}{2}$

(b) -1

(c) -2

(d) 2

Q35. The value of 'p' so that the quadratic equation  $x^2 + 5px + 16 = 0$  has no real roots:

- (a)  $p > 8$               (b)  $p < 5$               (c)  $-\frac{8}{5} < p < \frac{8}{5}$               (d)  $-\frac{8}{5} \leq p < 0$

Q36. If  $px^2 + 3x + q = 0$  has two roots  $x = -1$  and  $x = -2$ , the value of  $q - p$  is:

- (a) -1              (b) 1              (c) 2              (d) -2

Q37. The common root of the equations  $x^2 - 3x + 2 = 0$  and  $2x^2 - 5x + 2 = 0$  is:

- (a)  $x = 2$               (b)  $x = 1$               (c)  $x = -2$               (d)  $x = \frac{1}{2}$

Q38. If  $x^2 - 5x + 1 = 0$ , the value of  $\left(x + \frac{1}{x}\right)$  is:

- (a) -2              (b) -5              (c) 5              (d) 3

Q39. If  $a - 3 = \frac{10}{a}$ , the values of 'a' are:

- (a) 5, 0              (b) 5, 2              (c) -5, 2              (d) 5, -2

Q40. If roots of the equation  $kx^2 + (a + b)x + ab = 0$  are '-1' and '-b' then, the value of 'k' is:

- (a) -1              (b) 1              (c) 2              (d) -2

Q41. The quadratic equation with real coefficients whose one root is  $2 + \sqrt{3}$  is:

- (a)  $x^2 - 2x + 1 = 0$     (b)  $x^2 - 4x + 1 = 0$     (c)  $x^2 - 4x + 3 = 0$     (d)  $x^2 - 4x + 4 = 0$

Q42. The difference of roots of the quadratic equation  $x^2 + kx + 12 = 0$  is 1, the positive value of k is:

- (a) -7              (b) 7              (c) 4              (d) 8

Q43. If 2, 3 are the roots of  $x^2 + px + q = 0$ , then the values of p and q are:

- (a) -5, 6              (b) 6, 5              (c) -6, 5              (d) -5, -6

Q44. The nature of the roots of  $x^2 - 4x + 1 = 0$  is:

- (a) real roots                      (b) no real roots  
(c) real and equal roots              (d) None of these

Q45. If  $x = \sqrt{7\sqrt{7\sqrt{7\sqrt{7\sqrt{7}}}}}$  and  $y = \sqrt{20 + \sqrt{20 + \sqrt{20 + \dots}}}$  where  $x, y > 0$  then, which of the following isn't correct?

- (a)  $x + y = 12$               (b)  $x - y = 3$               (c)  $x^2 + y^2 = 74$               (d)  $x^2 - y^2 = 24$

Q46. If x = a, b are the two roots of  $9^x - 4 \times 3^{x+1} + 27 = 0$  then, which of the following isn't correct?

- (a)  $a + b = 3$               (b)  $(a - b)^2 = 1$               (c)  $\frac{a}{b} + \frac{b}{a} = \frac{5}{2}$               (d)  $a + b = 4$

Q47. If  $(\sqrt{2} + 1)^x + (\sqrt{2} - 1)^x - 2\sqrt{2} = 0$  then, sum of all possible values of x is:

- (a) 0              (b) 1              (c) 2              (d) 3

## ANSWERS KEY

- |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|
| Q01. d | Q02. a | Q03. c | Q04. b | Q05. a | Q06. d | Q07. a |
| Q08. d | Q09. a | Q10. c | Q11. a | Q12. c | Q13. d | Q14. c |
| Q15. b | Q16. d | Q17. d | Q18. b | Q19. d | Q20. d | Q21. b |
| Q22. b | Q23. c | Q24. b | Q25. b | Q26. a | Q27. b | Q28. b |
| Q29. a | Q30. d | Q31. a | Q32. d | Q33. d | Q34. d | Q35. c |
| Q36. a | Q37. a | Q38. d | Q39. d | Q40. a | Q41. b | Q42. b |
| Q43. a | Q44. a | Q45. b | Q46. d | Q47. a |        |        |