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Holiday Homework

Class X

English

G-20 information
https://in.docworkspace.com/d/sIFWwkrRUnsHIogY?sa=00&st=0t

After reading the information write the answer in your copy
Read the information about G-20 Summit and write the answer of the following questions.
What is G-20?
Which country is organizing the recent G20 summit going to be held in 2023?
What is the time period of the G-20 presidency? Write the date? 4) How many countries are included in G-20?
Write the names of the countries of G-20.
When was G-20 founded?
What is the meaning of 'Vasudhaiva Kutumbakam'?
What is the full form of 'LIFE'?
Which flower is used in G-20 logo?
What are the activities suggested for students?
Write the names of guest countries G-20?
Write the full of following organizations?
i) IMF
ii) WB
iii) WHO
iv) WTO
v) ILO
vi) FSB
vii) OECD
viii) ADB
Which activity is planned to make this G-20 as 'People's G20'?
Why was G20 created?
What does the G20 Logo convey?
*Art integrated Project
Marks- 10 Marks
Topic: Nelson Mandela: A Long Walk to Freedom

Page 1: Cover Page (School, Subject, Year, Name of student and Teacher)
Page2: Title of your project (Topic)
Page 3: Contents (Index with page numbers)
Page 4 and 5
English: Prepare a biographical sketch of Nelson Mandela mentioning all his details like Date of birth, education, political achievements, family life etc in bullet points. (1 page, points only)
Art: Draw a sketch of Nelson Mandela (Portrait)

Page 6 and 7
English: Write an article on South Africa mentioning its capital, area, GDP, languages spoken, history etc. (2000 words)
Art: Draw a map of South Africa and point out Mandela's Village in it.

Page 8 and 9
English: Write a detailed essay about any one of the following topics. (2000 words)
-The African National Congress
-The costumes of South Africa
Art: Draw/Paste pictures related to the topic you have chosen from the above two.

Page 10 and 11
English: Imagine that you are a famous news anchor and you get a chance to interview Nelson Mandela. Write the interview in the form of question and answer in about 1000 words asking Mandela questions that are important for you in today's generation.
Art: Draw any historical picture of Mandela addressing the people/giving an interview.

Page 12
English and Art: Imagine that you are young Nelson Mandela and you are working hard to free your country from Apartheid. Design a poster to be pasted all over the city calling people to rise and revolt against the white supremacy and racism. The poster should be colorful and appealing to the public.

Page 13 and 14
English: Write a detailed book review of Nelson Mandela's Biography titled 'A long walk to freedom' in your own words.
Art: Design a book cover for his biography using your own imagination.

Instructions:
-Anything copied from the internet or from each other will not be accepted.
-Make this file as decorative as you can. Make the file folder from scrap materials like handmade sheets/old maps/calenders etc.
-Do not use plastic folders.
-Draw or paste beautiful pictures to enhance your project.
-Decorate individual pages in the file using colorful pens/markers/crayons etc.
-Stick to the word limit for the writing portion. Dp not write less than required.

Artificial Intelligence

1. Draw Communication process in A4 sheet.
2. Draw elements of communication in A4 sheet.
3. Write down the 7 factors affecting communication in A4 sheet.
POSTER MAKING
1. Types of AI
2. AI future (hints : smart city, smart home)
3. How artificial intelligence is transforming the world?

Art

10-Make any folk art painting with colour
ly one- Warli · 2. Madhubani · 3. Chittara · 4. Pata Chitra · 5. Gond Art · 6. Kalamkari · 7. Rajasthani Miniature Painting.(A/3) paper

SCIENCE

1. Aluminium and chlorine react to form aluminium chloride. Which options give the chemical equation of the reaction?
a) $Al + Cl_2$ $AlCl_2$ c) $2Al + 3Cl_2$ $2AlCl_3$
b) $2Al + Cl_2$ $2AlCl$ d) $3Al + 3Cl_2$ $3AlCl_3$

2. The photosynthetic pigment in plants is _____.
a) carotene   c) haemoglobin
b) chlorophyll   d) xanthophyll
3. $2FeCl_3$ (aq) + H_2 (g) $2FeCl_2$ (aq) + HCl (aq)
a) Displacement reaction   c) Redox reaction
b) Combination reaction   d) Decomposition reaction
4. Which one of the following processes does not involve a chemical reaction_____?
a) Melting of candle wax
b) Burning of candle wax
c) Ripening of banana
d) Digestion of food
5. Which of the following reaction is used in black and white photography?
a) Combination reaction   c) Displacement reaction
b) Decomposition reaction   d) Oxidation reaction
6. Which of the following statements about the given reaction are correct?
$3Fe$ (s) + $4H_2O$ (g) → Fe_3O_4 (s) + $4H_2$ (g)
(i) Iron metal is getting oxidised
(ii) Water is getting reduced
(iii) Water is acting as reducing agent
(iv) Water is acting as oxidising agent
(a) (i), (ii) and (iii)   (c) (i), (ii) and (iv)

(b) (ii) and (iv)   (d) (ii) and (iv)

7. Which of the following are energy giving foods?
(a) Carbohydrates and fats
(b) Proteins and mineral salts
(c) Vitamins and minerals
(d) Water and roughage

8. Roots of the plants absorb water from the soil through the process of:
(a) diffusion
(b) transpiration
(c) osmosis
(d) None of these

9. Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?
(a) Starch breaking down into sugars.
(b) Proteins breaking down into amino acids.
(c) Absorption of vitamins.
(d) Fats breaking down into fatty acids and glycerol.

10. The contraction and expansion movement of the walls of the food pipe is called:
(a) translocation
(b) transpiration
(c) peristaltic movement
(d) digestion

11. When a few drops of iodine solution are added to rice water, the solution turns blue- black in colour. This indicates that rice water contains:
(a) fats
(b) complex proteins
(c) starch
(d) simple proteins

12. What are the products obtained by anaerobic respiration in plants?
(a) Lactic acid + Energy
(b) Carbon dioxide + Water + Energy
(c) Ethanol + Carbon dioxide + Energy
(d) Pyruvate

13. Balance the following chemical equations:
a) $BaCl_2 + Al_2(SO_4)_3 \qquad BaSO_4 + AlCl_3$
b) $MnO_2 + HCl \qquad MnCl_2 + H_2O + Cl_2$

14. Difference between autotroph and heterotroph.

15. a) What is photosynthesis?
   b) Write the chemical equation involve in it.

16. Mention the reason and the colour changes:
a) Iron is exposed to moisture.
b) copper powder is strongly heated in the presence of oxygen.

17. Explain with the help of neat and well labelled diagrams the different steps involved in nutrition in Amoeba.

18. a) What is oxidation-reduction reaction? Explain with   examples.
b) Give one example of thermal decomposition.

19. Revise chapter 1 and 2(life processes) . Complete exercise questions of chapter 2(life processes) .

20. Draw labelled daigrams in A4 sheet :
a) Respiratory system
b) Excretion system

21. Solve two previous year questions paper (only the questions of CHEMICAL REACTION AND EQUATION, LIFE PROCESS AND LIGHT)

हिन्दी

ग्रीष्मकालीन अवकाश कार्य
कक्षा- दसवीं

(1)CCT आधारित प्रश्न उत्तर-

(I)आपको बाल मजदूरी के कौन-से दो मुख्य कारण लगते हैं?

(II)आपने बच्चों को मजबूरी में कौन-कौन से काम करते हुए देखा है ?

(III) बाल मजदूरी समाप्त करने के लिए क्या किया जाना चाहिए?

(IV) माता-पिता गुजर जाने के बाद अंकित एक ढाबे पर काम करने लगा। ढाबा मालिक ने अंकित को घर के लिए साल में 35000 रुपये दिए। बताओ अंकित को प्रति महीना कितने रुपये मिले?

(V) एक गाँव के सात घरों के 14 बच्चे बाल मजदूरी को मजबूर हो रहे हैं। एक बच्चे की बाल मजदूरी छुड़वाने के लिए घर खर्च के लिए 1500 रु महीने की जरूरत है तो गाँव के सभी बच्चों की बाल मजदूरी छुड़वाने के लिए एक महीने में कितने रुपयों की जरूरत पड़ेगी?

(2)

पवित्रा यादव मुक्केबाज खिलाड़ी का जन्म गांव कोसली सैनिकों की भूमि पर साधारण से परिवार में पवित्रा ने अपना बचपन कोसली की मातृभूमि पर बिताया । बचपन में ही अनेक हुआ । कठिनाइयों को सहन करके अपनी पढ़ाई कोसली के सरकारी स्कूल से पूरी की। प्रारंभ से ही उसकी खेल में रुचि थी और अध्यापकों के मार्गदर्शन से पवित्रा श्रेष्ठ मुक्केबाज बन गई । आगे चलकर पवित्रा ने 18 वे एशियाई खेलों में 60 किलोग्राम भार वर्ग स्पर्धा के पहले दौर का मुकाबला पाकिस्तान की प्रवीण रुखसाना से होना तय हुआ । जब दोनों का मुकाबला प्रारंभ हुआ उस समय पवित्रा की मां टीवी के सामने बैठकर अपनी बेटी की जीत के लिए दुआ मांग रही थी और उसके बचपन को याद कर रही थी। पवित्रा की मां को याद आया कि पवित्रा को बचपन में गुड व घी खाना बहुत पसंद था ।जब भी वह खेल कर घर आती थी तो अपनी मां गुड व घी लेकर जरूर खाती | इसलिए उसकी मां सोच रही थी कि उसकी बेटी के पंच के सामने पाकिस्तान खिलाड़ी नहीं टिक पाएगी और देखते ही देखते पवित्रा यादव ने पाकिस्तान खिलाड़ी को मात दे दी। उसने पाकिस्तान खिलाड़ी को हराकर अपने देश का नाम रोशन कर दिया और वह देशवासियों की सिर का सरताज बन गई।

(I) कोसली गांव की प्रसिद्धि का क्या कारण है ?

(II) पवित्रा की मां के अनुसार उसे क्या पसंद था ?

(III) पवित्रा का पहला मुकाबला किसके साथ हुआ ?

(IV) देशवासियों की खुशी का क्या कारण था ?

(V) किसी दुकानदार ने 50 किलोग्राम गुड रुपये 40 प्रति किलोग्राम के हिसाब से खरीदा। दुकानदार का 10% गुड बारिश में खराब हो गया उसे कितने रुपए की हानि हुई?

(3)निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर दीजिए।

विद्यार्थी जीवन को मानव जीवन की रीढ़ की हड्डी कहें, तो कोई अतिशयोक्ति नहीं होगी। विद्यार्थी काल में बालक में जो संस्कार पड़ जाते हैं, जीवन भर वही संस्कार अमिट रहते हैं। इसीलिए यही काल आधारशिला कहा गया है। यदि यह नींव दृढ़ बन जाती है तो जीवन सुदृढ़ और सुखी बन जाता है। यदि इस काल में बालक कष्ट सहन कर लेता है तो उसका स्वास्थ्य सुंदर बनता है। यदि मन लगाकर अध्ययन कर लेता है तो उसे ज्ञान मिलता है, उसका मानसिक विकास होता है। जिस वृक्ष को प्रारंभ से सुंदर सिंचन और खाद मिल जाती है, वह पुष्पित एवं पल्लवित होकर संसार को सौरभ देने लगता है। इसी प्रकार विद्यार्थी काल में जो बालक श्रम, अनुशासन, समय एवं नियमन के साँचे में ढल जाता है, वह आदर्श विद्यार्थी बनकर सभ्य नागरिक बन जाता है। सभ्य नागरिक के लिए जिन-जिन गुणों की आवश्यकता है, उन गुणों के लिए विद्यार्थी काल ही तो सुंदर पाठशाला। यहाँ पर अपने साथियों के बीच रहकर वे सभी गुण आ जाने आवश्यक हैं, जिनकी कि विद्यार्थी को अपने जीवन में आवश्यकता होती है।

(१)जीवन की आधारशिला किस काल को कहा जाता है?

(२)गद्यांश का उपयुक्त शीर्षक लिखिए।

(३)मानव जीवन के लिए विद्यार्थी जीवन की महत्ता स्पष्ट कीजिए।

(४)छोटे वृक्ष के पोषण का उल्लेख किस संदर्भ में किया गया है और क्यों?

(५)विद्यार्थी जीवन की तुलना पाठशाला से क्यों की गई है?

(4)) नीलांबर परिधान हरित पट पर सुंदर हैं,
सूर्य चंद्र युग मुकुट, मेखला रत्नाकर है,
नदियाँ प्रेम प्रवाह, फूल तारे मंडल है,
बदीजन खग-वृंद, शेषफन सिंहासन है
करते अभिषेक पयोद हैं, बलिहारी इस वेश की
हे मातृभूमि! तू सत्य ही सगुण मूर्ति सर्वेश की;
जिसकी रज में लोट-लोटकर बड़े हुए हैं,
घुटनों के बल सरक-सरक कर खड़े हुए हैं,
परमहंस सम बाल्यकाल में सब, सुख पाए,
जिसके कारण 'धूल भरे हीरे कहलाए,
हम खेले-कूदे हर्षयुत, जिसकी प्यारी गोद में

हे मातृभूमि! तुझको निरख, मग्न क्यों न हो मोद में

निर्मल तेरा नीर अमृत के सम उत्तम है,
शीतल मंद सुगंध पवन हर लेता श्रम है,
षट्ऋतुओं का विविध दृश्य युत अद्भुत क्रम है,
हरियाली का फर्श नहीं मखमल से कम है,
शुचि-सुधा सींचता रात में, तुझ पर चंद्रप्रकाश है
हे मातृभूमि! दिन में तरणि, करता तम का नाश है
जिस पृथ्वी में मिले हमारे पूर्वज प्यारे,
उससे हे भगवान! कभी हम रहें न न्यारे,
लोट-लोट कर वहीं हृदय को शांत करेंगे
उसमें मिलते समय मृत्यु से नहीं डरेंगे,
उस मातृभूमि की धूल में, जब पूरे सन जाएंगे
होकर भव-बंधन-मुक्त हम, आत्मरूप बन जाएँगे।

(क)कवि अपने देश पर क्यों बलिहारी जाता है?

(ख कवि अपनी मातृभूमि के जल और वायु की क्या-क्या विशेषता बताता है?

(ग) मातृभूमि को ईश्वर का साकार रूप किस आधार पर बताया गया है?

(5)(i)शिक्षक दिवस के शुभ अवसर पर अपने प्रिय शिक्षक के लिए बधाई संदेश लिखिए।

(ii)अपने प्रिय मित्र को परीक्षा में सफलता प्राप्त करने के लिए बधाई संदेश लिखिए।

(6) (i)'रुचिकर परिधान शो रुम' को अपने परिधानों की बिक्री बढ़ानी है। वे सभी परिधानों पर 20% की छूट दे रहे हैं। इस संबंध में एक विज्ञापन तैयार कीजिए।

(ii) आप अपनी पुरानी कार बेचना चाहते हैं। इसके लिए एक विज्ञापन तैयार कीजिए।

(7)(i)आपके विद्यालय में खेल-कूद के सामान की कमी है जिससे आपके विद्यालय की टीम खेलों में न अच्छा प्रदर्शन कर पा रही है और न कोई पदक जीत पाती है। इस ओर ध्यान आकर्षित कराते हुए अपने विद्यालय के प्रधानाचार्य को प्रार्थना-पत्र लिखिए।

(ii)आप 29/5 संस्कार अपार्टमेंट, सेक्टर-14 रोहिणी, दिल्ली के निवासी हैं। आप चाहते हैं कि लोग दीपावली में पटाखों का कम से कम प्रयोग करें। पटाखों से होने वाली हानियों से अवगत कराते हुए नवभारत टाइम्स के संपादक को पत्र लिखिए।

(8) दिए गए पदों को पढ़कर प्रश्नों के उत्तर दीजिए।

(१)ऊधौ, तुम हौ अति बड़भागी।
अपरस रहत सनेह तगा तैं, नाहिन मन अनुरागी
पुरइनि पात रहत जल भीतर, ता रस देह न दागी।
ज्यौं जल माहँ तेल की गागरि, बूँद न ताकौं लागी।
प्रीति-नदी में पाउँ न बोरयौ, दृष्टि न रूप परागी।
'सूरदास' अबला हम भोरी, गुर चाँटी ज्यौं पागी।।

● अति बड़भागी मे निहित व्यंग्य भाव को स्पष्ट कीजिए।
● गोपियां ने स्वयं को भोरी क्यों कहा है?
● गोपिया किसे बड़भागी कहती हैं और क्यों?
● इस काव्यांश में किस भाषा का प्रयोग किया गया है?
● प्रीति नदी क्या है ?इसमें किसने पैर नहीं डुबोए हैं?

(२) हरि हैं राजनीति पढ़ि आए।
समुझी बात कहत मधुकर के, समाचार सब पाए।
इक अति चतुर हुते पहिलैं ही, अब गुरु ग्रंथ पढ़ाए।
बढ़ी बुद्धि जानी जो उनकी, जोग-संदेस पठाए।
ऊधौ भले लोग आगे के, पर हित डोलत धाए।
अब अपनै मन फेर पाइहैं, चलत जु हुते चुराए।
ते क्यौं अनीति करैं आपुन, जे और अनीति छुड़ाए।
राज धरम तौ यह 'सूर', जो प्रजा न जाहिं सताए।
● गोपियों ने 'बढी बुद्धि जानी' से क्या कहना चाहा है?
● राजा का धर्म क्या होना चाहिए?
● पुराने समय में सज्जन क्या किया करते थे?
● गोपियों को ऐसा क्यों लग रहा है कि कृष्णा ने राजनीति पढ़ ली है?
● गोपियों के अनुसार पर हित का कार्य कौन कर रहा है?
(9) पूरक पुस्तिका के आधार पर-

(१)बच्चे माता- पिता के प्रति अपने प्रेम को कैसे अभिव्यक्त करते हैं ?अपने जीवन से संबंधित कोई घटना लिखिए जिसमें आपने अपने माता-पिता के प्रति प्रेम अभिव्यक्त किया है?

(२) माता के आंचल पाठ के आधार पर बताइए कि इस पाठ में बच्चों की जो दुनिया रची गई है वह आपके बचपन की दुनिया से किस प्रकार भिन्न है?

(३) भोलानाथ और उसके साथियों के खेलने की सामग्री आपके खेलने की सामग्री से किस प्रकार भिन्न है?

(10) निबंध लिखिए

(१)विद्यार्थी और शिष्टाचार
संकेत बिंदु-
● विद्यार्थी का लक्ष्य
● परिश्रम अध्ययनशील
● सादा जीवन और उच्च विचार
● सदाचार और स्वालंबन
(२) वन संरक्षण
संकेत बिंदु-
● भूमिका
● वन संरक्षण की आवश्यकता
● वनों की उपयोगिता
● वनों द्वारा पर्यावरण का बचाव
● सिंचाई व पेयजल समस्या का समाधान
● वन जीवन का आधार
● उपसंहार

SST

1. CCT Practice work.
2. Map Work: -
(i) History Chapter 1 and Chapter 2.
3. Solve Previous Year Question Paper.
4. Learn and practice all chapters which have done (For Periodic test – 1

Chapter 1
Real numbers

COMPETENCY BASED QUESTIONS (1 MARKS)

1. Let a and b be two positive integers such that $n = p^3q^2$ and $b = p^2q^3$., where p and q are prime numbers. If $HCF(a,b) = p^mq^n$, , then (m+n)

   (a) 4   (b) 3   (c) 5   (d) 2

2. LCM of the given numbers 'x' and 'y', where y is a multiple of 'x' is given by -

   (a) x   (b) y   (c) xy   (d) x/y

3. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then LCM (p, q) is

   (a) ab   (b) a^2b^2 (c) a^3b^2 (d) a^3b^3

4. The least number that is divisible by all the numbers from 1 to 5 (both inclusive) is

   (a) 5   (b) 60   (c) 20   (d) 100

5. Express 98 as a product of its primes

   (a) $2^2 \times 7$ (b) $2^2 \times 7^2$ (c) 2×7^2 (d) $2^3 \times 7$

6. The product of two consecutive natural numbers is always:

   (a) prime number (b) even number (c) odd number (d) it may not be decided.

7. If HCF (16, y) = 8 and LCM (16, y) = 48, then the value of y is

   (a) 24 (b) 16 (c) 8 (d) 48

8. The product of two different irrational numbers is always

   (a) rational   (b) irrational   (c) both of above   (d) none of above

9. The HCF of two consecutive natural numbers is always:

   (a) 1   (b) 0   (c) 10   (d) 2 .

10. $\sqrt{16+9} + \sqrt[3]{27}$ is a

   (a) rational Number (b) irrational number (c) both of above (d) none of above

11. HCF (a,b) =k and LCM(a,b) = m , which of the following is true

   (a) m is factor of k (b) k is factor of m (c) m & k are coprime numbers

12. For what value of n , 4^n will end with a zero ?

   (a) 0   (b) 1   (c) 2   (d) gnone of these   **X-Maths**

ASSERTION AND REASONING QUESTIONS (1 MARKS)

DIRECTION: In the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option

13 Assertion (A): $\sqrt{5}$ is an irrartional number.

Reason(R): Square root of any prime number is irrational.

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

14 **Assertion (A)**: For any two positive integers a and b, HCF(a,b)=a and LCM(a,b) = b

Reason(R): if m is multiple of n, HCF(m,n)=n and LCM(m,n)=m.

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

15. **Assertion (A):** 30^n ends with a digit zero for any value of n , where n is natural number

Reason(R): Any number ends with the digit zero if its prime factors are in the form $2^n.5^m$, where m and n are natural numbers

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

16. **Assertion (A):** LCM of two numbers is 4 and HCF is 73, the product of the two numbers is 292.

Reason(R): The product of LCM and HCF of two numbers is equal to the product of the two numbers.

(a) Both assertion (A) and reason (R) are true and reason (R) is correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

17. **Assertion (A):** $3 \times 5 \times 7 + 7$ is a composite number

Reason(R): Composite numbers are numbers with more than two factors

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

VERY SHORT ANSWER QUESTIONS (2 MARKS)

18. Given that LCM (26, 169) = 338, Find HCF (26, 169).

19. What is the HCF of smallest prime number and the smallest composite number?

20. What is the HCF of smallest odd prime number and the smallest odd composite

21. Draw factor tree for following (i) 36 (ii) 72 .

22. Find LCM and HCF of (I) 96 and 128 (ii) 33 and 121

23. Find the LCM (26,91) and HCF(26,91) of the following pairs of integers and verify that LCM × HCF = product of the two numbers.

24. Find the largest number which divides 70 and 125, leaving remainders 5 and 8, respectively.

25. Prove that 8^n does not end with zero for any value of n, where n is a natural number.

26. Find the LCM and HCF of the following where a & b are prime numbers.

(1) a^2b^3 and a^4b^2 (2) a^2b^5 and ab^3

27. State fundamental theorem of Arithmetic.

SHORT ANSWER QUESTIONS (3 MARKS)

28. Find the largest number which divides 70 and 125, leaving remainders 5 and 8, respectively.

29. Find the least number that is divisible by all the numbers from 1 to 10 (both inclusive).

30. Find the LCM and HCF of the following integers by applying the prime factorisation method. (i) 12, 15 and 21 (ii) 17, 23 and 29 (iii) 6, 72 and 120

31. There is a circular path around a sports field. Sonia takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?

32. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm, respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?

33. In a seminar, the number of participants in Hindi , English and Mathematics are 60 , 84 and 108 respectively .Find the minimum number of rooms required if in each room the same number of participants are to be seated and all of them being the same subject.

34. Four ribbons measuring 14m, 18m, 22m and 26m respectively are to be cut into least number of pieces of equal length. What is the length of each piece?

35. Prove that $\sqrt{2}$ is irrational.

36. Prove that $\sqrt{3}$ is irrational.

37. Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number.

38. Given that $\sqrt{2}$ & $\sqrt{5}$ is irrational Prove irrationality of following :

   (a) $\dfrac{1}{\sqrt{5}}$ (b) $\dfrac{1}{3-\sqrt{2}}$

LONG ANSWER QUESTIONS (5 MARKS)

39. Prove that $\sqrt{5}$ is irrational using this result Prove that $3 - 2\sqrt{5}$ is irrational.

40. Find the LCM and HCF of $a^5b^3c^4$ and $a^2b^4c^5$ and also verify the result HCF x LCM = Product of two expressions

CASE STUDIES/ SOURCE BASED INTEGRATED QUESTIONS (4 MARKS)

Question-01

Question-01

41. Prabhjot is class teacher of class –X. Number of chairs allotted to a class is equal to number of students enrolled in class. Students were allowed to sit in 2's, 3's, 4's, 5's and 6's. Prabhjot found that he can arrange chairs for sitting in 2's, 3's, 6's and 7's. When he tried arranging chairs in 4's ,he found 02 chairs left.

Now answer the following questions (1+2+1=4 Marks)

(A) How many students are in class X?

(B) Prabhjot tried arranging chairs in 5's how many chairs will be left ?

(C) If 2 more students get admission, now can students sit in 5's without leaving any chair ?

Question-02

42. There are four houses in Bal Bhavan Vidyalaya Shivaji,Tagore ,Ashoka and Raman. School is preparing for a march past programme on occasion of 26th January. Strength of various participants are as below:

Shivaji House	Tagore House	Ashoka House	Raman House	P.T.Drill	The Scouts and Guides
24	30	36	30	32	28

Now answer the following questions (1+2+1=4 Marks)

(A) What is the maximum number of columns in which the students of all houses can march?

(B) How many students will be left out if The Scouts and Guides student follow houses in march past?

(C) What is the maximum number of columns in which the students of The Scouts and Guides and Pt Drill students can march?

Question-03

43. A seminar is being conducted by an Educational Organization, where the participants will be educators of different subjects. The number of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.

Based on information given Now answer the following questions
(1+2+1=4 Marks)

(i) In each room the same number of participants are to be seated and all of them being in the same subject, hence find maximum number participants that can accommodated in each room.

(ii) Find the product of HCF and LCM of 60,84 and 108.

(iii) What is the minimum number of rooms required during the event?

Question-04

44. To enhance the reading skills of grade X students, School has nominated you and two of your best friends to set up a well maintained class library for class X only. There are four sections in each class named as A, B, C and D. Section A has 32 students, B has 36 students, section C has 40 students and section D has 36 students. By using above information's select the correct answer from the following questions-

(a) What is the minimum number of books required in class library for equal distribution?

(b) How can total students of class X be expressed in the form of product of prime numbers?

(c) What is the HCF of students of each section of grade X?

ANSWERS

1 a) 4	**13** A	**26** 1-HCF-a^2b^2 LCM-a^4b^3
		2- HCF-ab3 LCM-a^2b^5
2 b) y	**14** A	**28** 13
3 (c) a^3b^2	**15** A	**30** 1) HCF-3 LCM-420
		2) HCF-1 LCM-11339
		3) HCF-6 LCM- 360
4 (b) 60	**16** D	**31** 36 MIN
5 (c) 2 × 7²	**17** A	**32** 2520 CM
6 b –even		
number	**18** 13	**33** 20 ROOMS
7 a-24	**19** 2	**34** 2 M EACH
8 b-irrational	**20** 3	**40** LCM= $a^5b^4c^5$
		HCF= $a^2b^3c^4$
9 a-1	**22** 32 & 384	
	11 & 363	**41** A-42, B-2 C- NO
10 a-rational		
number	**23** HCF=13 LCM=182	**42** A-6, B-4, C-4
	3x182=26 x 91	
11 b- k is factor	**24** 13	**43** A-12, B-540,C-20
of m		
12 d-None of		**44** A-2880,B-2^43^2 C-4
these		

CHAPTER 2
POLYNOMIALS

COMPETENCY BASED QUESTIONS (1 MARKS)

1. The graph of a quadratic polynomial is
   a) Straight line   b) A circle   c)   A spiral   d)   A parabola

2. **Number of zeroes of a polynomial of degree n is**
   (a) Equal to n (b) Less than n (c) Greater than n (d) Less than or equal to n

3. **Which of the following is quadratic polynomial?**
   a) $x+4$ b) x^2+4x+5 c) x^3+2x^2+x+1 d) None of these

4. **The graph of y=p(x) is given below. Find the number of zeroes of p(x).**
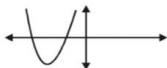
   a)   One b)   Three   c)   Two d)   No zero

5. If one of the zeroes of the quadratic polynomial $(k - 1)x^2 + kx + 1$ is –3, then the value of k is
   (a) 4/3 (b) -4/3 (c) -3/4 (d) 3/4

6. If the zeroes of the quadratic polynomial $x^2 + (a + 1) x + b$ are 2 and –3, then
   (a) a = –7, b = –1
   (b) a = 5, b = –1
   (c) a = 2, b = –6
   (d) a = 0, b = –6

7. The number of polynomials having zeroes as –2 and 5 is
   (a) 1 (b) 2 (c) 3 (d) many

8. If one of the zeroes of a quadratic polynomial of the form $x^2 + ax + b$ is the negative of the other, then it
   (a) has no linear term and the constant term is negative.
   (b) has no linear term and the constant term is positive.
   (c) can have a linear term but the constant term is negative.
   (d) can have a linear term but the constant term is positive.

9. The quadratic polynomial, the sum of whose zeroes is –5 and their product is 6,is
   (a) $x^2 + 5x + 6$
   (b) $x^2 - 5x + 6$
   (c) $x^2 - 5x - 6$
   (d) $-x^2 + 5x + 6$

10. $p(x) = ax^2 + bx + c$. If $a + b + c = 0$, then find one of its zero.
    (a) 0   (b) 1   (c) 2   (d) 3

11. If the product of the zeroes of $x^2 - 3kx + 2k^2 - 1$ is 7, then values of k are _____ and _____.
    (a) +2,-2   (b) + 1,-1 (c) +4,-4   (d) +3,-3

12. If zeroes of $p(x) = 2x^2 - 7x + k$ are reciprocal of each other, then value of k is _____.
    (a) 0   (b) 1   (c) 2   (d) 3

ASSERTION AND REASONING QUESTIONS (1 MARKS)

DIRECTION: In the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option

13. : **Assertion (A)** : The sum and product of the zeroes of the quadratic polynomial are 4 and 3 respectively.

    Reason (R) : The quadratic polynomial whose sum and product of zeros are given as $x^2 -$ (sum of zeros)x + (product of zeros) = 0.

    (a) Both A and R are true and R is the correct explanation of A
    (b) Both A and R are true but R is not the correct explanation of A.
    (c) A is true but R is false.
    (d) A is false but R is true.

COMPETENCY BASED QUESTIONS (1 MARKS)

(1) D is the discriminant of the equation $x^2 + 2x - 4$, then 2D is:

    (a) 20 (b) 40 (c) 60 (d) 80

(2) If the quadratic equation $x^2 - 2x + k = 0$ has equal roots, then value of k is

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

(3) Which of the following equations has 2 as a root?

    (a) $x^2 - 4x + 5 = 0$ (b) $x^2 + 3x - 12 = 0$

    (c) $2x^2 - 7x + 6 = 0$ (d) $3x^2 - 6x - 2 = 0$

(4) The roots of the quadratic equation $x^2 - 0.04 = 0$ are

    (a) ± 0.2 (b) ± 0.02 (c) 0.4 (d) 2

(5) The degree of quadratic equation is

(a) 0 (b) 1 (c) 2 (d) 5

(6) The required solutions of $4x^2 - 25x = 0$ are

    (a) x = 0, x = 12/7   (b) x = 0, x = 25/4

    (c) x = 1, x = 5/9   (d) x = 1, x = 12/7

(7)   For what value of k, the equation $9x^2 - 24x + k = 0$ has equal roots?

    (a) 12 (b) 16 (c) 18 (d) 20

(8)   The values of k for which the quadratic equation $(k + 1)x^2 + 2(k - 1)x + (k - 2) = 0$ has equal roots, is:

    (a) k = 2 (b) k = 3 (c) k = 0 (d) None of these

(9) The value(s) of k for which the quadratic equation $2x^2 + kx + 2 = 0$ has equal roots, is

    (a) 4 (b) ± 4 (c) − 4 (d) 0

(10) The value(s) of k, for which the roots of the equation $3x^2 + 2k + 27 = 0$ are real and equal are

    (a) k = 9 (b) k = ± 9 (c) k = −9 (d) k = 0

(11) If one root of the equation $(k - 1)x^2 - 10x + 3 = 0$ is the reciprocal of the other, then the value of k is

    (a) 1 (b) 2 (c) 3 (d) 4

(12) Which of the following quadratic equations has -1 as a root?

    (a) $x^2 - 4x - 5 = 0$ (b) $x^2 + 3x - 12 = 0$

    (c) $2x^2 - 7x + 6 = 0$ (d) $3x^2 - 6x - 2 = 0$

ASSERTION AND REASONING QUESTIONS (1 MARKS)

DIRECTION: In the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option

(a)   Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b)   Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c)   Assertion (A) is true but reason (R) is false.

(d)   Assertion (A) is false but reason (R) is true.

Question (1)

Assertion (A): The values of x are a/2 and -a for a quadratic equation $2x^2 + ax - a^2 = 0$.

Reason (R): For quadratic equation $ax^2 + bx + c = 0, x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Question (2)

Assertion (A): When the quadratic equation $6x^2 - x - 2 = 0$ is factorised , we get its roots as 2/3 and − 1/2 Reason (R): $6x^2 - x - 2 = 0 \Rightarrow 2x(3x - 2) + (3x - 2) = 0 \Rightarrow (3x - 2)(2x + 1) = 0 \Rightarrow x = 2/3$, - 1/2

Question (3)

Assertion (A): The equation $x^2 + 3x + 1 = (x - 2)^2$ is a quadratic equation.

Reason (R): Any equation of the form $ax^2 + bx + c = 0$ where a is not equal to 0, is a quadratic equation.

Question (4)

Assertion (A): $(2x - 1)^2 - 4x^2 + 5 = 0$ is not a quadratic equation.

Reason (R): $x = 0, 3$ are the roots of the equation $2x^2 - 6x = 0$.

Question (5)

Assertion (A): $(x+2)^2 - x^2 = 0$ is not a quadratic equation.

Reason (R): Degree of the quadratic equation is 1.

VERY SHORT ANSWER QUESTIONS (2 Marks)

1. The product of two consecutive odd numbers is 63. Find the numbers.
2. If D > 0, then write the roots of a quadratic equation $ax^2+bx+c = 0$
3. Find the Discriminant of : $x^2 + 5x + 5 = 0$
4. Find the sum of roots of a quadratic equation $x^2 + 4x - 32 = 0$
5. Find the product of the roots of the quadratic equation $2x^2 + 7x - 4 = 0$
6. Find the values of K for which the equation $9x^2 + 2kx + 1 = 0$ have real roots.
7. Find the value of K if the equation $x^2 - 2(k+1)x + 1 = 0$ has equal roots.
8. For what value of k, $x = a$ is a solution of equation $x^2 -(a+b)x+ k=0$?
9. Represent the situation in the form of Quadratic equation: The Product of Raman's age (in years) 5 years ago with his age 9 years later is 15. Solve it also.
10. Find the roots of $x^2 - 3x -10 = 0$

SHORT ANSWER QUESTIONS (3 Marks)

1. In a class test , the sum of Sealy's marks in math's and English is 30. Had she got 2 marks more in math's and 3 marks less in English, the product of their marks would have been 210. Find her marks in the two subjects.
2. A two digit number is such that the product of its digit is 35. When 18 is added to the number, the digits interchange the places. Find the number.
3. Solve the equation $2x^2 - 5x + 3 = 0$ by factorisation.
4. Using quadratic formula, solve the equation: $p^2 x^2 + (p^2 - q^2) x - q^2 = 0$
5. 300 apples are distributed equally among a certain number of student's .Had

there been 10 more Students, each would have received one apple less. Find the number of students.

6. Find the roots of Quadratic equation $16x^2 - 6x - 1 = 0$ by using the quadratic formula.
7. Find the Discriminant of the Quadratic equation $2x^2 - 4x+3=0$ and hence find the nature of its roots.
8. Solve $3x^2 - 23x - 110 = 0$

LONG ANSWER QUESTIONS (5 MARKS)

1. Find the value of 'p' so that the equation $3x^2 - 5x - 2p = 0$ has equal roots. Also find the roots.
2. The sum of two numbers is 15. If the sum of their reciprocals is 3/10 . Find the two numbers.
3. Find the quadratic equation whose roots are $2 + \sqrt{3}$ and $2 - \sqrt{3}$.
4. A person on tour has Rs.360 for his daily expenses. If he exceeds his tour Programme by four days, he must cut down his daily expenses, by Rs 3 per day. Find the number of days of his tour Programme.
5. Divide 29 into two parts so that the sum of squares of the parts is 425.
6. Sum of the areas of two squares is 468 m^2. If the difference of their perimeters is 24 m, find the sides of the two squares.
7. If the equation $(1 + m^2) x^2 - 2mcx - c^2 - a^2 = 0$ has equal roots. Show that $c^2 = a^2 (1 + m^2)$.
8. If the price of petrol is increased by Rs.2 per litre, a person had to buy 1 litre less petrol for Rs.1740. Find the Original price of the petrol at that time.
   a) Why do you think the price of petrol is increasing day by day?
   b) What should we do to save petrol?

CASE STUDIES/ SOURCE BASED INTEGRATED QUESTIONS (4 MARKS)

Q1. Raj and Ajay are very close friends. Both the families decide to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 hours more than Ajay to complete the journey of 400 km.

1. What will be the distance covered by Ajay's car in two hours? [1]

2. What is the quadratic equations describes the speed of Raj's car? [2]

3. Find the roots of the quadratic equation which describe the speed of Raj's car. [1]

ANSWER: HINT : $\dfrac{400}{x} - \dfrac{400}{x+5} = 1$

Q2. A motorboat, speedboat or powerboat is a boat that is exclusively powered by an engine. Some motorboats are fitted with inboard engines, others have an outboard motor installed on the rear, containing the internal combustion engine, the gearbox and the propeller in one portable unit .Geet is driving a motor boat. The speed of a motor boat is 20 km/hr. For covering the distance of 15 km the boat took 1 hour more for upstream than downstream.

1. Find the quadratic equation for the speed of the stream? [1]
2. What is the speed of stream? [2]
3. How much time boat took in downstream? [1]

ANSWER: HINT : $\dfrac{15}{20-x} - \dfrac{15}{20+x} = 1$

Q3. Jogging is a form of trotting or running at a slow or leisurely pace. The main intention is to increase physical fitness with less stress on the body than from faster running but more than walking, or to maintain a steady speed for longer periods of time .Rajesh wants to design a rectangular park of perimeter 80m and area 400m2 for jogging and morning walk for the people of his colony.

1. Find the quadratic equation for the given situation? [1]
2. Find the length and breadth of the rectangle. [2]
3. What is the special name of the rectangular park. [1]

ANSWER: L= 20 m , B=20 m

Q4. Raghav wants to purchase a plot. The area of a rectangular plot is 528 m2. The length of the plot (in metres) is one more than twice its breadth.

1. If its breadth is x m , find its length. [1]
2. Find the quadratic equation for the given situation? [2]
3. Find the length and breadth of the rectangle. [1]

ANSWER: HINT: $2x^2+x-528=0$

ANSWERS

MCQ	ASSER & RES	VSA	SA	LA
1. B	1. A	1. 7,9	HINT: (x+2)(27-x)=210	1. p = -25/24
2. A	2. A	2. USE FORMULA	2. 57	2. 5 , 10
3. C	3. D	3. 5	3. 1 , 3/2	3. x2-4x+1=0
4. A	4. B	4. -4	4. -1 , q^2/p^2	4.HINT : $\dfrac{360}{x}$
5. C	5. C	5. -2	5. 50	$\dfrac{360}{x+4} = 3$
6. B		6. >±3	6. HINT: D=100	5.HINT : $x^2 +$
7. B		7. 0, -2	7. D=-8 , NO REAL ROOTS	$(29-x)^2=425$
8. B		8. ab	8. 11 , -10/3	6.HINT:4x-4y=24
9. B		9. -10 , 6		$x^2 + y^2 = 468$
10. B		10. 5 , -2		7.HINT:PUT D=0
11. D				8. HINT: $\dfrac{1740}{x} - \dfrac{1740}{x+2} = 1$
12. A				