Khojo Assessment
Practice Test English Grade 9   Set 1

Time allowed – 30 minutes

PART - A

PASSAGE

Read the passage below and answer the following questions.

(1)   Over the past few years, Japanese-style *emoji* have become popular with cellphone users everywhere. Worldwide, people have used emoji in billions of text messages and social media posts. *Emoji* are also a popular cultural phenomenon in many Western countries. They have appeared in newspapers, magazines, paintings, and even novels and short stories.

(2)   Because *emoji* are growing more important for written communications, they show how language is changing to include more pictures and visual elements. One technology company studied how 1.5 billion *emoji* were used throughout the world. During several months in 2014 and 2015, *emoji* expressed positive emotions like love and happiness 70％ of the time and negative emotions like sadness or anger only 15％ of the time. Figure 1 shows the most common types.
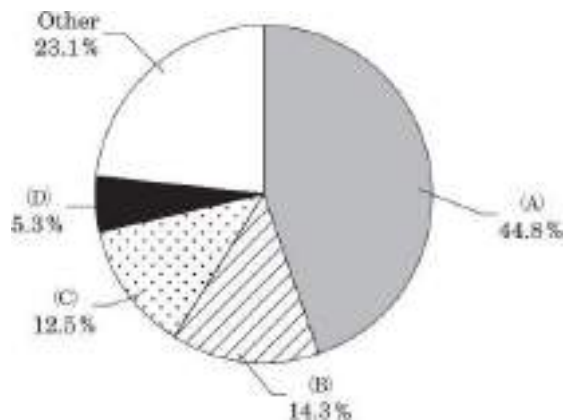

Figure 1. Most commonly used *emoji* types, worldwide.   (Data: SwiftKey.   April 2015. SwiftKey Emoji Report.)

(3)   Worldwide, almost half of the *emoji* used during this time were happy faces. People used sad faces just a little more often than hearts.   Hand gestures were used about half as often as hearts.   These included "OK" signs, "clapping", and

the "thumbs up" *emoji*.   Lots of different *emoji* are included in Figure 1's "Other" category.

(4)   Although most *emoji* are used to show happy feelings, there are some amazing cultural differences.   For example, 86％ of all *emoji* used by French people show happy feelings.   Also, they use hearts 55％ of the time, or twice as often as happy faces.   By contrast, people in Malaysia use *emoji* which show happy feelings about 60％ of the time.   They use heart *emoji* only 4.8％ of the time.

(5) Worldwide, the most popular *emoji* is the "tears of joy" face. On all platforms worldwide, it represented 20% of the *emoji* used in 2015. In other words, one out of every five *emoji* was a "tears of joy" face. Figure 2 shows how much this *emoji* grew in popularity between 2014 and 2015. This is one reason why the Oxford English Dictionary (OED) named it the English "word of the year" for 2015. This was the very first time the OED chose an *emoji* as its word of the year!
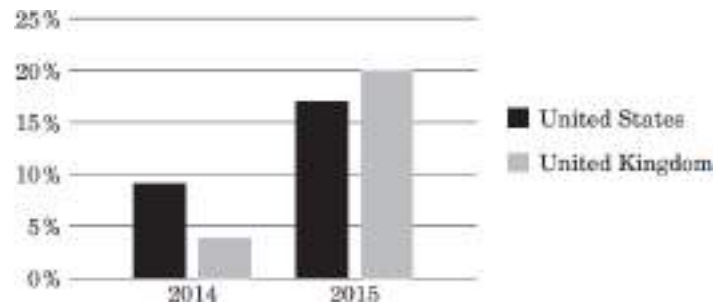

Figure 2. Use of "tears of joy" *emoji* in the United States and the United Kingdom, 2014-2015. (Data: SwiftKey. November 2015.)

(6) While *emoji* are still widely used on social media, young people in Western countries are growing more interested in other forms of visual communication. Several new forms of visual communication may soon become more popular in Japan and Western countries.

1. In Figure 1, which of the following do A, B, C and D refer to?

(**a**) (A) Hands   (B) Happy Faces   (C) Hearts   (D) Sad Faces

(**b**) (A) Happy Faces   (B) Hands   (C) Sad Faces   (D) Hearts

(**c**) (A) Happy Faces   (B) Sad Faces   (C) Hearts   (D) Hands

(**d**) (A) Sad Faces   (B) Hearts   (C) Happy Faces   (D) Hands

2. According to the passage, which of the following is true about Malaysian people?

(**a**) They use emoji showing happy feelings as often as the French.

(**b**) They use emoji showing happy feelings less often than the French.

(**c**) They use emoji showing happy feelings more often than the French.

(**d**) They use heart emoji more often than happy faces.

3. This question consists of two statements — **Assertion (A)** and **Reason (R)**. Read the statements and choose the correct option.

Assertion (A): The use of the "tears of joy" face in the UK increased by nearly four times between 2014 and 2015.

Reason (R): In 2015, the Oxford English Dictionary chose *emoji* as "word of the year" for the first time.

(**a**) Both A and R are true, and R is the correct explanation for A.

(**b**) Both A and R are true, but R is not the correct explanation for A.

(**c**) A is true, but R is false.

(**d**) A is false, but R is true.

4. What topic is most likely to follow the last paragraph?

(**a**) Forms of visual communication that may appear after *emoji*

(**b**) How *emoji* were first invented by a Japanese company

(**c**) Ways that *emoji* are used by people in Western countries

(**d**) Why Japanese people are growing less interested in *emoji*

5. Select the most appropriate option to fill in in the blank in the statement below.
Statement: The main purpose of this passage is to _____.

(**a**) describe the history of emoji in Japan and the West

(**b**) explain why emoji became so popular in recent years

(**c**) give an overview of how emoji are being used globally

(**d**) show how emoji are changing written communications

PART - B

6. Select the most appropriate option to complete the given sentence.
My little sister was playing with her dolls in her room. Suddenly she ( ) surprised as she found her old but favourite toy car.

(**a**) had   (**b**) got   (**c**) remained   (**d**) gave

7. Arrange the numbers to fill in the blank below.

Neighbour: Hi, Mrs. Suzuki. How's everything ?

Mrs. Suzuki: Not bad, thank you, but we're still new here in town.   My son
(   ) yet.

1: friends   2: no   3: play   4: has   5: to   6: with

(a)   421536   (b)   453216   (c)   453621
(d)   614532   (e)   615342   (f)   621543

8.   Arrange the numbers to fill in the blank below.

Sally: I heard Amy was quitting the dance team.
Ken: Yes.   But Tom managed (   ).

1: her   2: it   3: of   4: out   5: talk   6: to

(a)   432651   (b)   465312   (c)   543162
(d)   561432   (e)   651432   (f)   654132

9.   Select the most appropriate combination of A and B to complete the sentence.
My mother has been in (A   ) of the Mumbai branch, but she's being (B   ) to the head office next month.

(a)   A: case   B: transferring
(b)   A: case   B: transferred

(c)   A: charge   B: transferring

(d)   A: charge   B: transferred

10. Identify the error in the given sentence and supply the correction.
Having a sound knowledge of nutrition and health can be beneficial for people. They can be incorporated a healthy lifestyle into their daily routines.

	Error	Correction
(a)	having	have
(b)	of	for
(c)	beneficial	benefit
(d)	be incorporated	incorporate

11. Select the most appropriate combination of A and B to complete the sentence. Since I have so much (A   ) to do today, I have no idea (B   ) to do first.

(**a**) A: job   B: how

(**b**) A: job   B: what

(**c**) A: work   B: how

(**d**) A: work   B: what

12. Read the situation below and answer the following question.

Situation: You are preparing to participate in an essay competition. The topic of the essay is: "Is the use of mobile phones beneficial or harmful for students?"   You think it beneficial but decide to provide a balanced argument that weighs both the advantages and disadvantages of using a mobile phone. You go on to draw the outline of your argumentative essay.

Question: Which of the following options does **NOT** appropriately fit into the outline of your argumentative essay?

(**a**) Hook: A captivating statistic about mobile phone usage among students

(**b**) Benefits of mobile phones for students: access to information; communication and collaboration; emergency situation

(**c**) Drawbacks of mobile phones for students: distraction; social isolation; health concerns

(**d**) Conclusion: Call for banning mobile phones in all schools and coaching institutes

13.-15. Akash submitted a short story to be printed in his school magazine. An excerpt from his story is given below. Rearrange the parts of the story (**a**)-(**c**) in the correct order.

Once upon a time, in a cosy little town, lived a girl named Lily.

13
14
15

(a) When Lily returned from the dragon world, she wondered why she had this mysterious journal. She could not remember how long she had had the journal. She decided to find out more about it.

(b) She had a secret, a precious possession that she cherished more than anything else in the world. It was a worn-out journal. Lily's journal was more than just a regular book; it was a magical gateway to her imagination. Every night, under the soft glow of her bedside lamp, she would open it and let her thoughts flow freely onto its pages. As she wrote, the words came to life forming vivid stories and fantastic worlds.

(c) What wonders are caused by these stories! In one story, Lily conjured a world where dragons soared above emerald forests, their scales shimmering in the sunlight. A brave knight, Sir Ethan, set out to save the kingdom from an ancient curse. With her quill as her sword, Lily guided Ethan through tests of courage and wisdom, forging an epic saga of bravery and redemption.

Practice Test English Grade 9   Set 2
Time allowed – 30 minutes
PART - A

PASSAGE

Read the passage below and answer the following questions.

(1) Canada is known around the world for its natural resources. Many countries purchase items from Canada that they cannot produce. For example, 75% of the world's maple syrup comes from the province of Quebec. Similarly, industries like logging and oil exploration play a larger role in the Canadian economy than in most other developed countries. During the early 1900s, foreign sales of natural resources were an even larger part of the Canadian economy. Today, they total 37% of Canada's exports, or sales to foreign countries.

(2)   Canada's trade with foreign countries reflects its unique economy. The graph
        (Figure 1) shows Canada's exports in 2012. The graph also shows its imports,
        or purchases from foreign countries. Canada resembles other developed

        countries, since about 75% of its jobs are in service industries like banking,
        healthcare, and tourism. Accordingly, its imports of electronic products like
        computers and phones are more than twice its exports. But its oil exports tell
        a very different story. They exceed 70 billion Canadian dollars (CA$) per year,
        or
        more than twice what Canada imports from other countries.

(3)   Many people do not realise the value of manufacturing in the Canadian economy.
        About 14% of Canada's jobs are in manufacturing.   Many are in the
        automotive
        industry. Exports of cars and light trucks total CA$13 billion more than imports
        from other countries. Although it remains strong, Canada's automotive
        industry is losing influence. In 1999, it produced 3 million cars; in 2011, the
        number had dropped to 2.1 million. Similarly, the industry is now the eleventh
        largest in the world after falling behind Brazil, China, India, Mexico, and Spain
        in recent years. One reason for this is the rising value of the Canadian dollar
        compared
        with that of other currencies.

(4)   Canadian officials are deciding what to do when natural resources become less
        important to the economy. Canada may remain dominant in some industries,

such as logging and producing unique products like maple syrup. But changes in oil prices sometimes make production too expensive in parts of Canada. Because of this, many economists want the Canadian government to support training programs and new companies in fields like biotechnology and information technology. Canada's natural resources make it unique, but it faces the same challenges as other developed countries that are adapting to changes in the global economy.
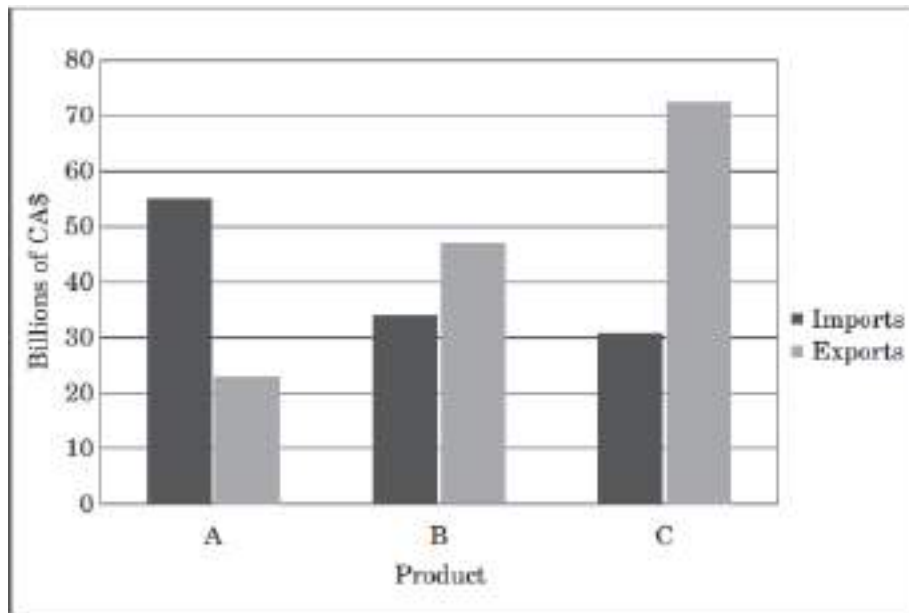
Figure 1. Imports and exports of 3 products in Canada, 2012. (Source: *Statistics Canada, CANSIM, 2013*)

1. How did Canadian car production change between 1999 and 2011?

   (**a**) It fell by 0.9 million.

   (**b**) It fell by 2.1 million.

   (**c**) It grew by 0.9 million.

   (**d**) It grew by 2.1 million.

2. In Figure 1, which of the following do A, B and C refer to?

   (**a**) (A) cars and light trucks   (B) electronic products   (C) oil
   (**b**) (A) electronic products   (B) cars and light trucks   (C) oil

   (**c**) (A) oil   (B) cars and light trucks   (C) electronic products

   (**d**) (A) oil   (B) electronic products   (C) cars and light trucks

3. Which of the following statements is true?

   (**a**) Developed countries are wealthy only because of their natural resources.

(**b**) Many economists think that Canada should promote technological growth.

(**c**) Natural resources play a more important role in Canadian exports today than in the early 1900s.

(**d**) Until recently, Spain produced more cars than Canada.

4. This question consists of two statements - **Assertion (A)** and **Reason (R)**. Read the statements and choose the correct option.

Assertion (A): Manufacturing is an important part of the Canadian economy, but it is not widely known.

Reason (R): The Canadian dollar is stronger than it used to be.

(**a**) Both A and R are true, and R is the correct explanation for A.

(**b**) Both A and R are true, but R is not the correct explanation for A.

(**c**) A is true, but R is false.

(**d**) A is false, but R is true.

5. Choose the most appropriate title for this passage.

(**a**) A Glimpse into Canada's Economic Reality

(**b**) How Canada can Reclaim Its Maple Syrup Industry

(**c**) A Study of Well-known Canadian Natural Resources

(**d**) The Similarity in Trade between Canada and Other Countries

PART - B

6. Select the most appropriate option to complete the given statement.
   John (   ) a newspaper when he heard someone call his name from behind. Hestopped and looked back.

(**a**) has read

(**b**) is reading

(**c**) read

(**d**) was reading

7. Arrange the numbers to fill in the blank below.

Mother: Have you finished your homework already, Bob?

Bob: Yes, I just finished it now. It was so easy that it (   ) all the questions.

1: an hour 　　2: answer 　　3: me 　　4: only half 　　5: to 　　6: took

(**a**) 236154 　　　　(**b**) 245361 　　　　(**c**) 264531
(**d**) 634152 　　　　(**e**) 635241 　　　　(**f**) 645231

8. Select the most appropriate combination of A and B to complete the sentence: This tea tastes a little too (A   ) for me. Could you (B   ) some milk?

(**a**) A: bitter 　　　　　　B: bring

(**b**) A: bitter 　　　　　　B: take

(**c**) A: bitterly 　　　　　　B: bring

(**d**) A: bitterly 　　　　　　B: take

9. Arrange the numbers to fill in the blank below.

Mary: Who should I ask to drive us to the airport?

James: I think you should ask Judy. She drives (   ) our class.

1: anyone 　　2: carefully 　　3: else 　　4: in 　　5: more 　　6: than

(**a**) 245613 　　　　(**b**) 261534 　　　　(**c**) 415623
(**d**) 425613 　　　　(**e**) 526134 　　　　(**f**) 561324

10. Identify the grammatical error in the sentence below.
After 1 <u>hours</u> of practice, Sheena was 2 <u>still struggling</u> with a complex musical

composition, 3 <u>but</u> she refused to give up and 4 <u>remain determine</u> to master it.

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

11. Select the most appropriate combination of A and B to complete the sentence. Yesterday was Laura's birthday. She (A   ) a newly-released CD by a rock band(B   ) drummer was her classmate in high school. She liked it very much.

(**a**) A: has given 　　　　B: which

(**b**) A: has given   B: whose

(**c**) A: was given   B: which

(**d**) A: was given   B: whose

12. Read the following situation and answer the question below.

Situation: Your uncle Pradeep recently had a shopping experience that left him dissatisfied. He purchased an electronic device at a local store. After returning home, he discovered that it was not functioning correctly. He seeks your help in writing a complaint letter to the store manager to express his concerns about the product's quality and his disappointment in the service he received.

Question: Which of the following would you suggest your uncle **NOT** include in the letter?

(**a**) Provide specific details about the product, such as the model, date of purchase, and issues he has encountered.

(**b**) Describe the interaction with the store staff, including any attempts to resolve the issue.

(**c**) Suggest a reasonable solution and emphasise the importance of quality and customer service.

(**d**) Use language that is stern and aggressive so that the manager feels compelled to cater to your demand promptly.

13. Aniket is writing a letter to the city office to convey a request. Select the mostappropriate option for the underlined part as the conclusion to the letter.

> I am writing to express my concerns and complaints about the deteriorating conditions of street lighting in our locality. Residents are concerned about their safety because of dim or no lighting on the streets.
>
> Thank you for your time and consideration.
>
> Sincerely,
>
> Aniket Sharma

(**a**) I kindly request you to pay attention to my opinion, but I know it's hard to solve the problem.

(**b**) I look forward to your prompt response and actions to resolve this important concern.

(**c**) Many residents complain about the issue, so please let them think about safety.

(**d**) Please fix this as soon as possible because lights can hamper the sleeping habits of residents.

Class IX
Information Technology – Term I
(2024-25)Practical Assignment

Date of Submission –   4/07/2024   **M.M: 10 Marks**

General Instructions:

1. **You can use any of the Software: Microsoft Word, Open Office Writer.**

2. **Submit the hardcopy of all the documents (created by questions given below), attaching them in your**

Term-1 IT practical file. Questions:

i.   Design a front page of your IT practical file. Format of the front page is given below. You can apply border and other formatting effects to it to make itmore attractive.

INSPIRATION SR SEC SCHOOL

PRACTICAL FILE

OF

INFORMATION TECHNOLOGY – 402

Submitted To:
Ms Bhawana Kafaltiya

Submitted By:
Name
Class-Sec

ii.   Create timetable of your class.
iii.   Design a certificate of achievement. Sample is given below. Mention your name in the certificate.

iv.   Create invitation letter for 3 persons using Mail Merge. Attach the letters and the screenshot of Data source (Database Table) in the file.

MATHEMATICS
Inspiration Public School, Kathgodam
Polynomials
Class X (Question Bank)

1. Find the value of a if x+a is a factor of the polynomial $2x^2+2ax+5x+10$.

2. If α and β zeros of the quadratic polynomial $p(x) = ax^2 +bx+c$ then find $\alpha^2\beta + \alpha\beta^2$

3. If zeros α and β of a polynomial x^2-7x+k, are such that α-β =1, then find the value of k.

4. If α and β are the zeros of the polynomial $2y^2+7y+5$ then find the value of α+β+ αβ

5. If α and β are the zeros of $4x^2+3x+7$, then find the value of $\dfrac{1}{\alpha} + \dfrac{1}{\beta}$

6. If one zero of the polynomial $3x^2-8x+2k+1$ is seven times the other then find the zeros and the value of k.

7. Find a quadratic polynomial. The sum and product of whose zeros are:
(i) 0 and - √2   (ii) 2√5 and -√5

8. Find a quadratic polynomial whose zeros are 2 and -6. Verify the relation between the cofficients and zeros of the polynomial.

9. If α and β are the zeros of the polynomial quadratic polynomial $f(x) = x^2+x-2$, then find a polynomial whose zeros are (2α+1) and (2β +1)

10. If α and β are zeros and the quadratic polynomial $p(s) = 3s^2-6s+4$, then the value of $\dfrac{\alpha}{\beta} + \dfrac{\beta}{\alpha} + 2\left[\dfrac{1}{\alpha} + \dfrac{1}{\beta}\right] + 3\alpha\beta$ is

(a) 7　　　　(b) 6　　　　　　　(c) 8　　　　　　　(d) 10

11. If one zero of the polynomial $(a^2+9) x^2+13x+6a$ is reciprocal of the other then find the value of a is

12. If α and β are zeros of the quadratic polynomial $p(x) = x^2- (k+6)x+2 (2k-1)$, then find the value of ,　　　if $\alpha + \beta = \dfrac{\alpha\beta}{2}$

13. If sum of the squares of zeros of the quadratic polynomial $f(x) = x^2-8x+k$ is 40. Find the value of k.

14. If the squared difference of the zeros of the quadratic polynomial $f(x)= x^2+px+45$ is equal to 144, then find the value of p.

15. For what value of k is -3 a zero of the polynomial $x^2+11x+k$

16. If $(x+a)$ is a factor of $2x^2+2ax+5x+10$, find a.

17.　(a) Statement - 1 is true, statement -2 is true, statement -2 is a correct explanation for statement -1.
　(b) Statement - 1 is true, statement -2 is true, statement -2 is not a correct explanation for statement - 1
　(c) Statement - 1 is true, statement - 2 is false.
　(d) Statement - 1 is false, statement - 2 is true.
　(i) (Assertion) Statement - : If the sum of the zeros of the quadratic polynomial of $f(x) = 3x^2+kx+5$ is - $\dfrac{2}{3}$, then the value of k is 2
　(Reason) – statement - 2: the product of zeros of the polynomial ax^2+bx+c is c/a
　(ii) (Assertion) – Statement 1 if zeros of the polynomial $f(x) = 5x^2-11x- (k-3)$ are reciprocal of each other then k= -2
　(Reason) – Statement 2 The product of the zeros of the polynomial ax^2+bx+c is –
c/a
　(iii) (Assertion) – Statement 1 if α and β are the zeros of the quadratic polynomial. Kx^2+4x+4, where k is an interger such that $(\alpha+\beta) -2 = 24$, then k =1
　(Reason) – Statement 2 if α and β are the zeros of the polynomial ax^2+bx+c a $\neq$ o then $\alpha+\beta = -b/a$ and $\alpha\beta = c/a$

Case Study Base

18. Due to heavy strom an electric wire got bent as shown in figure. It followed a mathematical shape
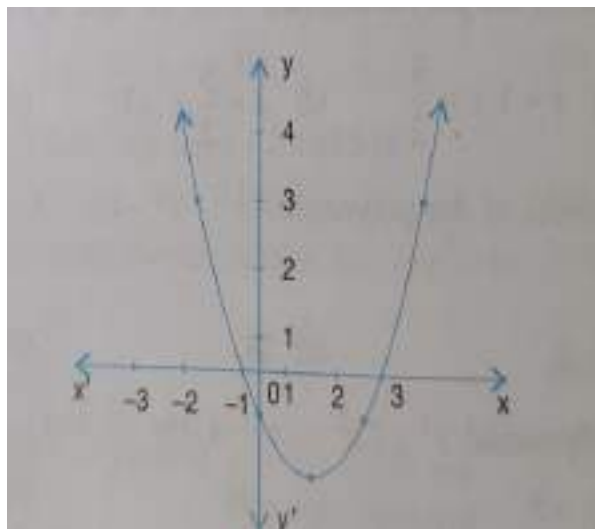
(i)　Name the shape in which the wire is bent.
(ii)　How many zeros are there for the polynomial representing the shape of the wire.
(iii)　The zeros of the polynomial represented by the wire is
(iv)　The expression of the polynomial representing the wire is.

Inspiration Public School, Kathgodam

Multiple Choice Question

1. If H.CF. $(x, 8) = 4$, L.C.M. $(x,8) = 24$, then x is
   (a) 8   (b) 10   (c) 12   (d) 14

2. The exponent of 5 in the prime factorisation of 3750 is.
   (a) 3   (b) 4   (c) 5   (d) 6

3. If two positive integers a and b are expressible in the form $a = pq^2$ and $b = p3q$; p and q being prime numbers, then L.C.M. (a,b) is
   (a) pq   (b) p^3q^3 (c) p^3q^3 (d) p^3q^3

4. The H.C.F. of 95 and 152 is
   (a) 57   (b) 1   (c) 19   (d) 38

5. The total number of factors of prime number is :
   (a) 1   (b) 0   (c) 2   (d) 3

6. The H.C.F. and L.C.M.. of 12, 21, 15 are :
   (a) 3,140   (b) 12,420   (c) 3,420   (d) 420, 3

7. The smallest irrational number by which $\sqrt{18}$ should be multiplied so as to get a rational number is
   (a) 18   (b) $2\sqrt{2}$ (c) $\sqrt{2}$ (d) 2

8. If H.C.F. (253, 440) = 11 and L.C.M. (253, 440) = 253 x R, Find the value of R

9. Write whether $\dfrac{2\sqrt{45}+3\sqrt{20}}{2\sqrt{5}}$ on simplification. Give a rational or an irrational number.

10. If H.C.F. (336, 54) = 6 find L.C.M. (336, 54)

11. Prove that $2+5\sqrt{3}$ is an irrational number given that $\sqrt{3}$ is an irrational number.

12. Prove that $\sqrt{3}$ is an irrational number.

13. Find H.C.F. and L.C.M. of
    (i) 1260 and 7344   (ii) 240 and 6552

14. On a morning walk, three persons step out together and their steps measures 30 Cm, 36 Cm, and 40 Cm. What is the minimum distance each should walk so that each can cover the same distance in complete steps.

15. Check whether 6^n can end with digit 0 for any natural number n.

16. Explain why (7x11x13) + 13 and (7x6x5x4x3x2x1) + 5 are composite numbers.

17. Two tankers contain 850 l And 680 l of petrol. Find the maximum capacity of a container which can measure the petrol of either tanker in exact number of times.

18. Prove that $\dfrac{2+\sqrt{3}}{5}$ is an irrational number given that $\sqrt{3}$ is an irrational number.

19. Express 429 as the product of its prime factors.

20. What is the H.C.F of the smallest composite number and the smallest prime number.

21. (a) Statement -1 is true, Statement -2 is true; statement -2 is a correct explanation for statement -1.
    (b) Statement -1 is true, Statement -2 is true; statement -2 is not a correct explanation for statement -1.
    (c) Statement -1 is true, Statement -2 is false
    (d) Statement -1 is false, Statement -2 is true
    Statement -1 (Assertion): If H.C.F. (90,144) = 18 then L.C.M. (90,144) = 720
    Statement -2 (Reason): H.C.F. (a, b) x L.C.M. (a, b)= a x b

22. Statement -1 (Assertion): If product of two numbers is 5780 and their H.C.F is 17, then their L.C.M. is 340.
    Statement -2 (Reason): H.C.F. is always factor of L.C.M.

23 Statement 1 (Assertion): The product of (5+ $\sqrt{3}$) and (2-$\sqrt{3}$) is an irrational number.
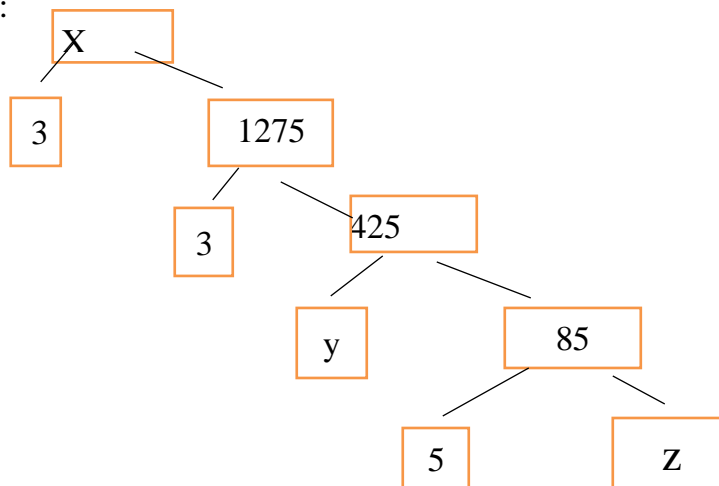   Statement -2 (Reason): The product of two irrational number is an irrational number.

24- Observe the factor tree below:
(1) The value of x

X

3   1275

(2) The value of y

3   425

(3) The value of z

y   85

(4) **The value of x + y + z is**

5   Z

Polynomial

1. If one zero of the quadratic polynomial x^2+3x+k is 2, then the value of k is
    (a) 10   (b) -10   (c) 5   (d) -5

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

3. If one zero of the polynomial f (x)= (k^2+4) $x^2+13x+4k$ is reciprocal of the other, then k=
    (a) 2   (b) -2   (c) 1   (d) -1

4. If α and β are the zeros of the polynomial (p(x) = 4 x^2+3x+7, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is equal to

    (a) $\frac{7}{3}$ (b) $\frac{-7}{3}$ (c) $\frac{3}{7}$ (d) $\frac{-3}{7}$

5. If one of the zeros of the quadratic polynomial (k-1) x^2+kx+1 is -3, then the value of k is
    (a) $\frac{4}{3}$ (b) $\frac{-4}{3}$ (c) $\frac{2}{3}$ (d) $\frac{-2}{3}$

6. If α, β are the zeros of polynomial. F(x) = $x^2-p(x+1) – c$, then (α +1) (β+1)=
    (a) C-1   (b) 1-C   (c) C   (d) 1+C

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

8. If the product of the zeros of the quadratic polynomial $3x^2+5x+k$ is -2/3 then the value of k is :
    (a) -3   (b) -2   (c) 2   (d) 3

Trigonometry   Class X (Question Bank)

1. If Cos A = $\frac{4}{5}$, then the value of Tan A is
    (b) $\frac{3}{5}$ (b) $\frac{3}{4}$ (c) $\frac{4}{3}$ (d) $\frac{5}{3}$

2. If Sin θ = $\frac{a}{b}$ then Cos θ is equal to
    (a) $\frac{b}{\sqrt{b^2-A^2}}$ (b) $\frac{b}{a}$ (c) $\frac{b^2-a^2}{b}$ (d) $\frac{a}{\sqrt{b^2-A^2}}$

3. In Δ ABC, angle B = 90^0 if AB = 2cm and AC = 3cm find the value of Sin A.

    (a) $\frac{\sqrt{5}}{3}$ (b) $\frac{\sqrt{5}}{2}$ (c) $\frac{2}{\sqrt{5}}$ (d) $\frac{3}{\sqrt{5}}$

4. If 22 Cos A – 3 Sin A = 20 Sin A, find the value of $Tan^2A + Sin^2A . Sec^2A$
    (a) $\left(\frac{22}{23}\right)^2$ (b) $2 . \left(\frac{22}{23}\right)^2$ (c) $\frac{23}{22}^2$ (d) $2. \left(\frac{23}{22}\right)^2$

5. Find the value of $Sin^230 + Cos^245 + Cos^230$
    (a) $\frac{1}{2}$ (b) $\frac{3}{2}$ (c) $\frac{5}{2}$ (d) $\frac{7}{2}$

6. If sin θ – cos θ = 0 find the value of θ
    (a) 30   (b) 45   (c) 60   (d) 90

7. If x Tan 45 . Cos 60 = sin 60 . cot 60 find x

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

8.   If $\cos(\alpha+\beta) = 0$ then $\sin(\alpha-\beta)$ can be reduced to

     (a) $\cos\beta$ (b) $\cos 2\beta$ (c) $\sin\alpha$ (d) $\sin 2\alpha$

9.   If $\sin d\,(A+B) = 1$ and $\sin(A-B) = 1/2$ then find the value of A and B

10.   If $\sqrt{3}\sin\theta = \cos\theta$ find the value of $\dfrac{\sin\theta.\,\tan\theta\,(1+\cot\theta)}{\sin\theta + \cos\theta}$

11. Prove that $\tan^2\theta + \cot^2\theta + 2 = \sec^2\theta + \operatorname{cosec}^2\theta$

12. Prove that $(1+\cot\theta - \operatorname{cosec}\theta)(1+\tan\theta + \sec\theta) = 2$

13. Prove that $(\operatorname{cosec}\theta - \sin\theta)(\sec\theta - \cos\theta) = \sin\theta.\cos\theta = \dfrac{1}{\tan\theta + \cot\theta}$

14. Prove that $\sec^2\theta - \dfrac{\sin^2\theta - 2\sin^4\theta}{2\cos^4\theta - \cos^2\theta} = 1$

15. If $3\cot A = 4$, Check whether $\dfrac{1-\tan^2 A}{1+\tan^2 A} = \cos^2 A - \sin^2 A$ or not.

16. In Δ ABC right angle at B, if $\tan A = 1/\sqrt{3}$ then find the value of $\sin A.\cos C + \cos A.\sin C$

17. In Δ PQR right angle at Q, PR+QR = 25 cm and PQ = 5 cm. Determine the values of Sin P, Cos P and Tan P.

18. If $4x = \operatorname{cosec}\theta$ and $\dfrac{4}{x} = \cot\theta$ find tha value of $4\left(x^2 - \dfrac{1}{x^2}\right)$

19. Prove that $2\sec^2\theta - \sec^4\theta - 2\operatorname{cosec}^2\theta + \operatorname{cosec}^4\theta = \cot^4\theta - \tan^4\theta$

20. Evaluate $\dfrac{\cos 45^0}{\sec 30^0 + \operatorname{cosec} 30^0}$

21. Prove that $\dfrac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A} = \tan A$

22. Prove that $\dfrac{\cos A}{1-\tan A} + \dfrac{\sin A}{1-\cot A} = \cos A + \sin A$

23. Prove that $\dfrac{\sin\theta}{\cot\theta + \operatorname{cosec}\theta} = 2 + \dfrac{\sin\theta}{\cot\theta - \operatorname{cosec}\theta}$

24. If $\sin\theta + \cos\theta = \sqrt{2}$, then prove that $\tan\theta + \cot\theta = 2$

25. Prove that $\dfrac{\tan^3\theta}{1+\tan^2\theta} + \dfrac{\cot^3\theta}{1+\cot^2\theta} = \sec\theta.\operatorname{cosec}\theta - 2\sin\theta.\cos\theta$

26. Prove That $\dfrac{\sqrt{\sec\theta - 1}}{\sqrt{\sec\theta + 1}} + \dfrac{\sqrt{\sec\theta + 1}}{\sqrt{\sec\theta - 1}} = 2\operatorname{cosec}\theta$

27. If $\sec\theta = x + \dfrac{1}{4x}$, Prove that $\sec\theta + \tan\theta = 2x$ or $\dfrac{1}{2x}$

28. If $\sqrt{3}\tan\theta - 1 = 0$, Find the value of $\sin^2\theta - \cos^2\theta$

29. Statement – 1 (Assertion) and Statement –2 (Reason) and has four choices (a) (b) (c) (d) only one which is correct.

       (a) Statement – 1 and Statement – 2 are True; Statement 2 is a correct explanation for statement – 1

       (b) Statement – 1 and Statement –2 are True; Statement – 2 is not a correct explanation for statement 1.

       (c) Statement –1 is True, Statement -2 is False

       (d) Statement –1 is False, Statement -2 is True

       Statement- (1) (Assertion) : If $\sin\theta + \sin^2\theta = 1$ then $\cos^2\theta + \cos^4\theta = 1$

       Statement -2 (Reason) $1 - \sin^2\theta = \cos^2\theta$

30. Find tha value of $\dfrac{\cot\theta}{\cot\theta - \cot 3\theta} + \dfrac{\tan\theta}{\tan\theta - \tan 3\theta}$

CHAPTER - 1 (NUMBER SYSTEMS)

Solve the following questions:

Q1. The product of any two irrational numbers is :

a. always an irrational number b. always a rational number

c. always an integer d. sometimes rational, sometimes irrational

Q2. Which of the following is not equal to $\left[\left(\frac{5}{6}\right)^{\frac{1}{5}}\right]^{-\frac{1}{6}}$:

a. $\left(\frac{5}{6}\right)^{\frac{1}{5}\cdot\frac{1}{6}}$ b. $\dfrac{1}{\left[\left(\frac{5}{6}\right)^{\frac{1}{5}}\right]^{\frac{1}{6}}}$ c. $\left(\frac{6}{5}\right)^{\frac{1}{30}}$ d. $\left(\frac{5}{6}\right)^{\frac{1}{30}}$

Q3. The number of rational numbers between $\sqrt{3}$ and $\sqrt{5}$ is :

a. one b. two c. three d. infinitely many

Q4. The arrangement of $\sqrt{5}, \sqrt{2}, \sqrt{3}$ in ascending order is :

a. $\sqrt{2}, \sqrt{3}, \sqrt{5}$ b. $\sqrt{5}, \sqrt{3}, \sqrt{2}$ c. $\sqrt{2}, \sqrt{5}, \sqrt{3}$ d. $\sqrt{3}, \sqrt{2}, \sqrt{5}$

Q5. Value of $\sqrt[4]{(81)^{-2}}$ is :

a. $\frac{1}{9}$ b. $\frac{1}{3}$ c. 9 d. $\frac{1}{81}$

Q6. The product $\sqrt[4]{2}.\sqrt[4]{2}.\sqrt[4]{32}$ equals :

a. $\sqrt{2}$ b. 2 c. $\sqrt[4]{2}$ d. $\sqrt[4]{32}$

Q7. Value of $(256)^{0.16} \times (256)^{0.09}$ is :

a. 4 b. 16 c. 64 d. 256.25

Q8. The decimal expansion of the number $\sqrt{2}$ is :

a. a finite decimal b. 1.41421

c. non - terminating recurring d. non-terminating non - recurring

Q9. The number obtained on rationalising the denominator of $\frac{1}{\sqrt{7}-2}$ is :

a. $\frac{\sqrt{7}+2}{3}$ b. $\frac{\sqrt{7}-2}{3}$ c. $\frac{\sqrt{7}+2}{5}$ d. $\frac{\sqrt{7}+2}{45}$

Q10. How many rational numbers are between two rational numbers?

Q11. Is every irrational or rational number a real number?

Q12. Write the value of 1.999... in the form $\frac{p}{q}$, where p, q are integers, $q \neq 0$.

Q13. Write the rationalising factor of $\frac{1}{\sqrt{7}-\sqrt{4}}$.

Q14. Find the value of $(81)^{0.16 + 0.09}$.

Q15. Find the value of $(256)^{0.16} \times (256)^{0.09}$

Q16. Evaluate: $\left(\frac{1}{2}\right)^{5} \times \left(\frac{-2}{3}\right)^{4} \times \left(\frac{3}{5}\right)^{-1}$

Q17. Simplify: $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{4} + \sqrt{225}$

Q18. Simplify: $\frac{1}{(2+\sqrt{5})} + \frac{1}{(\sqrt{5}+\sqrt{6})} + \frac{1}{(\sqrt{6}+\sqrt{7})} + \frac{1}{(\sqrt{7}+\sqrt{8})}$

Q19. Simplify: $\dfrac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}}-\dfrac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}}-\dfrac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$

Q20. If $a=\dfrac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $b=\dfrac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, then find the value of a^2+b^2-5ab.

Q21. If $a=5+2\sqrt{6}$ and $b=\dfrac{1}{a}$, then what will be the value of a^2+b^2?

Q22. If $a=9-4\sqrt{5}$, then find the value of $a-\dfrac{1}{a}$.

Q23. If $\left(\dfrac{3}{4}\right)^{x}\times\left(\dfrac{16}{9}\right)^{4}=\left(\dfrac{4}{3}\right)^{x-2}$, find the value of x.

Q24. If $x=2+\sqrt{3}$, find the value of $x^2+\dfrac{1}{x^2}$.

Case-study based questions:

Q25. To judge the preparation of students class IX on topic " Number System" Mathematics teachers write two numbers on black board (as shown in figure), and asks some questions about the members, which are following, then answer the question :

MATHS/IX/ASGMT

Page 2 of 30

i. Write the decimal form of 2/11
   a. $0.\overline{81}$ b. $0.\overline{18}$ c. $0.\overline{17}$ d. $0.\overline{71}$

ii. Write the p/q form of $0.3\overline{8}$
   a. 5/18   b. 7/18   c. 11/18   d. 1/18

iii. Write the decimal expansion of 2/11
   a. Non - terminating   b. Terminating
   c. Non - terminating repeating   d. Non - terminating non - repeating

iv. If p/q form of $0.3\overline{8}$ is m/n, then value of (m + n) is
   a. 25   b. 11   c. 29   d. 23

v. The decimal expansion of $0.3\overline{8}$
   a. Terminating   b. Non-terminating
   c. Non-terminating repeating   d. Non-terminating non-repeating

CHAPTER - 2 (POLYNOMIALS)

Solve the following questions:

Q1. $\sqrt{2}$ is a polynomial of degree
   a. 2   b. 0   c. 1   d. $\dfrac{1}{2}$

Q2. If $p(x)=x^2-2\sqrt{2}x+1$, then $p(2\sqrt{2})$ is equal to :
   a. 0   b. 1   c. $4\sqrt{2}$ d. $8\sqrt{2}+1$

Q3. The value of the polynomial $5x-4x^2+3$, when $x=-1$ is :
   a. -6 b. 6   c. 2   d. -2

Q4. Zero of the polynomial $p(x)=2x+5$ is :
   a. $-\dfrac{2}{5}$ b. $-\dfrac{5}{2}$ c. $\dfrac{2}{5}$ d. $\dfrac{5}{2}$

Q5. If $x+1$ is a factor of the polynomial $2x^2+kx$, then the value of k is :
   a. -3 b. 4   c. 2   d. -2

Q6. $x+1$ is a factor of the polynomial :
   a. x^3+x^2-x+1 b. x^3+x^2+x+1 c. $x^4+x^3+x^2+1$ d. $x^4+3x^3+3x^2+x+1$

Q7. Which of the following is a factor of $(x+y)^3-(x^3+y^3)$?
   a. x^2+y^2+2xy b. x^2+y^2-xy c. xy^2 d. 3xy

Q8. The coefficient of x in the expansion of $(x+3)^3$ is :
   a. 1   b. 9   c. 18   d. 27

Q9. If $\dfrac{x}{y}+\dfrac{y}{x}=-1$ $(x,y\neq0)$, the value of x^3-y^3 is :
   a. 1   b. -1 c. 0   d. $\dfrac{1}{2}$

Q10. If $x + y + 2 = 0$, then write the value of $x^3 + y^3 + 8$.

Q11. Write the factors of polynomial $4x^2 + y^2 + 4xy + 8x + 4y + 4$.

Q12. Find the coefficient of x^2 in $(x^2 - 2)^3$.

Q13. Find the value of $249^2 - 248^2$.

Q14. Find the value of 95×96.

Q15. Find the value of the polynomial $p(z) = 3z^2 - 4z + \sqrt{17}$, when $z = 3$.

Q16. If -1 is a zero of the polynomial $p(x) = ax^3 - x^2 + x + 4$, find the value of a.

Q17. Using factor theorem, show that x–y is a factor of $x(y^2 - z^2) + y(z^2 - x^2) + (x^2 - y^2)$.

Q18. Check whether $(p + 1)$ is a factor of $(p^{106} - 1)$ and $(p^{101} - 1)$.

Q19. If $a + b + c = 7$ and $ab + bc + ca = 20$, find the value of $a^2 + b^2 + c^2$.

Q20. Find the product of $(3x + 2y)(3x - 2y)(9x^2 + 4y^2)$.

Q21. If $\left(\dfrac{8}{15}\right)^3 - \left(\dfrac{1}{3}\right)^3 - \left(\dfrac{1}{5}\right)^3 = \dfrac{x}{75}$, find x.

Q22. Factorise $(x - 3y)^3 + (3y - 7z)^3 + (7z - x)^3$.

Q23. Expand :

a. $\left(\dfrac{1}{x} + \dfrac{y}{3}\right)^3$

b. $\left(4 - \dfrac{1}{3x}\right)^3$

Q24. If $x + \dfrac{1}{x} = 3$, find the value of $x^2 + \dfrac{1}{x^2}$ and $x^3 + \dfrac{1}{x^3}$.

Q25. Determine whether the indicated numbers are zeroes of the given polynomial.

i. $g(x) = 3x^2 - 2; x = \dfrac{2}{\sqrt{3}}, \dfrac{-2}{\sqrt{3}}$

ii. $f(x) = x^3 - 6x^2 + 11x - 6; x = 1, 3$

Q26. If $p(x) = x^3 + 3x^2 - 2x + 4$, find the value of $p(-2) + p(1) + p(0)$.

Q27. If x – 2y = 11 and xy = 8, find the value of $x^3 - 8y^3$.

Case-study based questions:

Q28. On one day, principal of a particular school visited the classroom. Class teacher was teaching the concept of polynomial to students. He was very much impressed by her way of teaching. To check, whether the students also understand the concept taught by her or not, he asked various questions to students. Some of them are given below. Answer them.

i. Which one of the following is not a polynomial?

a. $4x^2 + 2x - 1$

b. $y + \left(\dfrac{3}{y}\right)$

c. $x^3 - 1$

d. $y^2x + 5y + 1$

ii. The polynomial of the type $ax^2 + bx + c$, $a = 0$ is called :

a. Linear polynomial

b. Quadratic polynomial

c. Cubic polynomial

d. Biquadratic polynomial

iii. If x + 2 is the factor of $x^3 - 2ax^2 + 16$, then value of a is :

a. -7   b. 1   c. -1   d. 7

iv. The value of k, if (x - 1) is a factor of $4x^3 + 3x^2 - 4x + k$, is :

a. 1   b. -2   c. -3   d. 3

v. The number of zeroes of the polynomial $x^2 + 4x + 2$ is :

a. 1   b. 2   c. 3   d. 4