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SUMMER VACATION ASSIGNMENT
SESSION 2019-20
CLASS X

ENGLISH:

Read any book and summarize it in the form of PowerPoint Presentation (slides). The slides must be in the following order:

General information about the book
Author's description
Character's description
Summary of the story

Describe the following proverbs in your own words in not more than 50 words-

1. No gains without pains
2. *All's well that ends well*

Be a poet, now compose a poem two lines have been composed for you-

1. Moon moon come and shine,
2. I have finished dinner of mine,

Write 20 words starting with 'A' and give at least two- two antonyms of each.

SCIENCE(PHYSICS)

Choose the correct answer for the questions given below:

1. Focal length of plane mirror is
 - a. At infinity
 - b. Zero
 - c. Negative
 - d. None of these
2. Image formed by plane mirror is
 - a. Real and erect
 - b. Real and inverted
 - c. Virtual and erect
 - d. Virtual and inverted

3. A concave mirror gives real, inverted and same size image if the object is placed
 - a. At F
 - b. At infinity
 - c. At C
 - d. Beyond C
4. A concave mirror gives virtual, refract and enlarged image of the object but image of smaller size than the size of the object is
 - a. At infinity
 - b. Between F and C
 - c. Between P and F
 - d. At E
5. Convex mirror focus a real, point sized image at focus, the object is placed
 - a. At focus
 - b. Between F and 2F
 - c. At infinity
 - d. At 2F
6. The unit of magnification is
 - a. Metre
 - b. Centimeter
 - c. Diopter
 - d. no unit
7. The radius of curvature of a mirror is 20cm the focal length is
 - a. 20cm
 - b. 10cm
 - c. 40cm
 - d. 5cm
8. Light is a form of energy produced by a _____.
 1. luminous object
 2. transparent object
 3. non-luminous object
 4. opaque object
9. An example for non-luminous object is _____.
 1. a candle
 2. the sun
 3. an electric bulb
 4. the moon
10. The phenomenon by which the incident light falling on a surface is sent back into the same medium is known as _____.
 1. polarization
 2. reflection
 3. refraction
 4. absorption
11. When light is incident on a polished surface _____ reflection takes place.
 1. regular
 2. irregular
 3. diffused
 4. normal

12. An object becomes invisible when it undergoes _____ reflection.
1. regular
 2. irregular
 3. diffused
 4. normal
13. According to the laws of reflection,
1. $i = r$
 2. $i > r$
 3. $r > i$
 4. none of above
14. The image formed by a plane mirror is always _____.
1. real and erect
 2. virtual and erect
 3. real and inverted
 4. virtual and inverted
15. The centre of the sphere of which the spherical mirror forms a part is called _____.
1. centre of curvature
 2. focus
 3. pole
 4. vertex
16. The focus of a concave mirror is _____.
1. real
 2. virtual
 3. undefined
 4. at the pole
17. A converging mirror is known as _____.
1. convex mirror
 2. plane mirror
 3. concave mirror
 4. cylindrical mirror
18. The relation between the focal length and radius of curvature of a mirror is _____.
1. image
 2. $R + 2 = f$
 3. $f = R/2$
 4. $f = 2 R$
19. Radius of curvature of a concave mirror is always _____ to the mirror.
1. parallel
 2. perpendicular
 3. inclined at 60°
 4. inclined at 45°
20. An image formed by a convex mirror is always _____.
1. virtual, erect and diminished
 2. virtual, real and magnified
 3. real, inverted and diminished
 4. real, erect and magnified

21. If the image formed by a concave mirror is virtual, erect and magnified, then the object is placed ,
1. between the pole of the mirror and the focus
 2. beyond the centre of curvature
 3. at the centre of curvature
 4. at the focus
22. Dentists use a _____ to focus light on the tooth of a patient.
1. concave mirror
 2. convex mirror
 3. plane mirror
 4. cylindrical mirror
23. An object is placed 1.5 m from a plane mirror. How far is the image from the person?
1. 3 m
 2. 1.5 m
 3. 2 m
 4. 1 m
24. An object placed 2m from a plane mirror is shifted by 0.5 m away from the mirror. What is the distance between the object and its image?
1. 2 m
 2. 1.5 m
 3. 5 m
 4. 3 m
25. What is the angle between the incident and reflected rays when a ray of light is incident normally on a plane mirror?
1. 90°
 2. 45°
 3. 180°
 4. 0
26. Name the type of image that can be obtained on a screen.
1. Virtual
 2. Real
 3. Diverging
 4. Converging
27. A ray of light is incident on a plane mirror and the angle of incidence is 25° . What is the angle of reflection?
1. 0
 2. 50°
 3. 90°
 4. 25°
28. A ray of light is incident on a plane mirror and the angle of reflection is 50° . Calculate the angle between the incident ray and the reflected ray.
1. 50°
 2. 25°
 3. 90°
 4. 100°

29. Which of the following is used to make a periscope?
1. Concave mirror
 2. Convex mirror
 3. Plane mirror
 4. Lens
30. Which mirror has a wider field of view?
1. Convex mirror
 2. Concave mirror
 3. Plane mirror
 4. Cylindrical mirror
31. The focal length of a concave mirror is 15 cm. What is its radius of curvature?
1. 15 cm
 2. 30 cm
 3. 7.5 cm
 4. 45 cm
32. The focal length of a mirror is +15 cm. Identify the type of mirror.
1. Concave mirror
 2. Plane mirror
 3. Convex mirror
 4. Cylindrical mirror
33. A ray of light passing through the _____ retraces its path.
1. focus
 2. centre of curvature
 3. pole
 4. vertex
34. When an object is placed at the focus of a concave mirror, the image will be formed at _____.
1. infinity
 2. focus
 3. centre of curvature
 4. pole
35. Butter paper is an example for _____ object.
1. a transparent
 2. a translucent
 3. an opaque
 4. a luminous
36. An object of size 2.0 cm is placed perpendicular to the principal axis of a concave mirror. The distance of the object from the mirror equals to the radius of curvature. The size of the image will be _____.
1. 0.5 cm
 2. 1.5 cm
 3. 1.0 cm
 4. 2.0 cm
37. If an incident ray passes through the centre of curvature of a spherical mirror, the reflected ray will _____.
1. pass through the focus
 2. pass through the centre of curvature
 3. pass through the pole
 4. retrace its path

SCIENCE(CHEMISTRY) :

Chemical reactions and equations

Q1 A metal nitrate A on heating gives a yellowish brown metaloxide along with a brown gas B and a colourless gas C. Aqueous solution of A on reaction with potassium iodide forms a yellow precipitate of compound D .identify A,B,C and D

Q2. Ferrous sulphate crystals decomposes with the evolution of a gas with a characteristic smell of burning sulphur. Write the chemical reaction involved and the type of reaction.

Q3.A solution of potassium chloride when mixed with silver nitrate solution an insoluble white substance is formed. Write the type of chemical reaction and the corresponding balanced chemical equation.

Q4.In a solution of copper sulphate , a strip of metal M was inserted. After sometime, the colour of copper sulphate solution faded away. Which metal is more reactive and which one is less? Give equation .Also mention the type of reaction.

Q5. Name one metal which can displace zinc from its salt solution and one metal which cannot displace zinc from its salt solution.

Q6.What happens when limestone is heated strongly?What type of reaction is this?

Q7.What happens when an aqueous solution of barium chloride is mixed with an aqueous solution of sodium sulphate?Write the equation also.

Q8.Give an example of a reaction which is both an exothermic and combination reaction.

Q9. Why does milky appearance disappear when carbon dioxide is passed through lime water in excess?

Q10. Suggest any two observations in an activity which may suggest that a chemical reaction has taken place.Give example in support of your answer.

Q11. What is wrong with the following equation



Q12. Solid calcium oxide was taken in a container and water was added to it slowly.

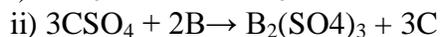
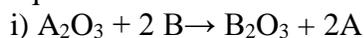
(i)State any two observations made in the experiment.

(ii)Write the name and chemical formula of the product.

CHEMICAL REACTIONS AND EQUATIONS

1.What change will you observe if white silver chloride is placed in sunlight? Write an equation for the reaction and the type of reaction.

2.A,B and C are three elements which undergo chemical reactions according to the following equations



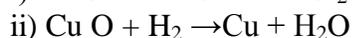
Answer the following questions with reasons

a)Which element is the most reactive?

b)Which element is the least reactive?

c)What is the type of reactions listed above?

3. What is a redox reaction? Identify the substance oxidized and substance reduced in the following reactions



4. Write a balanced chemical equation to represent the following reaction
Carbon Monoxide reacts with hydrogen gas at 340 atm. To form methyl alcohol.
5. Write the observation with reaction for the following
Granulated zinc reacts with dilute sulphuric acid.
6. Name two salts that are used for black and white photography. Give reactions when they are exposed to sunlight.
7. What happens when an iron nail is put inside copper sulphate solution? Write reaction with observation.
8. (a) What do you see when a magnesium ribbon is burnt? Is magnesium oxidized or reduced in the reaction?
(b) Define corrosion.
9. A solution of potassium chloride when mixed with silver nitrate solution, an insoluble white substance is formed. Write the chemical reactions involved and also mention the type of reaction.
10. A substance X, which is an oxide of a metal, is used extensively in the cement industry. This element is present in bones also. On treatment with water, it forms a mixture which turns red litmus blue. Identify X and also write the chemical reaction involved.
11. Why do we store silver chloride in dark coloured bottles?
12. Oxidation and reduction processes occur simultaneously. Justify the statement.
13. Do all the NCERT intext & exercise question & answers in your class work copy for chapter 1.

NOTE- All these questions are to done in your class note book. No need to make a separate notebook or file for it.

SCIENCE(BIOLOGY) :

Prepare Five worksheets each of HOTS questions for the following chapters: Learn the questions and answers of Life processes for Internal Assessment on July 8th,2019.

- (i) Reproduction in Organisms
- (ii) Sexual Reproduction in Flowering Plants
- (iii) Human Reproduction
- (iv) Reproductive Health
- (v) Heredity & Variation
- (vi) Life processes.
- (vii) Control and coordination
- (viii) Our Environment

MATHEMATICS :

TOPIC : REAL NUMBERS

1. Write formal statement of Euclid's Division Lemma or Euclid Division algorithm.
2. Show that every positive integer n is of the form $2m$ or $2m + 1$ according as n is even or odd positive integer.
3. Find H.C.F of the following two positive integer with the help of the division algorithm.
 - (a) 455,42
 - (b) 37728,12156
 - (c) 650,1170
 - (d) 105,245
 - (e) 305,793
 - (f) 3444, 410
 - (g) 2775,296
 - (h) 9828,14742
 - (i) 12576,4052
4. By using Euclid's algorithm, find the largest number which divides 650 and 1170
5. By using Euclid's algorithm, find the largest number which divides 969 and 2059, the remainders obtained are 9 and 11 respectively.
6. Use Euclid's division to find the H.C.F of 85 and 51 and then express it in the form of $85x + 51y$ where x and y are integers .
7. Using Euclid's division algorithm , find the largest number which divides the numbers 120,224 and 256
8. By using Euclid's algorithm, find the largest number which divides 450,577 and 704 leaving remainders 9,10 and 11 respectively.
9. Show that every positive even integer is of form $4q$ or $4q+2$ where q is a whole number.
10. Show that $n^2 - n$ is divisible by 2 for every natural number n .
11. If n is an odd positive integer, then Show that $n^2 - 1$ is divisible by 8.
12. Show that the square of any positive integer cannot be of the form $5m + 2$ or $5m + 3$ for any integer m .
13. Show that product of any three consecutive natural numbers is divisible by 6.
14. Show that one and only one out of $n, n+3, n+6, n+9$ is divisible by 4.
15. Show that every odd positive integer is of the form $4q + 1$ or $4q + 3$ where q is some whole number.
16. Show that every odd positive integer is of the form $8q + 1$ or $8q + 3$ or $8q + 5$ or $8q + 7$ where q is some integer.
17. Show that every odd positive integer is of the form $6q + 1$ or $6q + 3$ or $6q + 5$ where q is some integer.
18. Show that every even positive integer is of the form $6q, 6q + 2$ or $6q + 4$ where q is some integer.
19. Show that one and only one out of $n, n+1, n+2$ and $n+3$ is divisible by 4, where n is any integer.
20. If n be any positive integer, then by using Euclid's division algorithm, show that n^2 can be expressed in the form $3m$ or $3m + 1$, where m is some integer.
21. If n be any positive integer, then by using Euclid's algorithm, show that
 - (a) n^3 can be expressed in the form $9q, 9q + 1$ or $9q + 8$.
 - (b) $n^3 + 1$ can be expressed in the form $9q, 9q + 1$ or $9q + 2$ where q is some integer.

22. For any positive integer n , prove that $n^3 - 6$ is divisible by 6.
23. Show that the square of an odd positive integer is either of the form $6q + 1$ or $6q + 3$ for some integer q .
24. Show that the cube of a positive integer of the form $6q + r$ where q is an integer and $r = 0, 1, 2, 3, 4, 5$, is also of the form $6m + r$.
25. Write formal statement of fundamental theorem of Arithmetic.
26. Show that $17 \times 41 \times 43 \times 61 + 43$ is a composite number.
27. Consider the number 4^n , where n is a natural number. Check whether there is any value of n in the system N of natural number for which 4^n end with digit 0.
28. Show that 7^n cannot end with the digit 0 for any natural number n .
29. Show that 3^n cannot end with the digit 0 for any natural number n .
30. Show that 5^n cannot end with the digit 2 for any natural number n .
31. Show that 8^n cannot end with the digit 5 for any natural number n .
32. Show that 9^n cannot end with the digit 2 for any natural number n .
33. Find the H.C.F of 12576 and 4052 by using the fundamental theorem of Arithmetic (Prime factorisation method). Hence find the LCM of the numbers.
34. Find HCF and LCM of 15, 75 and 160 by using prime factorisation method.
35. A rectangular field is 150 m x 60 m. Two cyclists John and David start together and can cycle at a speed of 21 m /min and 28 m /min respectively. They cycle along the rectangular track, around the field from the same point and at the same moment. After how many minutes will they meet again at the starting point ?
36. If a prime number p divides a^2 , then show that p divides a , where a is a positive integer.
37. Prove that the numbers $\sqrt{3}, \sqrt{2} + 5, 5\sqrt{2}$ and $\sqrt{2} + \sqrt{3}$ are irrational numbers.
38. Express 0.565656..... in p/q form.
39. Write the decimal expansion of $3/3125$ without actually performing the long division.
40. Without actually performing the long division, state whether the following rational numbers will have a terminating or a non terminating repeating decimal expansion :
 (i) $83/2^3 5^2$ (ii) $25/1600$ (iii) $29/9261$ (iv) $32/455$ (Write reasons for your answers)

TOPIC : POLYNOMIALS

1. Represent zeros of the following polynomials graphically.
 (a) $2x - 7$ (b) $x^2 - 8x + 12$ (c) $-x^2 + x + 6$
2. Find zeros of the polynomial of the following.
 (a) $x^3 - 4x$ (b) $x^2 - 1$
3. Find the zeros of quadratic polynomial $x^2 + 11x + 30$ and verify the relations between the zeros and the coefficients of the polynomials.
4. Find the zeros of polynomial $2x^2 - 9$ and verify the relations between the zeros and the coefficients of the polynomials.
5. Find the zeros of polynomial $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ and verify the relations between the zeros and the coefficients of the polynomials.
6. If α and β be two zeros of the quadratic polynomial $p(x) = 2x^2 - 3x + 7$, evaluate
 (i) $1/\alpha + 1/\beta$ (ii) $\alpha^2 + \beta^2$ (iii) $\alpha^3 + \beta^3$ (iv) $1/2\alpha - 3 + 1/2\beta - 3$
7. If the sum of the squares of zeros of the polynomial $6x^2 + x + k$ is $25/36$, find the value of k .
8. Find a quadratic polynomial, the sum and product of whose zeros are 2 and $-3/5$ respectively.
9. Find a quadratic polynomial whose zeros are -3 and 2.

10. Find a cubic polynomial, with the sum, sum of the products of its zeros taken two at a time, and the product of its zeros as 4,1,-6 respectively.
11. Find cubic polynomial whose zeros are -1,2 and 3.
12. If α and β be two zeros of the quadratic polynomial $p(x) = x^2 - 3x + 7$, find a quadratic polynomial whose zeros are $1/\alpha$ and $1/\beta$
13. If one zero of the quadratic polynomial $2x^2 - (3k+1)x - 9$ is negative of other, find the value of k.
14. If the zeros of the polynomial $x^3 - 3x^2 + x + 1$ are $a-b, a$ and $a+b$, then find a and b.
15. Write formal statement of Division Algorithm for polynomials.
16. Apply division algorithm to find the quotient and remainder on dividing polynomial $p(x) = 2x^3 - 3x^2 + 6x + 7$ by $g(x) = x^2 - 4x + 8$
17. Divide $3x^2 - x^3 - 3x + 5$ by $x - 1 - x^2$ and verify the division algorithm.
18. On dividing $6x^3 + 8x^2 - 3x + 8$ by a polynomial $g(x)$, the quotient and the remainder were $3x + 4$ and $6x + 20$ respectively. Find $g(x)$
19. What must be added to the polynomial $p(x) = 5x^4 + 6x^3 - 13x^2 - 44x + 7$ so that the resulting polynomial is exactly divisible by the polynomial $g(x) = x^2 + 4x + 3$ and the degree of the polynomial to be added must be less than degree of the polynomial $g(x)$.
20. If the remainder on dividing $x^3 + 2x^2 + kx + 3$ by $x - 3$ is 21, find the quotient and value of k. Hence find the zeros of cubic polynomial $x^3 + 2x^2 + kx - 18$
21. Given that $\sqrt{2}$ is a zero of the cubic polynomial $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$, find the other two zeros.
22. Find all the zeros of the polynomial $x^4 + x^3 - 9x^2 - 3x + 18$ if it is given that two of its zeros are $\sqrt{3}$ and $-\sqrt{3}$.
23. If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, then remainder comes out to be $x - a$, then find k and a.
24. Find all the zeros of the polynomial $x^3 - x^2 - 4x + 4$ if one of its zero is -2
25. Find all the zeros of the polynomial $3x^4 - 15x^3 + 17x^2 + 5x - 6$ if its two zeros are $-1/\sqrt{3}$ and $1/\sqrt{3}$.

TOPIC : PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

1. For what values of a and b does the following pair of equations have an infinite numbers of solutions. $2x + 3y = 7$, $a(x+y) - b(x-y) = 3a+b-2$
2. For what value of k will the following equations have infinitely many solutions?
 $2x - 3y = 7$, $(k+1)x + (1-2k)y = 5k - 4$
3. The sum of denominator and numerator of a fraction is 3 less than twice the denominator. If each of the numerator and denominator is decreased by 1, the fraction becomes $1/2$. Find the fraction.
4. The sum of the digits of a two digit number is 12. The number obtained by interchanging the two digits exceeds the given number by 18. Find the number.
5. The sum of the numerator and denominator of a fraction is 12. If 1 is added to both numerator and denominator the fraction becomes $3/4$. Find the fraction.
6. 4 men and 6 boys can finish a piece of work in 5 days while 3 men and 4 boys can finish it in 7 days. Find the time taken by 1 man alone or than by 1 boy alone.
7. A man travels 600 km apart by train and partly by car. It takes 8 hours and 40 minutes if he travels 320 km by train and rest by car. It would take 30 minutes more if he travels 200 km by train and the rest by the car. Find the speed of the train and the car separately.
8. Solve the equations graphically. $2x + y = 2$, $2y - x = 4$. Also find the area of a triangle formed by the two lines and the line $y = 0$.

- 9 For what value of k will pair of equations have no solution?
 $3x + y = 1$, $(2k-1)x+(k-1)y = 2k+1$
10. Solve the following pair of equations graphically. $x+3y=6$, $2x-3y=12$. Also find the area of the triangle formed by the lines representing the given equations with y -axis.
11. 6 men and 10 women can finish making pots in 8 days, while the 4 men and 6 women can finish it in 12 days. Find the time taken by the one man alone from that of one woman alone to finish the work.
12. A boat covers 14 km in upstream and 20 km downstream in 7 hours. Also it covers 22 km upstream and 34 km downstream in 10 hours. Find the speed of the boat in still water and of that the stream.
13. Draw the graph of $2x+ y = 6$ and $2x - y +2=0$. Shade the region bounded by these lines and x axis. Find the area of the shaded region.
14. The sum of a two digit number and the new number obtained by reversing its digits is 165. If the difference of new number and the original number is three, then find the number.
15. A number say z is exactly the four times the sum of its digits and twice the product of the digits. Find the number.
16. Solve graphically $4x- 3y + 4=0$, $4x + 3y - 20 = 0$
17. There are two points on a highway A and B. They are 70 km apart. A car starts from A and another car starts from B simultaneously. If they travel in the same direction, they meet in 7 hours, but if they travel towards each other they meet in 1 hour. Find the speed of the cars.
18. A diver rowing at the rate of 5 km/h in still water takes double the time in going 40 km upstream as in going 40 km downstream. Find the speed of the stream.
19. The larger of two supplementary angles exceeds thrice the smaller by 20 degrees. Find them.
20. The sum of ages two children is 'a'. The age of the father is twice the 'a'. After twenty years, his age will be equal to the addition of the ages of his children. Find the age of father.
21. What types of lines do the pair of equations $x = c$ and $y = c$ represent graphically?
22. A boat is moving at the rate of 5 km/h in still water, takes thrice as much as time in going 40 km upstream as in going 40 km downstream. Find the speed of the stream.
23. Find the value of m , when $(m+1)x = 3ky +15=0$ and $5x+ ky+5=0$ are coincident.
24. Write the pair of linear equations which have solutions $x = 2$, $y = -2$.
25. Solve the pair of equations $4x- 3y + 4=0$, $4x + 3y - 24 = 0$ graphically.
26. If we have two variables x and y when $x = a$ and $y = b$ is the solution of equations $x - y = 2$ and $x + y = 4$, then what will be the value of a and b .
27. Use cross multiplication method to solve $ax + bx = a - b$, $bx - ay = a + b$.
28. Whether this pair of linear equations is consistent. Find $x-2y = 6$, $3x- 6y = 0$.
29. A number is a two digit number which is three times more than 4 times the sum of the digits. If 18 is added to the number, the digits gets opposite. Represent geometrically.
30. The addition of numerator and denominator of a fraction is three less than twice the Denominator. If the numerator and denominator are decreased by 1, the numerator becomes half the denominator. Find the fraction.
31. Solve the following systems of equations :
- $$\frac{2}{x} + \frac{3}{y} = \frac{9}{xy}$$
- $$\frac{4}{x} + \frac{9}{y} = \frac{21}{xy}$$
32. If $(x + 1)$ is a factor of $2x^3 + ax^2+2bx+1$ then find the values of a and b , given that $2a - 3b = 4$
33. Find the solution of the pair of equations $\frac{X}{10} + \frac{Y}{5} - 1 = 0$ and $\frac{X}{8} + \frac{Y}{6} = 15$, Hence find X
 If $y = \alpha X + 5$

34. Solve the following systems of equations :

$$\frac{44}{x+y} + \frac{30}{x-y} = 10 \text{ and } \frac{55}{x+y} + \frac{40}{x-y} = 13$$

35. Calculate the area of the triangle formed by the line $\frac{x}{a} + \frac{y}{b} = 1$ with the coordinate axes.

SOCIAL SCIENCE :

Locate and label the following places in the political map of India.

01) Iron Ore mines

a) Durg b) Bellary

2) Coal mines

a) Raniganj b) Talcher. C) Bokaro

3) Oil Fields

a) Digboi. B) Bassein C) Naharkatia D) Karol E) Ankaleswar

4) Thermal

A) Namrup. B) Singrauli. C) Ramagundam

5) Nuclear

A) Narora B) Tarapur. C) Kakrapara. D) Kalpakkam

INFORMATION TECHNOLOGY

(Do in class work copy)

- (i) List any five application based instant messaging software.
- (ii) What do you mean by instant messages?
- (iii) List any five websites that provide blog service.
- (iv) Difference between web page and website.
- (v) Explain the purpose of an offline blog editor.
- (vi) List any five offline blog editors.
- (vii) Explain the purpose of online transactions?
- (viii) List any five websites that allow online transactions.
- (ix) List any three payment tools to use online transactions.
- (x) Explain the purpose of Internet Security?
- (xi) Explain different kinds of online treats?