Banyan Tree School

Chandigarh

Holiday Assignment
Summer 2022-2023
Class: X

MATHEMATICS

Worksheet

TOPIC: Probability

1. Cards bearing numbers 1, 3, 5, ..., 35 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card hearing:

(i) a prime number less than 15. (ii) a number divisible by 3 and 5.

2. Red kings, queens and jacks are removed from a deck of 52 playing cards and then well-shuffled. A card is drawn from the fining cards. Find the probability of getting (i) King (ii) a red card (iii) a spade.

3. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting

(i) A king of red suit. (ii) A queen of black suit.

(iii) A jack hearts. (iv) A red face card.

4. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is thrice that of a red ball, find the number of blue balls in the bag.

5. In a throw of a coin, find the probability of getting a head.

6. Two coins are tossed together find the probability of getting:

(i) at least one tail. (ii) one head

7. An unbiased die is thrown once, find the probability of getting:

(i) a number greater than 4. (ii) a multiple of 3.

8. Two dice are thrown at the same time. Find the probability of getting different numbers on both the dice.

9. Two dice are thrown at the same time. Find the probability of getting same number on both the dice.

10. A pair of dice is thrown once. Find the probability of getting an odd number on each the.

11. A lot consists of 48 mobile phones of which 42 are good, 3 have only minor or defects and 3 have Or defects. Varnika will buy a phone if it is good but the trader will only buy a mobile if it has no major defect. One phone is selected at random from the lot. What is the probability that it is:

(i) acceptable to. Varnika? (ii) acceptable to the trader?

12. Find the probability that a number selected at random from the numbers 1, 2, 3, ..., 35 is a:

(i) prime number (ii) multiple of 7

(iii) a prime number less than 15.

13. In a game of chance there is spinning of an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 and there are equally likely outcomes. What is the probability that it will point at

(i) 7? (ii) an odd number?

(iii) a number less than 9?

14. A game consists of tossing a one-rupee coin 3 times and noting its outcome each time. Hanif wins if all the tosses give the same result, i.e., three heads or three tails, and loses otherwise, calculate the probability that Hanif will lose the game.

15. The king, queen and jack of diamonds are removed from a pack of 52 cards are then the pack is well-shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of

(i) diamonds

(ii) a Jack

16. Two dice are thrown simultaneously. What is the probability that

(i) 5 will not come up on either of them?

(ii) 5 will come up on at least one?

(iii) 5 will come up at both dice?

17. From a well shuffled pack of playing cards, black jacks, black kings and black aces are removed. A card is then drawn from the pack. Find the probability of getting.

(i) a red card (ii) not a diamond card.

18. A bag contains cards which are numbered from 2 to 90. A card is drawn at random from the bag. Find the probability that it bears.

(i) a two-digit number (ii) a number which is a perfect square.

19. Cards numbered 1 to 30 are put in a bag. A card is drawn at random from this bag. Find the probability that the number on the drawn card is:

(i) not divisible by 3. (ii) a prime number greater than 7.

(iii) not a perfect square number.

20. Two different dice are tossed together. Find the probability:

(i) That the numbers on either die is even.

(ii) That the sum of numbers appearing on the two dice is 5.

STATISTICS

1. The percentage marks obtained by 100 students in an examination are given below: Find median.

Marks	30-35	35-40	40-45	45-50	50-55	55-60	60-65
Frequency	10	16	18	23	18	8	7

2. The median of the following frequency distribution is 35. Find the value of x.

C.I.	F
0-10	2
10-20	3
20-30	X
30-40	6
40-50	5
50-60	3
60-70	2

Also find the modal class.

3. The mean of the following distribution is 18.

Class interval	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Frequencies	3	6	9	13	f	5	4

Find f.

4. The percentage of marks obtained by 100 students in an examination are given below:

Marks	30-35	35-40	40-45	45-50	50-55	55-60	60-65
Frequency	14	16	18	23	18	8	3

Find the median of the above data.

5. Find the mean, median and the mode of the following frequency distribution.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
frequency	4	5	7	10	12	8	4

6. Find the mean of the following

Class	200-201	201-202	202-203	203-204	204-205	205-206
frequency	13	27	18	10	1	1

7. Find the mean of the following data:

Class	0-10	10-20	20-30	30-40	40-50
frequency	20	24	40	36	20

8. What should be the modal class

Marks	Number of students
Below 10	3
Below 20	12
Below 30	27
Below 40	57
Below 50	75
Below 60	80

1. 15-60
2. 30-40
3. 20-30
4. 10-20

9. What should be the modal class

Classes	0-10	10-20	20-30	30-40	40-50	50-60
Frequencies	5	6	13	38	30	4

1. 10-20
2. 30-40
3. 40-50
4. 50-60

10. What should come in the blank?

Mode= (……..) –2 (mean)

1. 3 (median)
2. 4 (median)
3. 2 (median)

4. 5 (median)

SCIENCE

WORKSHEET

CHEMISTRY

1. An aqueous solution of metal nitrate P reacts with sodium bromide solution to form yellow ppt of compound Q which is used in photography. Q on exposure to sunlight undergoes decomposition reaction to form metal present in P along with reddish brown gas. Identify P&Q . Write the chemical reaction & type of chemical reaction.

2. . Bhawana took a pale green substance A in a test tube. and heated it over the flame of a burner. A brown colored residue B was formed along with evolution of two gases with burning smell of sulphur. Identify A&B. Write the chemical reaction involved.

3. . A student took 2-3 g of a substance X in a glass beaker & poured water over it slowly. He observed bubbles along with hissing noise. The beaker becomes quite hot. Identify X. What type of reaction is it?

4. A reddish brown vessel developed a green colored solid X when left open in air for a long time. When reacted with dil. H_2SO_4 , it forms a blue colored solution along with brisk effervescence due to colourless & odourless gas Z. X decomposes to form black colored oxide Y of a reddish brown metal along with gas Z, Identify X, Y, & Z.

5. A substance X used for coating iron articles is added to a blue solution of a reddish brown metal Y, the colour of the solution gets discharged Identify X and Y & also the type of reaction.

6. A student dropped few pieces of marble in dilute HCl contained in a test tube. The gas evolved was passed through lime water. What change would be observed in lime water? Write chemical reactions .

7. Astha has been collecting silver coins and copper coins. One day she observed a black coating on silver coins and a green coating on copper coins. Which chemical phenomenon is responsible for these coatings? Write the chemical name of black and green coatings.

8. Which gas is evolved when lead nitrate is heated?

9. During electrolysis of water, how can we identify the gas present in tubes?

10. Identify the element which is most reactive.

A_2O_3 + 2B → B_2O_3+2A

$3CSO_4$ + 2B → $B_2(SO4)_3$+3C

3CO + 2A → A_2O+3C

PHYSICS

Answer the following Questions:

1. An incident ray makes an angle 35^o with the surface of a plane mirror. What is the angle of reflection?

2. The outer surface of a hollow sphere of aluminium of radius 50 cm is to be used as a mirror. What will bethe focal length of this mirror? Which type of spherical mirror will it provide?

3. Name the spherical mirror which:

(a) has a positive focal length (b) always forms a virtual image.

4. What is the nature of the image formed by a concave mirror if the magnification produced by the mirroris:

(a) +3 (b) -1

Predict the size of image in both the cases.

5. The radius of curvature of a rear- view mirror in a car is 4m. If a truck is behind the car, located 5m fromthe rear-view mirror of the car. Calculate the size of the image relative to the size of the truck and also find the position and nature of the image formed.

6. Draw ray diagrams to show the image formation by a concave mirror

i) For an object placed at the focus (F).

ii) For an object placed between centre of curvature (C) and focus (F)

7. A 4 cm needle is placed 12cm away from a convex mirror of focal length 15 cm. Give the location of image and magnification. What happens to the image if the needle is moved further away from the mirror?

8. A spherical mirror produces an image of magnification -1 on a screen placed at a distance of 50 cm fromthe mirror.

(a) Write the type of mirror.

(b) Find the distance of the image from the object.

(c) What is the focal length of the mirror?

(d) Draw the ray diagram to show the image formation in this case.

9. An object 2 cm in size is placed 30 cm in front of a concave mirror of focal length

15 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? What will be the natureand the size of the image formed? Draw a ray diagram to show the formation of the image in this case.

10. It is desired to obtain an erect image of an object, using a concave mirror of focal length 20cm.

(i) What should be the range of distance of the object from the mirror?

(ii) Will the image be bigger or smaller than the object?

(iii) Draw a ray diagram to show the image formation in this case.

BIOLOGY

PART – A

Revise Chapter – Life Processes

PART – B

Make a PowerPoint presentation on the topic "Ozone". The presentation should include points like formation of ozone, reasons for depletion, measure to conserve ozone, UNEP initiative to save ozone

Slides limit – Minimum 5 slides & Maximum 9 slides.

PART – C

- **The questions have to be attempted in fair notebooks**

1. A food chain occurring in the sea which provides food for many people can be written as :

Phytoplankton → zooplankton → X →Y

a) Name one phytoplankton.

b) Name two zooplanktons.

c) What could be X?

d) Name the organism which Y could be.

e) Which organism in the above food chain is a

(i) primary consumer, and (ii) tertiary consumer.

2. The surface of water in a lake appears green due to a layer of tiny free- floating organisms X on its surface. The lake water also contains organisms like water beetle, fish and tadpole. The sun shines over the lake water and provides energy for the functioning of this lake ecosystem.

a) What could organisms X be?

b) Write a food chain comprising of all the four organisms mentioned.

c) What is the general name of the food chains like the one written above?

d) Name (i) secondary consumer (ii) producer (iii) tertiary consumer, and (iv) primary consumer, in the above food chain.

e) If the tertiary consumer gets 0.2 J of energy from the secondary consumer, then how

much energy was radiated by the sun to the producer?

3. The gas A is used by most of the animals to obtain energy from food by the process of respiration. When A is acted upon by radiation X, it gets converted into another gas B which is an allotrope of A but poisonous when inhaled. B forms a kind of layer C in the upper atmosphere which absorbs radiations X coming from a source Y and prevents them from reaching the earth. Some chemicals Z released from the various devices on the earth are destroying the layer C slowly. In fact, a hole has already been formed in layer C over the area D of the earth.

a) What are gases (i) A, and (ii) B? Write their molecular formulae.
b) Name the layer C.
c) What are (i) X, (ii) Y, and (iii) Z?
d) Name the area D and name any two human ailments which may be caused by X.

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