SADIQ PUBLIC SCHOOL

Do the right, fear no man

Class: S3 Homework Worksheet

Friday, 9th February 2024

Subject: Physics

Test. Unit 10

Q.No.1 Choose the correct option. (1×4=4)

i. Wave transfer :
(a) Energy (b) frequency (c) wavelength (d) velocity

ii. The bending of wave around obstacle or sharp edges is called:
(a) Diffraction (b) Interference (c) Refraction (d) Reflection

iii. In vacuum all the electromagnetic waves have same:
(a) Amplitude (b) Wavelength (c) Frequency (d) speed

iv. The human ear drum can oscillate in one second:
(a) 20 times (b) 200 time (c) 2,000 (d) 20,000 times

Q.No.2 Answer any Eight (8) short questions. (2×8=16)

i. What is restoring force?
ii. Define Simple Pendulum.
iii. Define spring constant. Write its unit.
iv. Write any two features of Simple harmonic motion.
v. Find the Time period of simple pendulum of length 1 m long.
vi. How can you define damped oscillations?
vii. Differentiate between Longitudinal waves and transvers waves.
viii. Prove that $v = f\lambda$.
ix. Define frequency and time period.

Subject: Chemistry

General Properties of Acids

Chemical Properties

(i) Reaction with Metals

Acids react explosively with metals like sodium, potassium and calcium. However, dilute acids (HCl, H2SO4 react moderately with reactive metals like: Mg, Zn, Fe and Al to form their respective salts with the evolution of hydrogen gas.

$$Zn_{(s)} + H_2SO_{4(aq)} \longrightarrow ZnSO_{4(aq)} + H_{2(g)}\uparrow$$

$$2Al_{(s)} + 6HCl_{(aq)} \longrightarrow 2AlCl_{3(aq)} + 3H_{2(g)}\uparrow$$

(ii) Reaction with Carbonates and Bicarbonates

Acids react with carbonates and bicarbonates to form corresponding salts with the evolution of carbon dioxide gas.

$$CaCO_{3(aq)} + 2HCl_{(aq)} \longrightarrow CaCl_{2(aq)} + CO_{2(g)}\uparrow + H_2O_{(l)}$$

$$2NaHCO_{3(aq)} + H_2SO_{4(aq)} \longrightarrow Na_2SO_{4(aq)} + 2CO_{2(g)}\uparrow + 2H_2O_{(l)}$$

(iii) Reaction with Bases

Acids react with bases (oxides and hydroxides of metal and ammonium hydroxide) to form salts and water. This process is called neutralization.

$$NaOH_{(aq)} + HCl_{(aq)} \longrightarrow NaCl_{(aq)} + H_2O_{(l)}$$

$$CuO_{(s)} + H_2SO_{4(aq)} \longrightarrow CuSO_{4(aq)} + H_2O_{(l)}$$

Reaction with Sulphites and Bisulphites

$$CaSO_{3(aq)} + 2HCl_{(aq)} \longrightarrow CaCl_{2(aq)} + SO_{2(g)}\uparrow + H_2O_{(l)}$$

$$NaHSO_{3(aq)} + HCl_{(aq)} \longrightarrow NaCl_{(aq)} + SO_{2(g)}\uparrow + H_2O_{(l)}$$

Acids react with sulphites and bisulphites to form salts with the liberation of sulphur dioxide gas.

(v) Reaction with Sulphides

Acids react with metal sulphides to liberate hydrogen sulphide gas.

$$FeS_{(s)} + H_2SO_{4(aq)} \longrightarrow FeSO_{4(aq)} + H_2S_{(g)}\uparrow$$

Uses of Acids

1. Sulphuric acid is used to manufacture fertilizers, ammonium sulphate, calcium superphosphate, explosives, paints, dyes, drugs. It is also used as an electrolyte in lead storage batteries.
2. Nitric acid is used in manufacturing of fertilizer (ammonium nitrate), explosives, paints, drugs and etching designs on copper plates.
3. Hydrochloric acid is used for cleaning metals, tanning and in printing industries.
4 Benzoic acid is used for food preservation.
5 Acetic acid is used for flavouring food and food preservation. It is also used to cure the sting of wasps.

Home Work:

Note: Write all the work on the notebook.

Name two acids used in the manufacture of fertilizers.
2. Name an acid used in the preservation of food.
3. Name the acids present in:
i. Vinegar ii. Ant sting
iii. Citrus fruit. iv. Sour milk.
Give characteristics properties of salts

Subject: Biology

Lesson

Chapter no: 17 Biotechnology

This lesson is about the Introduction of Biotechnology.

A: Inquiry:

"Everyone knows" that Humans have been making use of biotechnology since they discovered farming. This use extended from the planting of seeds to the control of plant growth and crop production. . Do you know about the Scope and importance of Biotechnology?

B: Information

Introduction Of Biotechnology

Biotechnology is defined as the use of living organisms in processes for the manufacture of useful products or for services. Although the term biotechnology is new, the discipline itself is very old. Fermentation and other such processes, which are based on the natural capabilities of organisms, are commonly considered as old biotechnology. Genetic engineering i.e. the artificial synthesis, modification, removal, addition and repair of the genetic material (DNA) is considered as modern biotechnology. It is done to alter the characteristics of organisms.

Scope And Importance Of Biotechnology

In recent years, biotechnology is growing as a separate science. The following are some areas of the application of biotechnology.

Biotechnology in the Field of Medicine

In the field of medicine, biotechnologists synthesized insulin and interferon (antiviral proteins) from bacteria and released for sale. A large number of vaccines and antibodies; human growth hormone and other medicines have also been produced. Various enzymes are being synthesized for medicinal as well as industrial use. Gene therapy (treatment through genes) has become important in recent years. Biotechnology also proved much beneficial in forensic medicine. The study of DNA helps in the identification of criminals.

Biotechnology in the Field of Food and Agriculture

Fermented foods (e.g. pickles, yogurt), malted foods (e.g. powdered milk: a mixture of barley, wheat flour and whole milk), various vitamins and dairy products are produced by using microorganisms. Wine and beer are produced in beverage industry. Biotechnology has also revolutionized research activities in the area of agriculture. Transgenic (organisms with modified genetic set-up) plants are being developed, in which desirable characteristics are present e.g. more yields and resistance against diseases, insects and herbicides. Transgenic goats, chickens, cows give more food and milk etc. Many animals like mice, goats, cows etc. have been made transgenic to get medicines through their milk, blood or urine.

Fermentation

We know that in cellular respiration, glucose molecule goes through oxidation-reduction reactions to release energy in the form of ATP. Fermentation is the process in which there is incomplete oxidation-reduction of glucose. Fermentation has been in the knowledge of man since centuries, but it was believed that it is purely a chemical process. In 1857, Pasteur convinced the scientific community that all fermentations are the results of
microbial activity.

Alcoholic Fermentation (by yeast)

This fermentation is carried out by many types of yeast such as Saccharomyces cerevisiae. This process is quite important and is used to produce bread, beer, wine and distilled spirits. In this process, carbon dioxide is removed from pyruvic acid. The product i.e. acetaldehyde is then reduced to ethanol. The carbon dioxide produced during this fermentation causes the rise of the bread.

2. Lactic Acid Fermentation (by bacteria)

In this process, pyruvic acid is reduced to lactic acid. It is carried out by many bacteria e.g. *Streptococcus* and many Lactobacillus species. It is quite important in dairy industry where it is used for souring milk and also for production of various types of cheese.

Fermentation In Biotechnology

In beginning, the meaning of fermentation process was the use of microorganisms for the production of foods (cheese, yogurt, and sausages, soy sauce), beverages (beers, wines) and spirits. However, in biotechnology the term "fermentation" means the production of any product by the mass culture of microorganisms.

Applications of Fermentation

In fermentation, maximum growth of an organism is obtained for the production of desired products of commercial value. Traditionally, only food and beverage products were produced by using fermentation. Now many other products e.g. industrial chemicals are also being produced.

Dairy products: Cheese and yogurt are important fermentation products. Cheese is formed when a milk protein is coagulated. This happens when the acid produced by lactic acid bacteria reacts with milk protein. Yogurt is made from milk by different lactic acid bacteria.

Fruit and vegetable products: Fermentation is usually used, along with salt and acid, to preserve pickle, fruits and vegetables.

Beverage Products:

Beer is produced from cereal grains which have been malted, dried and ground into fine powder. Fermentation of the powder is done by yeast. This process breaks the glucose present in powder into pyruvic acid and then into ethanol. Grapes can be directly fermented by yeasts to wine.

b- Industrial Products

The following are the important industrial products produced through the process of fermentation

Products	Microorganisms used	Some uses
Formic acid	Aspergillus	Used in textile dyeing, leather treatment, electroplating, rubber manufacture
Ethanol	Saccharomyces	Used as solvent; used in the production of vinegar and beverages
Glycerol	Saccharomyces	Used as solvent; used in the production of plastics, cosmetics and soaps; used in printing; used as sweetener
Acrylic acid	Bacillus	Used in the production of plastics

Fermenter

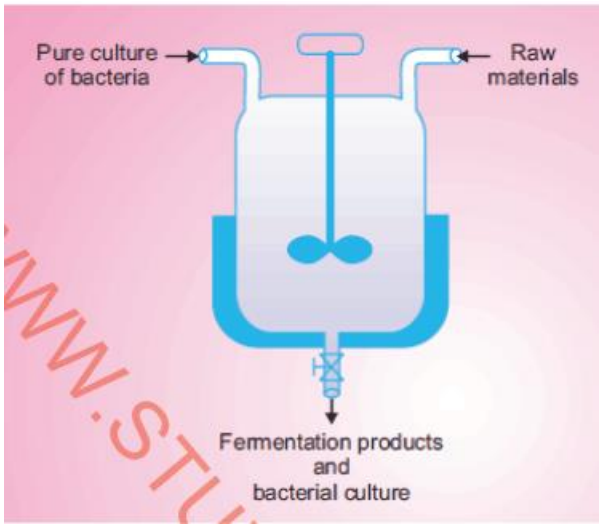
Fermenter is a device that provides optimum environment to microorganisms to grow into a biomass, so that they can interact with a substrate, forming the product. Fermentation is carried out in fermenters, in the following two ways.

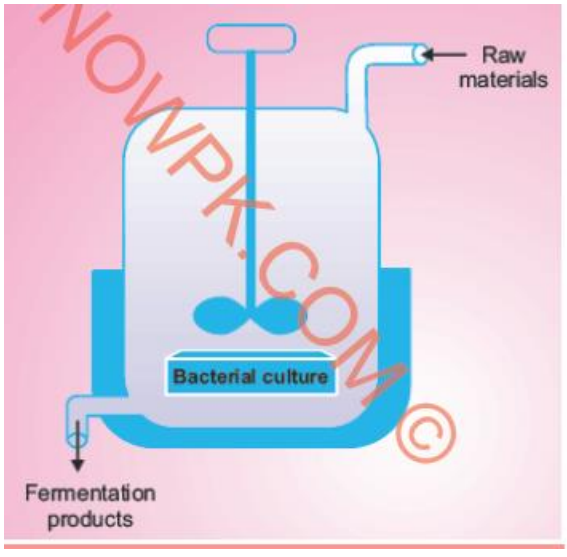
Batch Fermentation

In this process, the tank of fermenter is filled with the raw materials to be fermented. The temperature and pH for microbial fermentation is properly adjusted, and nutritive supplements are added. All the material is steam sterilized. The pure culture of microorganisms is added to fermenter from a separate vessel. Fermentation proceeds and after the proper time the contents of fermenter are taken out. Fermenter is cleaned and the process is repeated. Thus, fermentation is a discontinuous process divided into batches.

Continuous Fermentation

In this process, the substrate is added to fermenter continuously at a fixed rate.
This maintains the microorganisms in growth phase. Fermentation products are taken out continuously.





Batch Fermenter **Continuous Fermenter**

C: Synthesis/absorbing the information:

1. Write your own summary-notes in your notes book based on the information you read.

D: Practising activity:

1. Please read what your text book says about the applications of biotechnology.

2. Write a detailed note on the fermenter.

E: Assessment for learning

Note: Choose the best option and write in an email along with its question no. as answer for your fill in the blanks questions. [10×1=10]

1. ---------- is defined as the use of living organisms in processes for the manufacture of useful products or for services.
2. The complete map of human genome was published in ----------.
3. The study of---------- helps in the identification of criminals.
4. Fermentation is the process in which there is incomplete oxidation-reduction of ---------- ----------.
5. In 1857, ---------- convinced the scientific community that all fermentations are the results of microbial activity.
6. Lactic Acid Fermentation is carried out by ---------- and----------bacteria.
7. Wheat dough is fermented by ---------- along with some lactic acid bacteria.
8. ---------- is used in textile dyeing.
9. ----------is a device that provides optimum environment to microorganisms to grow into a biomass.
10. In fact, the fermenter constitutes the ----------of any industrial fermentation process.

Subject: Mathematics

Q.NO.1. Choose the correct answer and encircle it.

i. Frequency distribution is a method to distribution
   a) Summarize data b)grouped data c)arrange data d)observe data

ii. The average of class is also known as
   a) End points b) mid points c)mid frequencies d)class interval

iii. Arithmetic mean of 5,8,10,7 and 12 is
   a) 8.2 b) 8.3 c)8.4 d) 8.5

iv. Median can be located from
   a) *an ogive* b) $frequency\ curve$ c) $frequency\ polygon$ d) histogram

v. $\frac{n}{2}$ *is used to locate the*
   b) Mean class b)modal class c)median class d)frequency class

Q.No:2: Write down short answers to the following questions:

a. Write definition of histogram.
b. Write definition of sector of circle.
c. Write three properties of mean.
d. Compute arithmetic mean of 12,14,17,20,24,29,35,45 using indirect method.
e. Locate 30°.
f. Express 300° *into radians*.
g. Find r , when $l = 4cm$, $\theta = \frac{1}{4} radian$.
h. Express tanx sinx secx to single trignometric function.
i. Find value of $sec330°$.

Q .No:3: .

a)The following data relates to the ages ofchildren in a school.compute the mean age by direct andshort cut method taking any provisional mean.(Hint take A=80).

Class limits	Frequency
4___6 7___9 10___12 13____15	10 20 13 7
Total	50

Subject: Computer

Lesson: Topic (Defining a Functions in C) Chapter#5 Functions

Information:

Defining a function in C involves providing the implementation of the function, which includes the actual code that the function will execute. Here's the general syntax for defining a function in C:

```c
return_type function_name(parameter_type1 parameter_name1, parameter_ty
    // Function body - implementation goes here
    // Code to be executed when the function is called
    // Optionally, a return statement to provide a value (if the return
}
```

Let's break down each part:

return_type: The data type of the value that the function returns. If the function doesn't return any value, the return type is specified as void

function_name: The name of the function. This should match the name used in the function declaration (function signature).

(parameter_type1 parameter_name1, parameter_type2 parameter_name2, ...):

The parameters that the function accepts (if any). These should match the parameters specified in the function declaration.

Function body:

The actual code that the function will execute. This is enclosed in curly braces {}.

Return statement (if applicable):

If the function has a return type other than void, it should include a return statement to provide a value of that type

1. Read your text book pages#104 to 105 of your textbook.

- ✓ Functions.
- ✓ Defining a function.
- ✓ Example code 5.1

2. Practising:

1. How many parts are there in function definition?
2. Describe each of the things used in function definition.

Subject: English

Resource Book: Punjab Text Book (Grammar and Composition)

Marks for Completion and submission of the homework: /50

Time allotted: 45 minutes/1 day

Objective:

The students will be able to revise and write down the sentences of 1-70 pairs of words and translation of 1-11 passages.

Topics	Task
Pairs of Words 51-70 Translation into English Passage 11-13	Q. Write down (on loose sheet) the given pairs of words and translation of the passages.

Subject: Islamiat / Tarjuma tul Quran

منتخب آیات کا بامحاورہ ترجمہ تحریر کریں۔(صفحہ نمبر 189)

سورۃ المومنون کی منتخب آیات

Subject: Urdu

تاریخ اور دن	ہوم ورک	تفصیل	اشارات / اہم نکات
9فروری بروز جمعہ	تفہیم	دی گئی عبارت کو غور سے پڑھیں اور آخر میں دیے گئے سوالات کے جوابات تحریر کریں۔	صحت اور مرض ساتھ ساتھ ہیں۔ جہاں صحت میسر آتی ہے وہاں بیماری سے بھی سابقہ پڑتا ہے۔ مریض کی عیادت کیجیے۔ عیادت اجتماعی زندگی کی ایک ضرورت ہی نہیں بلکہ یہ ایک مسلمان کا دوسرے مسلمان بھائی پر حق ہے اور خدا سے محبت کا ایک لازمی تقاضا ہے۔ خدا سے تعلق رکھنے والا خدا کے بندوں سے بے تعلق نہیں ہو سکتا۔ مریض کی غم خواری، دردمندی اور تعاون سے غفلت برتنا دراصل خدا سے غافل ہونا ہے۔ سوالات: 1۔ انسانی زندگی میں کون کون سے حالات آتے ہیں؟ 2۔ بیمار پرسی کیوں کرنا چاہیے؟ 3۔ خدا سے محبت کرنے والے کی کیا خصوصیات ہیں؟ 4۔ مخلوق سے کون بے تعلق رہتا ہے؟ 5۔ عبارت کا مناسب عنوان تجویز کیجیے۔

Subject: Pakistan Studies

Chapter No. 3 (Learn and write long question No. 1 and 2)