



Sadiq Public School

Do the right, fear no man

Class: I1

Mathematics

9th Feb,2024

- i. Convert $\frac{25\pi}{36}$ radian into the measure of sexagesimal system.
- ii. Convert $120^{\circ}40''$ into the radian measure.
- iii. Find l, when $\theta = 65^{\circ}20''$ and $r = 18\text{mm}$.
- iv. Verify $\sin 2\theta = 2\sin\theta\cos\theta$ for $\theta = 45^{\circ}$.
- v. If $\sin\theta = \frac{-1}{\sqrt{2}}$, then find the value of $\cos\theta$ if θ does not lie in third quadrant
- vi. Express $\cos 6\theta + \cos 3\theta$ as a product.
- vii. Express the product $2\cos 5\theta \sin 3\theta$ as a sum or difference
- viii. Prove that sine is a periodic function and its period is 2π .
- ix. Find the period of $3\cos\frac{x}{5}$.
- x. Prove that $\sin(180^{\circ} + \alpha) \sin(90^{\circ} - \alpha) = \cos\alpha \cdot \sin\alpha$
- xi. Prove that $a^2 = b^2 + c^2 - 2bc \cos \alpha$
- xii. (b) Prove that $r_1 + r_2 + r_3 - r = 4R$

Biology

Chapter No 11: Bioenergetics

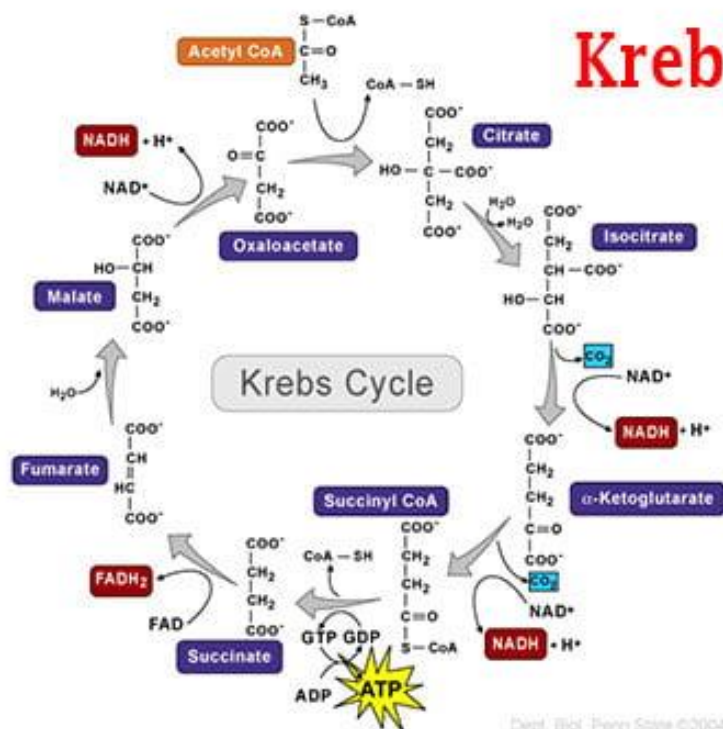
Lesson This lesson is about photosynthesis and respiration.

Inquiry:

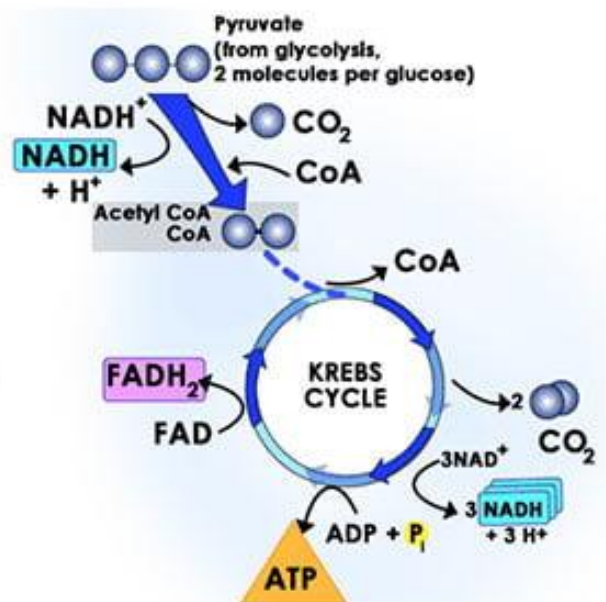
The citric acid cycle—also known as the Krebs cycle, Szent-Györgyi-Krebs cycle or the TCA cycle (tricarboxylic acid cycle)—is a series of biochemical reactions to release the energy stored in nutrients through the oxidation of acetyl-CoA derived from carbohydrates, fats, and proteins.

Information:

iii. Krebs cycle or citric acid cycle: Acetyl CoA now enters a cyclic series of chemical reactions during which the oxidation process is completed. This series of reactions is called the Krebs cycle (after the name of the biochemist who discovered it), or the citric acid cycle. The first step in the cycle is the union of acetyl CoA with oxaloacetate to form citrate. In this process, a molecule of CoA is regenerated and one molecule of water is used. Oxaloacetate is a 4-carbon acid. Citrate thus has 6 carbon atoms. After two steps that simply result in forming an isomer of citrate, isocitrate another NAD-mediated oxidation takes place. This is accompanied by the removal of a molecule of CO_2 . The result is a ketoglutarate. It, in turn, undergoes further oxidation ($\text{NAD} + 2\text{H} \rightarrow \text{NADH}$) followed by decarboxylation (CO_2) and the addition of a molecule of water. The product then has one carbon atom and one oxygen atom less. It is succinate. The conversion of α -ketoglutarate into succinate is accompanied by a free energy change which is utilized in the synthesis of an ATP molecule. The next step in the Krebs cycle is the oxidation of succinate to fumarate. Once again, two hydrogen atoms are removed, but this time the oxidizing agent is a coenzyme called flavin adenine dinucleotide (FAD), which is reduced to FADH_2 .



Krebs (Citric Acid) Cycle



C:Synthesising/ absorbing the information

Write your own summary-notes in your notes book based on information you read in information section and what your book says about Krebs cycle.

D:Practising.(Readyourtextbookfordetailedinformation)

1. Practice and draw the Krebs cycle on your note books.

English

Use of Verb

Solve exercises given in Bright Grammar (Exercise 41-45)

Statistics

Chapter 7short numericals; Q.No. 31 to 40

Computer

Student Name & RollNo:_____

Lesson: Using work art in a document (Ch. # 8)

Inquiry:

Graphics and work art in a document

- Please read what your textbook says about Table. (Page no 247 - 248)
- Watch this brief YouTube video on how to insert word art:
<https://www.youtube.com/watch?v=BA3l6w5jtxs>

Information:

In this lesson we learned about how to insert table.

- how to insert word art

Practising:

Q.) What is word art?

Q.) Write procedure to insert word art in a document.

Economics

Lesson: Chapter No. 10

[Short Period Cost]

A) Inquiry: Do you know what is meant by short period cost of production in economics? Can you give examples of short run costs that incurred in production of goods and services? Can you explain various variants of short period cost?

B) Information:

(Read your text book pages from Page no. 203 to 205

1. Short Period Cost::

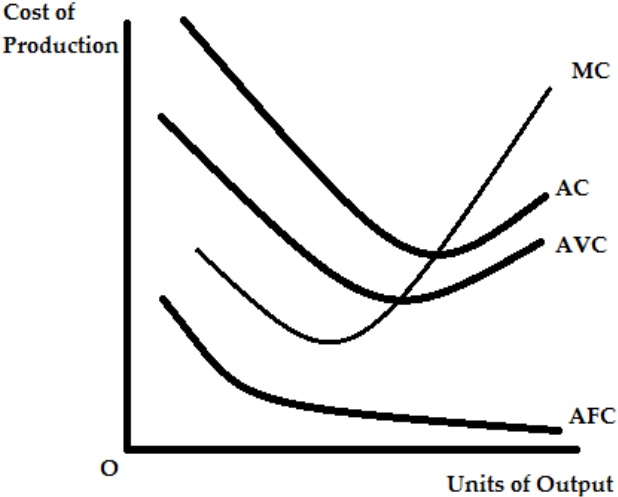
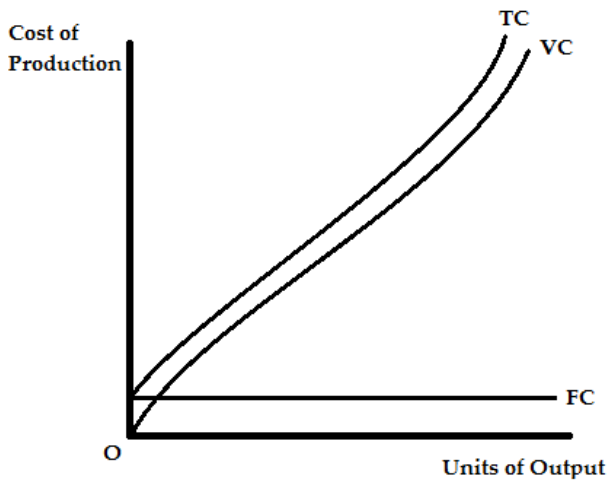
Short run is a period of time in which size of the plant cannot be changed. No new entry is possible constant factors being unchanged, fixed cost remains the same. In view of an increase in demand of output. Production and supply can be increased up to a certain limit. Such a limit depends upon the excess capacity of the plant, changes of an extra shift and availability of the stock of product.

Short period relationship among FC, VC, AFC, AVC, ATC and MC has shown in the following table:

1	2	3	4	5	6	7	8
Quantity	FC	VC	TC	AFC	AVC	ATC	MC
0	20	----	20	----	----	----	----
1	20	60	80	20	60	80	60
2	20	100	120	10	50	60	40

3	20	130	150	6.6	43.3	50	30
4	20	150	170	5	37.5	42.5	20
5	20	160	180	4	32	36	10
6	20	180	200	3.3	30	33.3	20
7	20	210	230	2.9	30	32.9	30
8	20	250	270	2.5	31.2	33.7	40
9	20	300	320	2.2	33.3	35.5	50
10	20	360	380	2	36	38	60

Graphical representation of Short run cost curves:



In graphs we can see the shape of cost curves (FC, VC, TC, MC, AC, AVC and AFC).

C) Synthesizing / Absorbing information

- What do you know about short period cost curves?
- Illustrate the relationship among AC, AVC, and MC with the help of graph.

D) Practising:

For practice read your textbook chapter No. 10 Page No. 203 to 205

Watch this video to learn more about:

Short Period Cost
Short Period Cost Curves

E) Assessment for Learning:

Solve these MCQs and send me only right options through email.

1. The right method to find out TR is:
 - a) Q.P
 - b) Q.AC
 - c) TR-TC
 - d) TC/Q
2. When firms $TR=TC$ then it faces:
 - a) No profit no loss
 - b) Abnormal profit
 - c) Loss
 - d) Normal profit
3. Which one of the following is not included in variable cost (VC):
 - a) Wages of permanent employees and price of machines
 - b) Wages of ordinary workers
 - c) Transportation cost
 - d) Publicity expenses
4. Short run AC and MC are:
 - a) Flatter
 - b) Negatively slopped
 - c) U-shaped
 - d) Elliptical
5. Which one is not included in labour:
 - a) Fee of lawyer
 - b) Work of labour
 - c) Teaching to baby by mother
 - d) Work by house servants
6. Which one is the oldest and basic factor of production?
 - a) Land

- b) Labour
 - c) Capital
 - d) organization
7. Which factor of production includes forest, minerals, ocean, and mountains?
- a) Land
 - b) Labour
 - c) Capital
 - d) organization
8. A technique of production which requires more labour and less capital is called -----?
- a) Land intensive
 - b) Labour intensive
 - c) Capital intensive
 - d) innovated
9. Production function represents
- a) A firm
 - b) An industry
 - c) Whole economy
 - d) All of above
10. Which one of the following is not called land?
- a) Tarbela dam
 - b) Sui gas
 - c) Climate of Murree
 - d) Rain water

Chemistry

Lesson: In this worksheet we will learn about Liquids chapter-04

SECTION-I

Q.1 Write short answers to any twenty two of the following short questions:

1. What is the origin of intermolecular forces in water?
2. Water is liquid at room temperature but H₂S is a gas. Give reason?
3. Why the heat of sublimation of a substance is greater than the heat of vaporization?
4. Why the things can be cooked easily in pressure cooker?
5. Liquid boils at that temp. When its vapour pressure becomes equal to the external pressure. Why?
6. The heat of vapourization of hexane is greater than other lower hydrocarbons. Why?
7. Earthen ware vessels keep water cool?
8. One feels sense of cooling under the fan after bath?
9. Why the heat of vapourization of water is greater than that of CH₄?
10. How the rate of evaporation depends on the surface area?

11. Why the boiling points of the hydrides of second period in group IV-A, V-A, VI-A and VII-A are greater than the B.P of hydrides of third period?
12. What is dipole?
13. Why boiling point of HF is lower than that of H₂O?
14. How do you justify the structure of ice is just like that of diamond?
15. What is advantage of vacuum distillation?
16. What is dipole induced dipole force?
17. Why density of ice is less than water?
18. What is evaporation?
19. What are London dispersion forces?
20. How in a very cold winter fish in garden ponds owe their lives to H-bonding?
21. H-bonding is present in chloroform and acetone-justify it?
22. What is ion dipole force?
23. Why the melting and boiling points of alkanes increases with the increase in molar mass?
24. Define molar heat of vapourization?
25. Why the melting and boiling points of halogens increase down the group?
26. Define boiling point?
27. Water and ethanol mix in all proportions why?
28. Why boiling point of water is 98°C at Murree?
29. Evaporation causes cooling why?
30. Why boiling point of water is 120°C at 1489 torr why?
31. What re the factors affecting vapour pressure?
32. Evaporation of a liquid takes place at all temperatures give reason?

SECTION-II

Q.2 (a) Define London forces. Discuss the factors affecting on it?

(b) How can we measure the vapour pressure?

Q.3 (a) What are liquid crystals? Give their uses in daily life?

(b) Explain the H-bonding in proteins and D.N.A?

Urdu

<p>کبھی اے نوجواں مسلم! تدر بھی کیا تو نے وہ کیا گردوں تھا تو جس کا ہے اک ٹوٹا ہوا اتارا تجھے اس قوم نے پالا ہے آغوشِ محبت میں بچل ڈالا تھا جس نے پاؤں میں تاجِ سردارا حکومت کا تو کیا روٹا کہ وہ اک عارضی شے تھی نہیں دنیا کے آئینِ مسلم کا کوئی چارا</p>	<p>نظم: خطاب بہ جوانانِ اسلام " کے دئے گئے اشعار کی تشریح اپنی نوٹ بک پر تحریر کریں۔</p>	<p>اشعار کی تشریح</p>	<p>9 فروری بروز جمعہ</p>
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<p>مگر وہ علم کے موتی، کتابیں اپنے آبائی جو دیکھیں ان کو یورپ میں تو دل ہوتا ہے کسی پارا</p>			
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Islamiat/ Tarjuma tul Quran

تفصیلی جواب تحریر کریں۔

سوال: غزوہ بدر پر ایک تفصیلی نوٹ لکھیں

Physics

Topic: Optical Instruments (Topic 10.5)

A: Inquiry:

In this topic we will be able to learn what is astronomical telescope. How can we draw ray diagram and derive expression for the magnification of astronomical telescope.

B: Information:

Topic 10.5 astronomical telescope

Telescope

An optical device that is used for viewing distant objects.

The image of a distant object is larger because it subtends a bigger visual angle than when viewed with the naked eye.

Astronomical Telescope

An optical device that is used for viewing heavenly bodies is called astronomical Telescope.

Construction

It consists of two convex lenses:

(i) Objective: It is of large focal length and large aperture.

(ii) Eyepiece: It is of small focal length and small aperture.

Working Principle

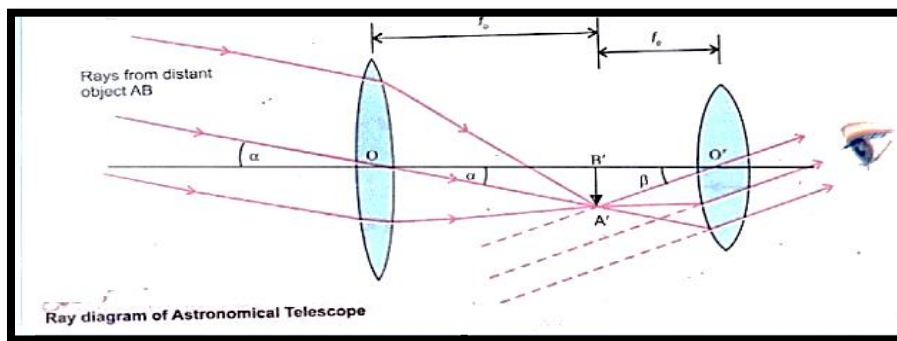
(i) First, a diminished, inverted and real image is formed by objective when parallel light beams approached it from distant objects.

(ii) Second, this image is served as object of eyepiece and it is formed at the focus of eyepiece.

(iii) Finally, a magnified, inverted and virtual image is formed at infinity.

Ray Diagram

The ray diagram of astronomical telescope is given below.



Derivation of Angular Magnification

The angle ' α ' subtended at the unaided eye is practically same as subtended at the objective.

Consider $\triangle OA'B'$

$$\alpha = \tan \alpha = \frac{A'B'}{OB'}$$

$$\therefore \alpha = \frac{A'B'}{f_o}$$

Considering $\triangle O'A'B'$

$$\beta = \tan \beta = \frac{A'B'}{O'B'}$$

$$\therefore \beta = \frac{A'B'}{f_e}$$

Hence magnifying power of telescope is

$$M = \frac{\beta}{\alpha}$$

Putting values of ' α ' and ' β '.

$$\therefore M = \frac{A'B'/f_e}{A'B'/f_o}$$

$$M = \frac{f_o}{f_e} \times \frac{A'B'}{A'B'}$$

$$M = \frac{f_o}{f_e}$$

The length of telescope is the distance between objective and eye-piece of a telescope in normal adjustment.

$$\therefore L = f_o + f_e$$

Note: Besides having a high magnifying power another problem which confronts the astronomers while designing a telescope to see the distant planets and stars is that they would like to gather as much light from the object as possible. This difficulty is overcome by using the objective of large aperture so that it collects a great amount of light from the astronomical objects. Thus a good telescope has an objective of long focal length and large aperture.

- Read pages # 220-222 of textbook.
- Watch the following videos for further understanding:
<https://youtu.be/cnvOGTwrC6M?feature=shared>
<https://youtu.be/UdLrP50EU94?feature=shared>
<https://youtu.be/b3CZ5FTZw8c?feature=shared>

C: Synthesising/absorbing information:

In your notebooks,

- What is astronomical telescope? Draw ray diagram and derive expression for the magnification of astronomical telescope.
- Solve the following problem in your notebooks:
A telescope objective has focal length 96 cm and diameter 12 cm. Calculate the focal length and minimum diameter of a simple eye piece lens for use with the telescope, if the linear magnification required is 24 times and all the light transmitted by the objective from a distant point on the telescope axis is to fall on the eye piece.

D: Practicing:

- 1. Answer the following questions and write in your notebooks.**
 - i.** Define normal adjustment and length of a telescope.
 - ii.** If a person was looking through a telescope at the full moon, how would the appearance of the moon be changed by covering half of the objective lens.
 - iii.** A telescope is made of an objective of focal length 20 cm and an eye piece of 5.0 cm, both convex lenses. Find the angular magnification.
 - iv.** An astronomical telescope of long focal length and large aperture is considered to be a good telescope. Why?