Respected sir , I'm Rehmat who has been suffering from FSHD, I belong to rural Boluchistan. Please Allah sake evaluate my complete paper . This platform is the only source of guidance.🥺 Please go through full paper.

FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION - 2016
FOR RECRUITMENT TO POSTS IN BS-17
UNDER THE FEDERAL GOVERNMENT
GENERAL KNOWLEDGE-I
(GENERAL SCIENCE & ABILITY)

TIME ALLOWED: THREE HOURS	**PART-I (MCQS)**	**MAXIMUM MARKS = 20**
PART-I(MCQS): MAXIMUM 30 MINUTES	**PART-II**	**MAXIMUM MARKS = 80**

NOTE: (i) Part-II is to be attempted on the separate **Answer Book.**
    (ii) Attempt **ONLY EIGHT** questions from **PART-II,** selecting **FIVE** questions from **SECTION-I** and **THREE** questions from **SECTION-II. ALL** questions carry **EQUAL** marks.
    (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.
    (iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.
    (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.
    (vi) Extra attempt of any question or any part of the attempted question will not be considered.

PART-II
SECTION-I

Q. No. 2. **(a)** What were the main objectives of Clean Development Mechanism? Also explain the reasons for the criticism on Koyoto Protocol by the developed countries. (5)

    (b) Differentiate between Sanitary and Industrial Landfills, also describe the land selection criteria for Landfills. (5)

Q. No. 3. **(a)** Write a short note on artificial intelligence. (5)

    (b) Write short notes on: **(2½ each)** (5)
    (i) Fibre Optics   (ii) Global Positioning System

Q. No. 4. **(a)** What are vaccines? Classify these and discuss DNA vaccines in detail. (5)

    (b) What are causative organism and vector for dengue, enlist possible ways of prevention from dengue. (5)

Q. No. 5. **(a)** Comment, 'liver is the chief chemist in human body'. (5)

    (b) What is Cholesterol? Discuss its importance, normal blood level and dangers of elevated levels with reference to the health and disease in humans. (5)

Q. No. 6. **(a)** What do you know about the Remote Sensing Techniques? Explain resolution and write down the names of its various types? (5)

    (b) What is hydrological cycle? Discuss its importance. (5)

Q. No. 7. **(a)** What is tsunami? How the tsunamis generated and what are their characteristics? (5)

    (b) What is an earth quake? Discuss Richter Scale in this context. What was the intensity of the earth quake in Pakistan dated 26 October 2015 and where was the locus? (5)

Q. No. 8. **(a)** Explain the shape of water molecule with the help of Molecular Orbital Theory, also draw its orbital diagram. (5)

    (b) What are the gamma rays? Explain their applications. (5)

Q. No. 9. **(a)** Discuss importance of preservatives and antioxidants in food. (5)

    (b) Comment, Green House Effect is a blessing. Also discuss Enhanced Green House Effect and its relation with global warming. (5)

GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)

SECTION-II

Q. No. 10. (a)   Define and draw the following: (2½ **each**)   (5)
   (i)   Rightangle triangles   (ii)   Equilateral triangles

   (b)   There are nine students in a group having ages 15, 15, 16, 16, 16, 17, 17, 18,   (5)
   19. Calculate *mean*, *medium*, *mode* and *range* of their ages also define the
   above mentioned terms:

Q. No. 11. (a) A distribution company provides households to departmental stores within a 50   (5)
   kilometers radius. The table below shows how far each departmental store is
   from the godown of the distribution company.

Distance from the godown of the distribution company	Number of Stores
10 kilometers or less	03
11 to 20 kilometers	15
21 to 30 kilometers	26
31 to 40 kilometers	20
41 to 50 kilometers	16

   (i)   How many stores does the distribution company serve?
   (ii)   What is the most common distance of stores from the company's
         godown?
   (iii)   How many stores are 35 Km or more from the godown?
   (iv)   What percentage of stores are 31 Km or more from the godown?

   (b)   Read the following carefully and answer the questions following: (5)
   Ahmad, Ali, Akbar, Nasir and Shehbaz are students of a college having
   different heights and weights. Ahmad weighs thrice as much as Ali and Ali
   weighs 5 times as much as Akbar. Akbar weighs half as much as Nasir and
   Nasir weighs half as much as Shehbaz.
   (i)   Who is the heaviest in weight?
   (ii)   Who is the is the lightest in weight?
   (iii)   Shehbaz is lighter in weight than which of the two students?
   (iv)   Shehbaz is heavier than which of the two students?
   (v)   Show the descending order of weights of the students?

Q. No. 12. (a) Classification of blood groups is based on the presence or absence of inherited   (5)
   antigenic substances on the surface of red blood cells. In a survey of British
   population the blood group distribution among 1000 people was as follows: 300
   had blood group A, 325 had blood group B, 250 had O and 125 AB. Out of this
   group a person was selected at random, calculate his probability of having
   blood group AB

   (b)   Five friends Ahmad, Ali, Akbar, Nasir and Shehbaz went on summer vacation   (5)
   to five cities namely V, W, X, Y and Z by five different modes of transport, that
   is by bus, train, aeroplane, car and boat from point A. Akbar went to Y by car
   and Ali went to X by air. Nasir travelled by boat whereas Shehbaz went by
   train. For X and W there is no bus service. The person who went to X did not
   use boat to travel. Now answer the following questions.
   (i) How did Ahmad travel and where did he go?
   (ii) Which mode of transport was used by the person who travelled to X city?

Q. No. 13. (a)   Differentiate between primary and secondary mental abilities. How the general   (5)
   mental ability scales differ from IQ test.

   (b) $Y = mX + C$ is an equation of straight line. Draw a graph showing relationship   (5)
   between X and Y and relate the equation to the slope and intercept on the graph.

****

Part = 1
MCQs

Q.No.1

1. a) 2. a) 3. c) 4. b) 5. a) 6. a) 7. c)
8. a) 9. a) 10. b) 11. a) 12. a) 13. a) 14. c)
15. a) 16. d) 17. c) 18. b) 19. b) 20. c)

Part – II
Section – I

Q.2. (a)
Clean Development Mechanism

main objectives of CDM

" Clean Development Mechanism is one of the treaties stated in the Koyoto Protocol 1997."

The followings are the objectives of CDM:

1. The Clean Development Mechanism aims to complete the UNFCCC goals

2. The Clean Development Mechanism calls on sustainable development

3. The CDM calls on the developed nations to reduce the emission of GHG.

4. The Clean Development mechanism addresses the developed nations to invest in the climate change projects of developing nations.

The Koyoto Protocol 1997

" The Koyoto Protocol 1997 is one of the international treaties. It has been signed by 55 nations. It aims to control global warming, GHG, and promote sustainable environment "

Criticism on Koyoto Protocol

The Koyoto protocol has faced criticism not only from developed nations but also developing countries.

1. Developed countries such as the United States and European Union have criticised that the treaty only hurts the economies of developed nations.

2. The opponents say that developing countries such India and China contribute to huge amount of CO_2, Surfurl Oxide and Carbon emission. The treaty does not oppose the contribution of GHG of under developed nations.

3. The treaty has been recognized only by the 55 nation states which seems incapable to hold accountable everyone for climate Justice.

(b)

Differentiate between Sanitary Landfills and industrial Landfills

Sanitary Landfills	Industrial Landfills
Sanitary Landfells are used to disposal waste from roads and houses.	Industrial Landfells are used to disposal industrial waste materials.
Sanitary Landfells are used to extract methane	Industrial Landfills are used to recollect reusable iteems

In Sanitary landfills different layers are used to exteract the wastage	In the Industrial Land fills no layers are used
pipline is constructed to exteract wastage	No pipline

The land selection criteria for landfills

1. Landfills are must created 400 - 500 km faraway from the human population as during the landfills' process of disposal different toxic chemicals and gases exteract

2. Landfills should be created far away from water bodies such as dam, river and streams.

3. Before, the establishment of landfills, there must be assessment on the location

4. Landfills must not be created where piplines of gas or water exist.

5. Landfills must be far away from agricultural activities.

Q. No. 3
(a)

Artificial intelligence

"AI refers to machines which have been trained like humans. These machines include robotic cars, drones, workers and production machines"

(John Maccarthy)
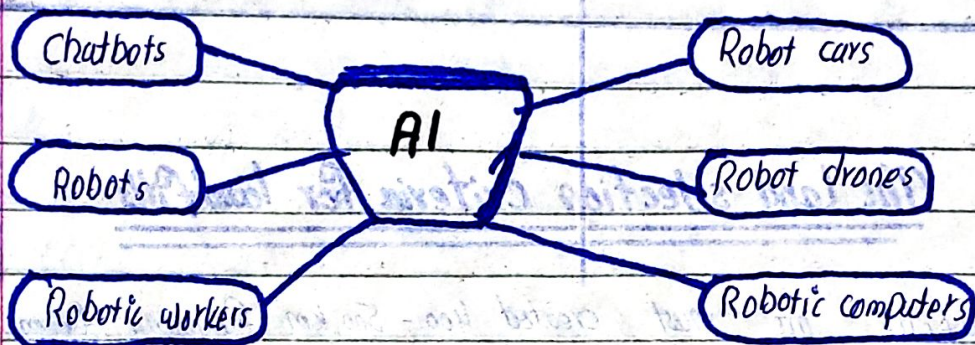
Figure 0.1 examples of AI

Advantages of AI

1. Fostering the industrial, agricultural and economic production
2. Robatic drones and camreas have contributed to the security borders and sensitive private places.
3. Assisting humans to avoid risky situation °especially during disasters
4. Chatbots have been assisting educationalists in their research based activities
5. Promoting space based projects to achieve success
6. AI based missile defence systems have been protecting nation states from outer attacks or agressions.

Disadvantages of AI

1. The usage of AI's chatbot has been promoting rote learning in the education, social, literature, science and economic affairs
2. AI is a threat to critical thinkers.
3. Robotic taxi cars have been pushing unemployment.
4. The use of AI robotic drones contributed to the death toll of civilians in wars.
5. AI is a threat to privacy and cyber security
6. Terrorists access to AI based robotic drones may eliminate the lives of innocent civilians.

(b)

Short notes

(i) Fibre Optics

" Fibre Optics refers to strands like pure glass thin from human hair which carries digital information to long distance."

The Fibre Optics is long term and durable for better communication. It is better than traditional wires which have limited existence of life. The Fibre Optics at the start of any project might be expensive but later performs tremendously.

Types of fibre Optics

(1)   Single mode optics

The single mode of fibre optics is used for long distance.

(2)   multiple mode optics

The multiple mode optics is used for near and multiple distances.

Structure of Fibre Optics

1. **Core:** light travels, it carries digital information. The core is being made of a thin pure glass.
2. **Clading:** It is upon the core which reflects back information in the form of light.
3. **Coat:** The cover which protects the fibre optics.
4. **Jacket:** The final covering of the fibre
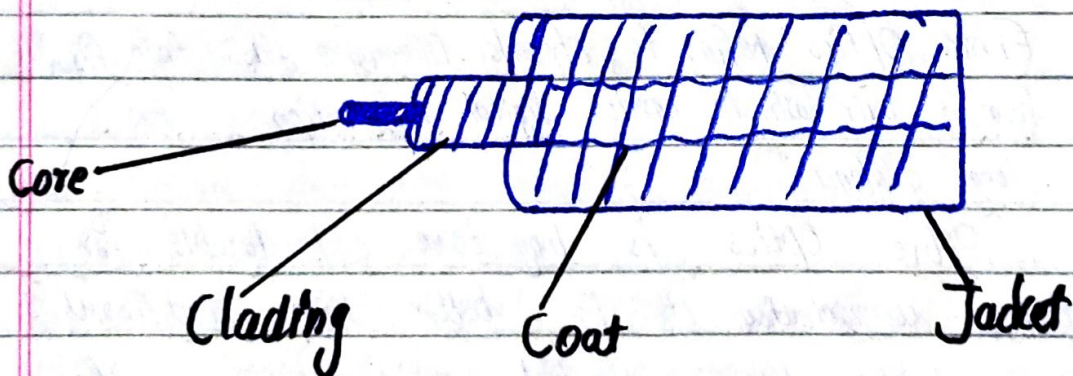
Figure 0.2 Fibre Optics structure

(11) Global Positioning System

" According to **NASA**, GPS stands for Global Positioning System. It is one of the systems of 24 orbiting setilietes which provide information about time, location, site and position. The GPS was established by the U.S Air force. It provides information to individuals free of cost. "

How it works ?

Setiliate (space Segment) collects data about location, position or site. Later, the space segment sends to ground segment (Control room). The ground segment forwards the data to the user segment (Public).

Space Segment

U.S.A

Ground Segment

User Segment
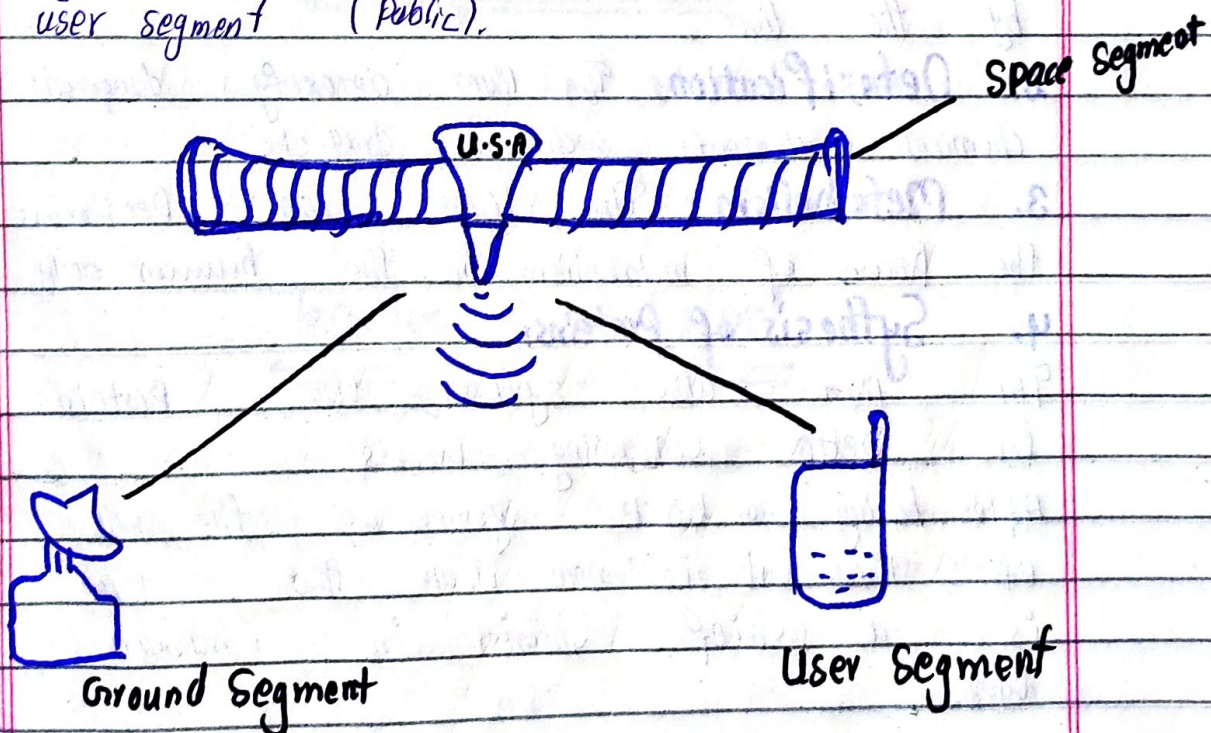
Q. NO. 5
(a)

Liver as a Chief Chemist

" A liver is one of the largest organs in human body. It weighs 1.5 k.g. It produces and releases bile juice. "

The role of liver can be seen as a chief chemist from the following perspectives:

1. **Produces and releases bile juice:** A bile juice is yellowish juice which helps to convert fats into faty acids. The bile juice is being controlled by the liver.

2. **Detoxification:** The liver detoxify dangerous chemicals or elements such as drug etc

3. **Metabolism:** The liver also performs the process of metabolism in the human body.

4. **Sythesis of Proteins:**
The liver also sythesize the Proteins for better consuming process.

After having a bird's eyeview of the role ef liver. It is now clean that liver is a chief chemist in human body.
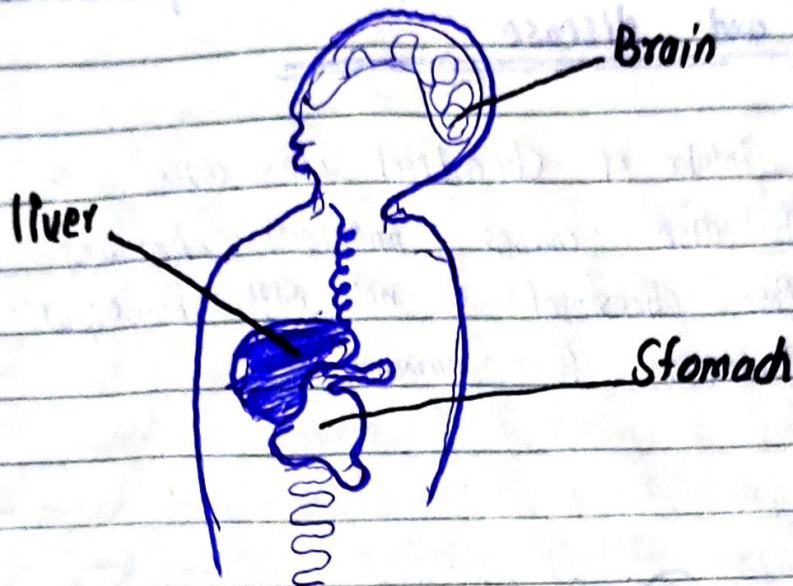
Figure 0.8 the location of liver

(b)

Cholesterol

" Cholesterol is a fatty substance which is being found in human body and foods "

Importance of Cholesterol

Cholesterol has enormous importance in the existence of human body. It is the source of energy. It assists in the production of bile juice. Cholesterol also boosts sex hormones and the metabolism process in the human body.

Dangers of elevated levels, with reference to the health and disease

The excessive intake of Choesterol can cause a heart attack. It also causes numerous chronary diseases. Therefore, choesterol is not only beneficial but also dangerous for humans.

Q. NO 6
(a)
Remote Sensing

" Remote refers to something faraway. Contrarily, sensing means Observing. Thus, remote sensing means Observing something from far away without physical acess to the object "

Techniques of Remote Sensing

Techniques of remote sensing involves numerous techniques. It includes sensors install on air balloon or aircrafts. The sensors captures the site or target of interest. with the help of Suns

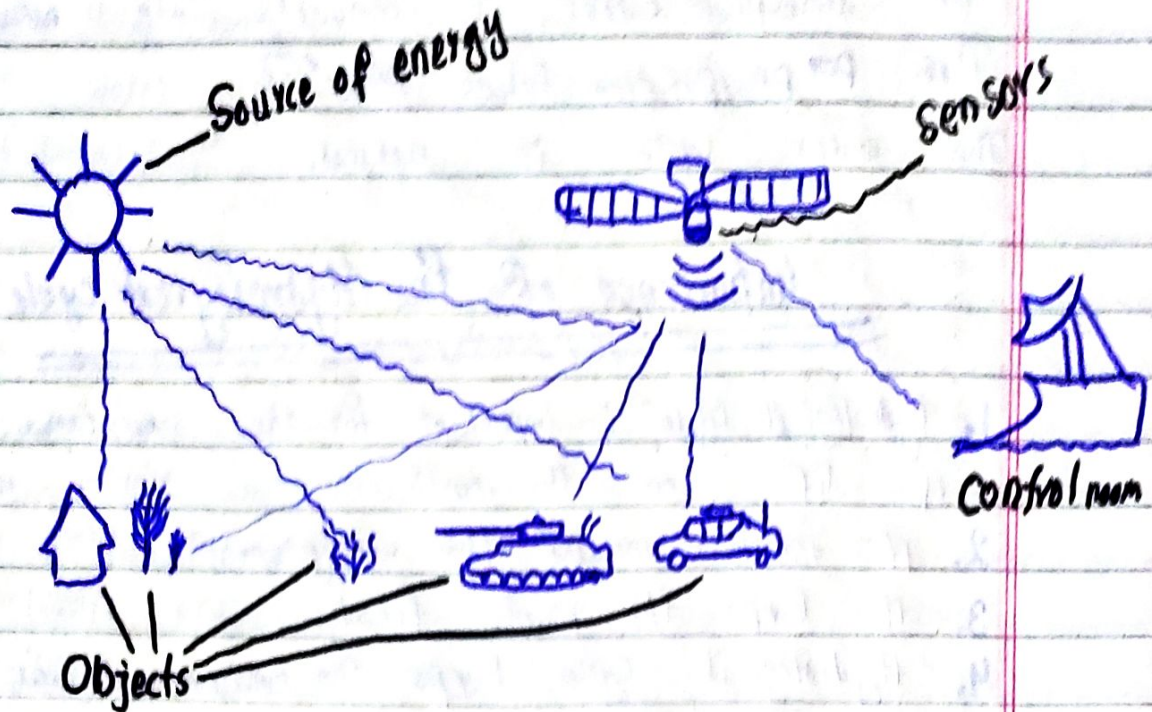radiation on the Object. Later, son the sensors sends the information to computer.

Figure 0.3 the techniques of Remote sensing

Resolution and its types

Remote sensing has two prominent types such as high altitude or lower altitude sensing processes. The resolution of the remote sensing has spread since w.w2.

(b)

Hydrological Cycle

" Hydrological cycle is also known as water cycle. It is the process of evaporation of

of ground water. The water exchanges in the atmosphere. The water gets colder in the atmosphere. Later, it converts into raindrops. Thus, "precipitation takes place." The water cycle is natural.

Importance of the Hydrological cycle

1. Hydrological cycle is important for the existence of life on the earth.
2. It assists anually the ecosystems
3. It keeps the plants fresh
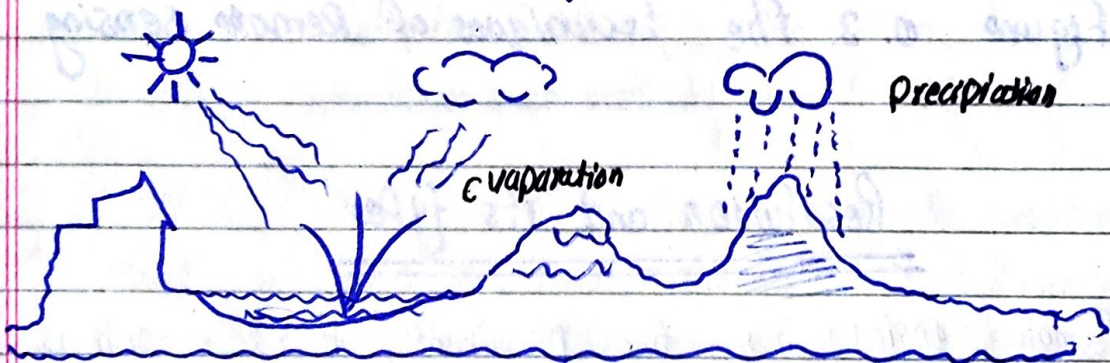4. Hydrological cycle keeps the environment clean
5. It helps the quality of air

Precipitation

Evaporation

Figure 0·4 the water cycle

Q. NO. 7

(a)

Tsunami

" Tsunami is derived from Japanses words Tsu which means hurbour and nami refers to wave. Thus, Tsunami refers to massive waves of water in Ocean which vanish the population."

How Tsunamis are generated

Tsunamis are caused due to earthquakes in the middle of Pacific and Anfilantic Oceans due to tectonic paletes. Also, inside the Oceans the volcanic eruption can cause Tsunami. Moreover, military drills or nuclean explosions are also responsible for Tsunamis.

Characterisfics of Tsunami

The height of Tsunamis are 3o meter higher, it travels with the speed of 725-800 km per hour. It has Profound speed and bouler to vanish every har hurbour, building or port.

Historical Tsunami

Norf Pacific Caste Japan 2o10, according to World Bank US $ 235 loss in economy and 180,000 People dried.

(b)

Earthquake

" According to **WMO**, earthquake refers to the temporary shaking of the earth due to the movement of tectonic palates, explosions and volcanic activities "

Richter Scale

Richter scale refers to the a divice which is being used to measure the intensity of the earth equalce. It is the only aspect to notice the sesmic the power of earth quake.

Pakistan's earthquake intensity and locus

According to Pakistan Metrological Organization (PMO) the intensity of the earth quake was 8.1 magnutite. The locus was in the deep epicenter of 145 km in BadKshan province of Afghanistan.
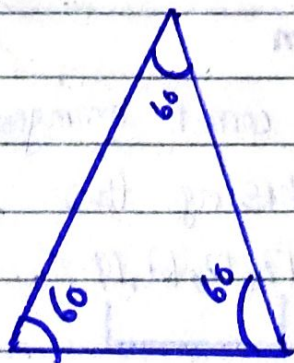
Section = II

Q. NO. 10
(a)

(i) Rightangle triangles

Rightangle triangle refers to an angle with 90 degree nadus. It has three nadus with 90 degree each.
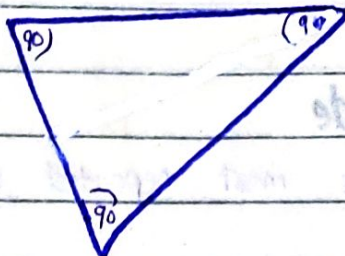
(ii) Equilateral triangles

Equilateral triangle refers to an angle with equal size of three radus. It has 60 degree of each area.

(b)

1. Mean

Mean refers to Sum of values divide by number of values. It is also known as an ∴ average of any thing.

Sol:

$$\frac{\text{Sum of values}}{\text{No of values}} \quad (i)$$

$$\frac{15 + 15 + 16 + 16 + 16 + 17 + 17 + 18 + 19}{9} = \frac{154}{9} = 17.1$$

Thus, the mean of nine students is equal to 17.1

2. Mode

Mode refers to the most repeated numbers in any series.
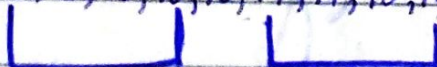
$$15, 15, 16, 16, 16, 17, 17, 18, 19,$$

Ans: 16

Thus, the mode of nine students is 16.

3. Medium

Medium refers to the correct arrangement of numbers and then chosing the middle numbers.

$$15, 15, 16, 16, 16, 17, 17, 18, 19$$

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