

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

Roll Number

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, 19. Calculate *mean, medium, mode* and *range* of their ages also define the above mentioned terms: (5)

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

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 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 (5)

- (b) Five friends Ahmad, Ali, Akbar, Nasir and Shehbaz went on summer vacation 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. (5)
(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 mental ability scales differ from IQ test. (5)
(b) $Y = mX + C$ is an equation of straight line. Draw a graph showing relationship between X and Y and relate the equation to the slope and intercept on the graph. (5)

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)

Dear Student, I read your note.

First, I pray for you, may Allah grant you Sehat e kamila wa aajela.

As far as your paper is concerned, I will give you few suggestions

1. This length is insufficient.
Increase length of the answer
2. Increase number of headings
3. Inculcate more details.
4. Your paper presentation is good.
Moreover, work on math portion too.

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 Kyoto 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 Kyoto Protocol 1997

"The Kyoto 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 Kyoto Protocol

The Kyoto 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 as India and China contribute to huge amount of CO₂, Sulphur Oxide and carbon emission. The treaty does not oppose the contribution of GHGs 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 Landfills are used to disposal waste from roads and houses.	Industrial Landfills are used to disposal industrial waste materials.
Sanitary Landfills are used to extract methane	Industrial Landfills are used to collect reusable items.

In Sanitary Landfills
different layers are used
to extract the wastage

Pipeline is constructed to
extract wastage

In the Industrial Landfills
no layers are used

No pipeline

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 extract
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 pipelines 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)

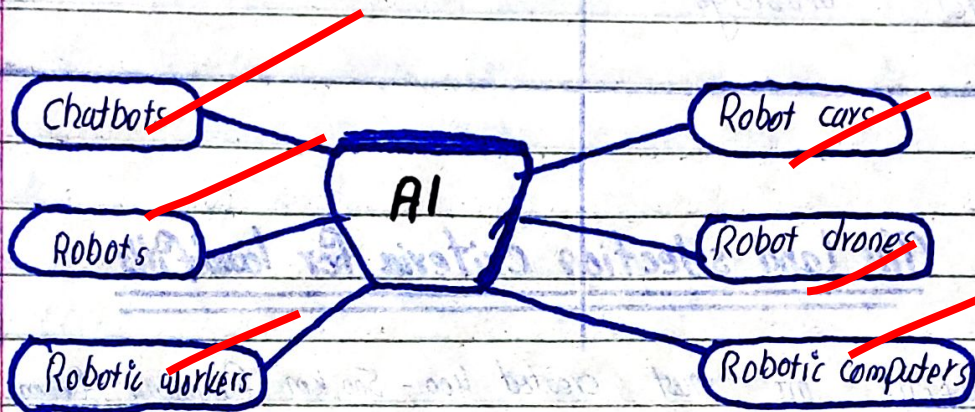


Figure 0.1 examples of AI

Advantages of AI

1. Fostering the industrial, agricultural and economic production
2. Robotic drones and cameras have contributed to the security borders and sensitive private places.
3. Assisting humans to avoid risky situations especially during disasters
4. Chatbots have been assisting educationists 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 aggressions.

Disadvantages of AI

1. The usage of AI²⁵ 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 for long distance."

The Fibre Optics is long form 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. **Cladding:** 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

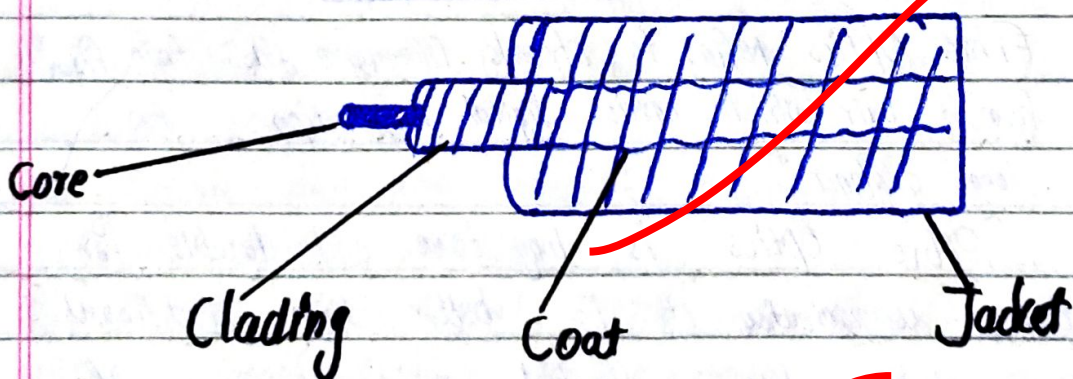


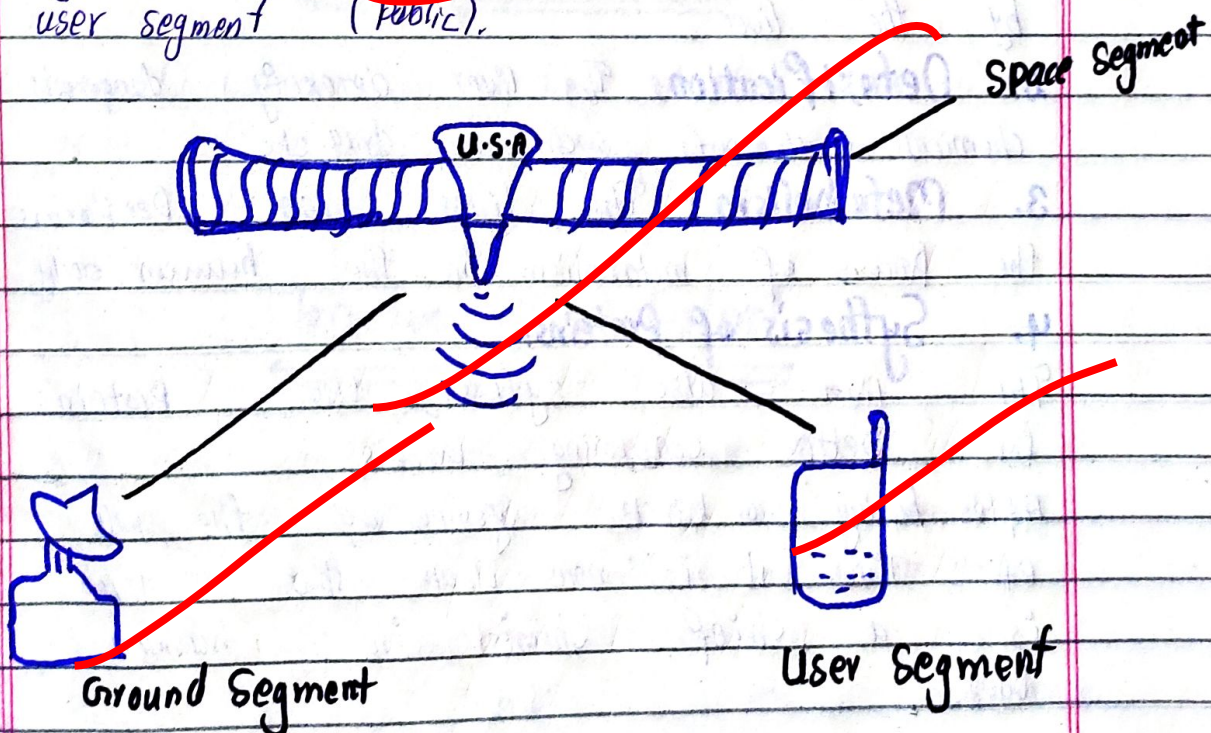
Figure 0.2 Fibre Optics structure

(ii) Global Positioning System

"According to NASA, GPS stands for Global Positioning System. It is one of the systems of 24 orbiting satellites 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 ?

Satellite (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).



Q. NO. 5

(a)

Liver as a Chief Chemist

"A liver is one of the largest organs in human body. It weighs 1.5 kg. 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 fatty 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. Synthesis of Proteins:** The liver also synthesize the proteins for better consuming process.

After having a birds eyeview of the role of liver, it is now clear that liver is a chief chemist in human body.

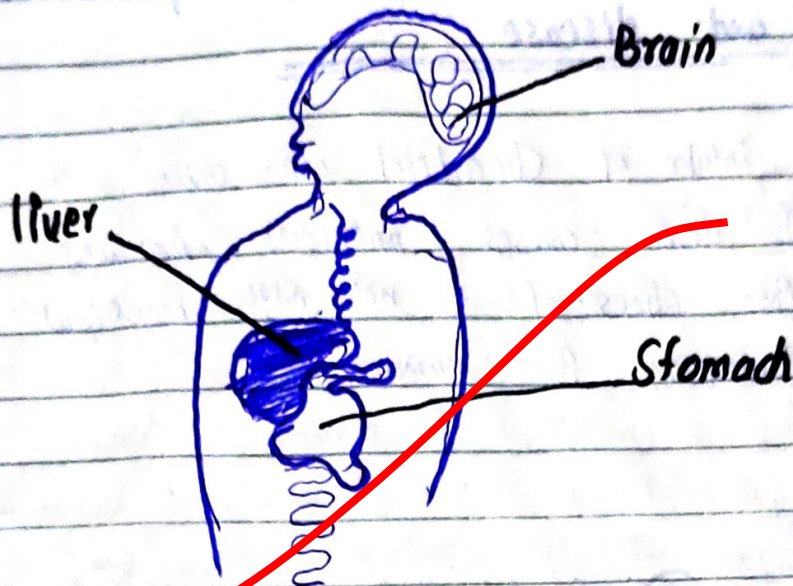


Figure 0.3 the location of liver

(b)

Cholesterol

"Cholesterol is a faty 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 cholesterol can cause a heart attack. It also causes numerous coronary diseases. Therefore, cholesterol 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 access 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 Sun's

radiation on the object. Later, the sensors send the information to computer.

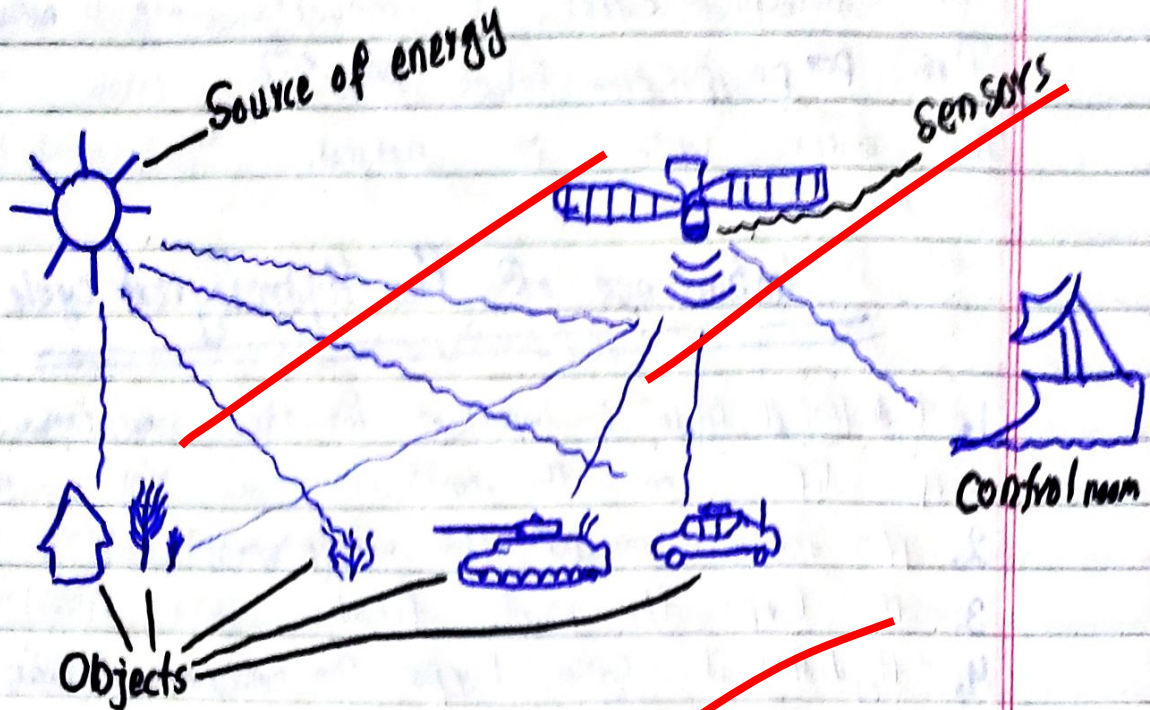


Figure 0.3 The techniques of Remote sensing

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 1942.

(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 various ecosystems.
3. It keeps the plants fresh.
4. Hydrological cycle keeps the environment clean.
5. It helps the quality of air.

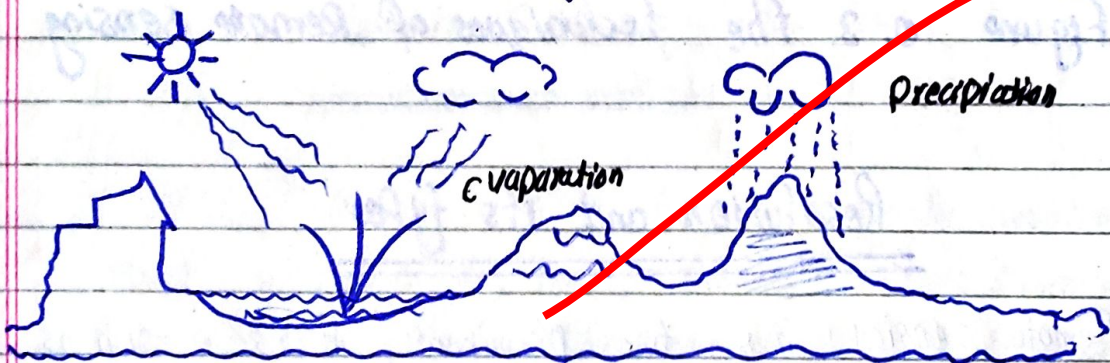


Figure 0.4 the water cycle

Q. NO. 7
(a)

Tsunami

"Tsunami is derived from Japanese words Tsu which means harbour 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 Atlantic Oceans due to tectonic plates. Also, inside the Oceans the volcanic eruption can cause Tsunami. Moreover, military drills or nuclear explosions are also responsible for Tsunamis.

Characteristics of Tsunami

The height of Tsunamis are 30 meter higher, it travels with the speed of 725-800 km per hour. It has profound speed and power to vanish every harbour, building or port.

Historical Tsunami

North Pacific Coast Japan 2011, according to World Bank US\$ 235 loss in economy and 180,000 people died.

(b)

Earthquake

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

Richter Scale

Richter scale refers to the device which is being used to measure the intensity of the earthquake. It is the only aspect to notice the seismic power of earthquake.

Pakistan's earthquake intensity and locus

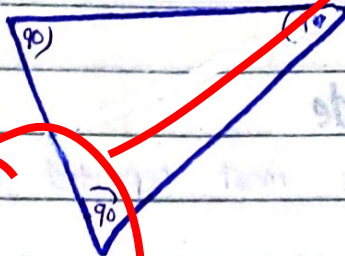
According to Pakistan Meteorological Organization (PMO) the intensity of the earthquake was 6.1 magnitude. The locus was in the deep epicenter of 145 km in Badkshan Province of Afghanistan.

Section = II

Q. NO. 10
(a)

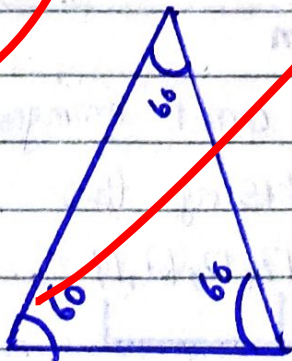
(i) Rightangle triangles

Rightangle triangle refers to an angle with 90 degree
nodus. It has three nodus with 90 degree each.



(ii) Equilateral triangles

Equilateral triangle refers to an angle with equal size
of three nodus. 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:

Sum of values

no. of values

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

15
90
45
135
130
265

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 choosing the middle numbers.

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

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