

Date: _____

PART II

SECTION - II

QUESTION #6:

(b) GIVEN:

Price of Camera = $P = \$200$

Discount on Camera = $d = 25\%$ of P

Tax on Camera = $T = 6\%$

To Find:

Total amount Paid = ?

Solution:

Calculating discount on price of camera.

$$\begin{aligned} d &= 25\% \text{ of } P \\ &= \frac{25}{100} \times 200 \end{aligned}$$

$$d = 50$$

So, discounted Price will be = $200 - 50 = \$150$.

Tax on discounted price be counted as.

$T = 6\%$ of discounted price.

$$\begin{aligned} &= 6\% \text{ of } 150 \\ &= \frac{6}{100} \times 150 \end{aligned}$$

$$T = 9$$

Now, the total amount paid will be

T.A = discounted price + Tax

$$= 150 + 9 = 159$$

So, a total of \$159 will be paid

X ————— X

c.b. Given:

Distance = $S = 36 \text{ km}$

Speed = $v = 18 \text{ km/hr.}$

Starting Time = $T_s = 1:00 \text{ pm.}$

To Find:

Time at which it reach destination = $T_d = ?$

Solution:

As per formula.

Distance = Speed $\times$ time.

$$S = vt$$

$$\Rightarrow t = \frac{S}{v} = \frac{36}{18}$$

$$t = 2 \text{ hr}$$

So Time at which it will reach at destination

$$T_d = T_s + 2 \text{ hr} = 1 + 2 = 3:00 \text{ pm}$$

X ————— X

(d) Unscramble the words:

STSTAKTIS

STATISTICS

LGEBMAR

MART ALGEBRA.

X ————— X

(a) Given:

Proportion of candies

Date: _____

Apples : Berry : Cherry : Date.

$$A : B : C : D$$

$$3 : 6 : 2 : 5$$

Apple candies exceed date candies by 35

$$\text{i.e. } A = D + 35$$

To Find:

Berry candies = $B = ?$

Solution:

According to given information.

$$A = 3x ; B = 6x ; C = 2x ; D = 5x.$$

$$A = D + 35$$

$$3x = 5x + 35$$

$$5x - 3x = -35$$

$$2x = -35$$

$$x = -\frac{35}{2}$$

$$\begin{aligned} \text{No. of berry candies} = B &= 6x = 6 \times \frac{-35}{2} \therefore \left(x = \frac{-35}{2}\right) \\ &= -105 \end{aligned}$$

as quantity cannot be negative, hence, there is a problem in question statement.

~~X = X~~

(9) Given:

Diameter of sphere = $d = 14\text{cm}$.

To Find:

Volume of sphere = $V = ?$

Date: _____

Solution:

Formula for volume of sphere is

$$V = \frac{4}{3} \pi r^3 \quad \text{--- (1)}$$

radius of sphere can be calculated by

$$r = \frac{d}{2} = \frac{\text{diameter}}{2}$$

$$r = \frac{14}{2}$$

$$r = 7 \text{ cm}$$

putting value of radius in eqn (1)

$$V = \frac{4}{3} \times \frac{22}{7} \times (7)^3$$

$$= \frac{4 \times 22}{3} \times 7 \times 7 \times 7$$

$$= \frac{4}{3} \times 22 \times 49$$

$$= \frac{4}{3} \times 1078$$

$$= \frac{4312}{3}$$

$$V = 1437.77 \text{ cm}^3$$

so volume of sphere is 1437.77 cm^3

X ————— X

(b) Given:

Total savings = T = Rs 25000

Ratio of share of 5 friends

A : B : C : D : E

1 : 2 : 3 : 4 : 5

To find:

Smallest share = A = ?

Solution:Total shares are = $1 + 2 + 3 + 4 + 5 = 15$ shares.Quantity of single share = $x = \frac{\text{Total savings}}{\text{Total shares}}$

$$= \frac{25000}{15}$$

$$= \frac{5000}{3} = 1666.66$$

$$x = 1666.66 \text{ PKR}$$

Hence, Smallest share = A = $x = \text{Rs } 1666.66$.

X ——— X

(c) Given: COMPLETE SERIES:

2, 6, 18, 54, 162, 486 (Spot the error)

Pattern of series.

$$2 \times 3 = 6$$

$$54 \times 3 = 162$$

$$6 \times 3 = 18$$

$$162 \times 3 = 486$$

$$18 \times 3 = 54$$

Date: _____

Hence, all numbers fit the pattern and there is no error in the series.

X ————— X

3, 5, 7, 11, 13

Prime numbers

3, 5, 7, 11, 13, 17

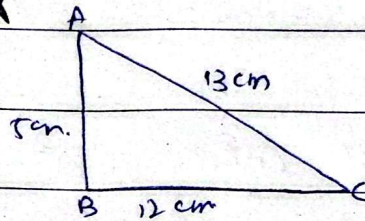
X = X

(d) sides of triangle.

$$AB = 5 \text{ cm}$$

$$BC = 12 \text{ cm}$$

$$CA = 13 \text{ cm}$$



Using Pythagoras theorem

$$(5)^2 + (12)^2 = (13)^2$$

$$25 + 144 = 169$$

$$169 = 169$$

So the triangle is right-angled triangle.

Hence,

$$\angle ABC = 90^\circ$$

$$\text{and } \angle ABC + \angle BAC + \angle BCA = 180^\circ$$

$$90^\circ + \angle A + \angle C = 180^\circ$$

$$\angle A + \angle C = 180^\circ - 90^\circ$$

$$\angle A + \angle C = 90^\circ$$

So other two angles are less than 90° .

X ————— X

QUESTION #3:

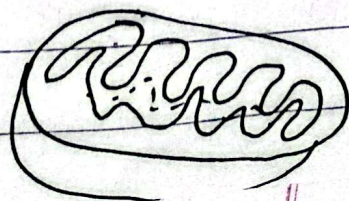
PART A Why cells form organelles: Mitochondria.

Cells combine to form organelles bec. in order to perform a specified function. To carry out specific function like protein synthesis, phagocytosis and maintenance etc., cells group together to form organelles. There are many organelles in a eukaryotic cell. These include Nucleus, ~~et~~ mitochondria, golgi apparatus, endoplasmic reticulum etc.

Mitochondria:

Mitochondria is a cell-organelle known as 'power house of cell'. It provides energy to the cell for carrying out its functions and maintenance. They generate ATP (Adenosine Triphosphate) that is primary chemical energy unit needed for biochemical reaction. It is a double-membrane bound structure and is responsible for:

- i - Production of ATP through cellular respiration.
- ii - Energy generation.
- iii - Regulate concentration of calcium ions.



great ions on

Date: _____

b- Role of ribosomes in protein synthesis:

Ribosomes are organelles made up of ribonucleic acid (rRNA) and are responsible for protein synthesis. They are either dispersed in cytoplasm or are attached to rough endoplasmic reticulum. They synthesize protein through a process called translation. Messenger ribonucleic acid, known as mRNA, carry the instructions for protein production to rRNA. Small subunit binds to mRNA and read the base sequence accurately. Then large subunit catalyze the formation of peptide bonds between amino acids. After formation of protein, mRNA and rRNA dissociate from peptide bond.



c- VOLCANIC ERUPTION:

Volcanic eruption is a natural hazard where magma erupts out of the crust due to density variations.

Volcanic eruption can be caused by either convergent or divergent tectonic plates, hotspots, percolation of water and/or pressure from saturated gases in magma.

1- Demerits of Volcanic eruption:

Date: _____

Following are the costs incurred by volcanic eruption on human life, infrastructure and environment:

- i- Release of hazardous gases result in air pollution.
- ii- Ash and smoke reduces the visibility of air.
- iii- Volcanic bombs can cause wildfires.
- iv- Volcanic explosions and rocks can cause avalanches, flash floods and landsliding.
- v- Gases like sulphur dioxide and nitric oxide released from volcanic vent can cause acid rain.
- vi- It can also cause a local earthquake or tsunami.
- vii- A volcanic eruption creates a smoky cloud that causes abrupt cooling as it reflects back the ~~sun~~ sunlight.

2- Merits of Volcanic eruption:

Following are merits

of volcanic eruption:

- i- High temperature of magma can be a source of fuel in form of geothermal energy.
- ii- Volcanic ash when extruded can be used as fertilizer.
- iii- The natural phenomenon is a great tourist attraction.

X ————— X

Date: _____

(d) DENGUE:

Dengue is known as breakbone fever. It is a viral infection transmitted by a mosquito known as Aedes mosquito. Typically there are four types of dengue viruses, namely, DENV-1, DENV-2, DENV-3, and DENV-4.

(1) Causes:

Dengue is caused by a pathogen named DENV which is transmitted by a mosquito bite of vector, female Aedes mosquito.

(2) Symptoms:

Mostly symptoms of dengue fever appear in 3 to 17 days after being bitten by aedes mosquito. Common symptoms include sudden high fever, headache, severe muscle and joint pain, nausea and vomiting, skin rash, swollen glands and fatigue. While in severe life-threatening situation, dengue haemorrhagic fever or dengue shock syndrome manifests. Symptoms of dengue shock syndrome include severe abdominal pain, persistent vomiting, fast breathing, bleeding gums, low immunity, extreme tiredness etc.

(3) Remedies and treatment:

There is no specific

Date: _____

anti-viral treatment for dengue. Mostly, patient is provided with fluid replacement and platelets are infused into his body through drips. Moreover, pain relievers are prescribed to relieve pain and rest is recommended until a stable condition is attained. In case of severe condition, patient is hospitalized and treated there.

X=====X