GSA Mock

Part II (Section II).

Q. NO 6.

Part A.

boat length = 3m
breadth = 2m

Boat sink depth = 1 cm = 10^{-2} m.

mass of man = volume of water display × density of water

$= (3 \times 2 \times -10^{-2}) m^3 \times (10^3) kg/m^3$

mass of man = $3 \times 2 \times 10$ kg

= 60 kg.

Part B

Selling 17 balls = S.P Rs 720

Loss = Cost Price - S.P

Cost Price of 17 ball - Selling Price of 17 balls = C.P of 5 balls.

Cost Price of (17-5) balls = Selling Price of 5 balls = 720

Cost Price of 12 balls = 720

$$CP \text{ of } 1 ball = \frac{720}{12}$$

= Rs- 60

The Cost of 1 ball is Rs 60

Part C

let the son's age be $= x$ yrs and man's y years.

A man $= y = 24 + x$.

In two years.

$$Son = x + 2.$$

$$man = x + 24 + 2 = x + 26$$

So, $\dfrac{x + 26}{x + 2} = 2$

$$x + 26 = 2x + 4$$

$$x = 22 \text{ years}.$$

The present age of son is 22 years

Part D

Rashid takes — 6 hours to types 32 pages.

Kamran takes — 5 hours to type 40 pages

assignment of 110 pages — time?

$$A = RT$$

$$T = \frac{A}{R}.$$

1 hour $= \dfrac{32}{6} = \dfrac{16}{3}$ — Rashid

1 hour $= \dfrac{40}{5} = 8$ — Kamran.

Number of pages typed by both in 1 hour =

$$= \frac{16}{3} + 8 = \frac{40}{3}$$

∴ Time taken by both $= \left(110 \times \frac{3}{40}\right)$ hours.

$$= 8\frac{1}{4} \text{ hours or } 8 \text{ hours } 15 \text{ min}.$$

To type 110 pages by both Rashid and Kamran it will take them 8 hours and 15 mins.

Q. NO 7

Part A

Saqib took a loan = 1200
    Simple interest = rate of interest.
At the end = 432

$$SI = \frac{\text{Amount} \times \text{Rate of Interest} \times \text{Time}}{100}$$

$$432 = \frac{1200 \times R \times R}{100}$$

$$432 = 12R^2$$

$$\frac{432}{12} = R^2$$

$$= 2\sqrt{36} = \sqrt{R^2}$$
$$6\% = R.$$

Simple interest or required rate is 6% on the loan taken by Aqqib.

Part B

Sunday Average visitors = 510
Rest of the week = 240

So, the month begins with sunday and there will be 5 sundays.
Number of visitors on sunday = 510 × 5 = 2550

Number on other days = 240 × 25 = 6000

$$\text{Average} = \frac{\text{sum of the observation}}{\text{Number of the observation}}$$

$$= \frac{6000 + 2550}{30} = \frac{8550}{30}$$

$$= 285$$

The average number of visitors per day in a month of 30 days beginning with a sunday is is 285

Part C

40% of A = $\frac{2}{3}$ B.

$\therefore$ $\frac{40}{100}$ A = $\frac{2}{3}$ B.

$\frac{2A}{5}$ = $\frac{2B}{3}$

$\frac{A}{B}$ = $\frac{2}{3} \times \frac{5}{2}$

$\frac{A}{B}$ = $\frac{5}{3}$

So, A : B is equals to 5:3

Part D

2 dices thrown = n(S) = 6×6 = 36.

Let E = event of getting two numbers whose product is even

Then = E = { (1,2), (1,4), (1,6), (2,1), (2,3), (2,2), (2,4), (2,5), (2,6), (3,2), (3,4), (3,6), (4,1), (4,2), (4,3), (4,4) (4,5), (4,6), (5,2), (5,4), (5,6) (6,1), (6,2), (6,3), (6,4), (6,5), (6,6) }

n = (E) = 27

$\therefore$ P(E) = $\frac{n(E)}{n(S)}$ = $\frac{27}{36}$ = $\frac{3}{4}$

Section I

Q.No 4

Part q

1 - Anamcia

A condition in which There is a deficiency of red blood cells or hemoglobin, leading to fatigue and weakness

2- Appendicitis

Inflamation of the appendix, a small pouch attached to the longer intestine. Symptoms include abdominal pain, fever and nausea

3- Spleen

A lympatic organ located in the upper left abdomen. It filters blood, recycles old red blood cells and support the immune system.

4. Myopia

Also known as nearsightedness, a vision condition where distant objects appear blurry due to the elongation of the eyeball.

5 - Isotones

Atoms of different elements that have the same number of neutrons but different number of protons. Example : Carbon-14 and Nitrogen-15

Part a

Bile is a yellow-green digestive fluid produced by the liver and stored in the gallbladder. It contains water, bile salts, bile pigments (bilirubin and biliverdin), cholestrol and phospholipids. Bile plays an essential role in fat digestion and absorption. Bile salts emulsify large fat globules into smaller droplets, increasing their surface area for the enzymes lipase to act upon. Additimally, bile facilitates the excreation of waste products such as bilirubin (a byproduct of hemoglobin breakdown) and excess cholesterol. It also helps neutralize the acidic chyme entering the small intestine from the stomach, creating an optimal PH for enzymatic activity.

Right — lobe

Left lobe

cystic duct

— falciform ligament

Gall bladder

— common bile duct.
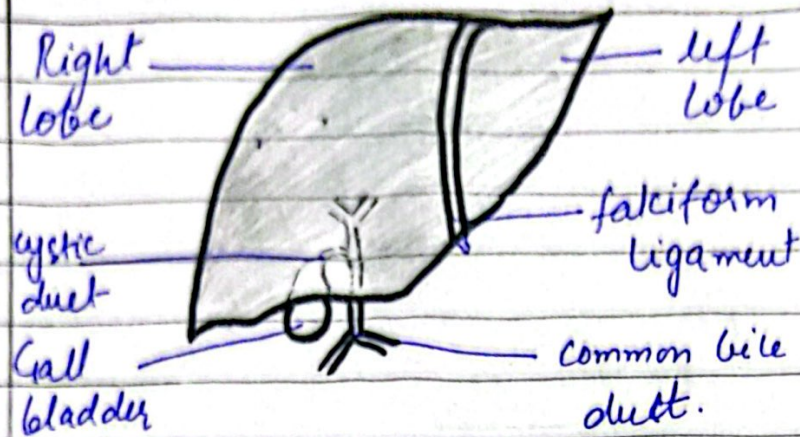
Part 6

The kidneys are vital organs that maintain the body's internal environment by excreting waste products and regulating water and ion balance. Blood is filtered in the nephrons, the functional units of the kidney. In the glomerulus, filtration occurs, removing water, salts, urea and other waste materials. Essential substances like glucose, amino acids and water are reabsorbed in the ~~seated~~ renal tubules. Unwanted substances, including excess ions and toxins, are secreted into the tubules. The filtered fluid, now urine, is transported via the ureters to the bladder for excretion. By managing waste and fluid levels, the kidneys maintain homeostasis and regulate blood pressure

Urinary System

Kidney

Renal Artery

Renal Vein

Ureter

Urinary bladder

Urethra
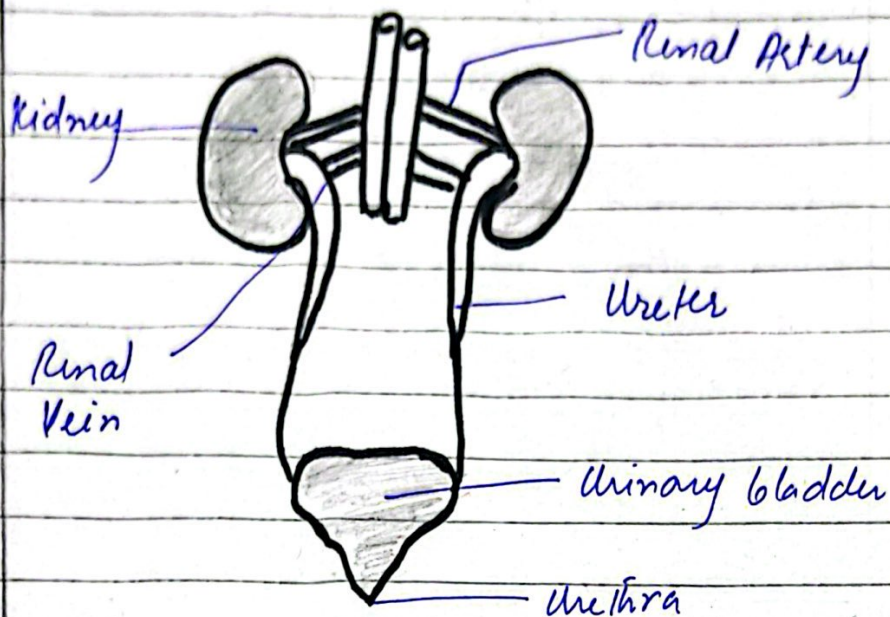
Part C

Solid Waste management involves strategies to reduce, manage and dispose of waste effectively. Landfilling is a common method where waste is buried in designated areas, often lined to prevent contamination of ground water. Incineration involves burning waste at high temperatures, significantly reducing its volume and generating energy. Recycling reprocessess materials like paper, plastic and metal for reuse, reducing the demand for raw materials. Composting decomposes organic water waste into nutrient-rich compost for agriculture. Waste to Energy (WTE) technologies, such as

anaerobic digestion, convert organic waste into ~~bigges~~ biogas or electricity. Additionally, strategies like waste reduction and reuse aim to minimize the generation of waste at the source.