# WALK-IN-TEST I
## PAPER I - UNIT- III: GENERAL APTITUDE & MENTAL ABILITY

**Time: 30 min** **Total marks: 50**

### SECTION A

**2 x 10 = 20**

**Answer not exceeding 150 words each**

1. Answer the following questions
   பின்வரும் வினாக்களுக்கு விடையளி

   a. Find the greatest number of 6 digits exactly divisible by 24, 15 and 36
   24, 15 மற்றும் 36ஆல் சரியாக வகுபடக்கூடிய மிகப்பெரிய 6 இலக்க எண்ணை கண்டறியவும்

   Explanation

   The greatest 6 digits number is 999999

   First we have find the LCM of 24, 15 & 36

   $2\overline{)15, 24, 36}$
   $2\overline{)15, 12, 18}$
   $3\overline{)15,\ 6,\ 9}$
   $5,\ 2,\ 3$

   LCM = 2 x 2 x 3 x 5 x 2 x 3 = 360

   $\Rightarrow \frac{999999}{360}$

   Reminder is 279

   $\therefore$ 999999 − 279 = 999720

   Hence 999720 is the greatest 6-digit number which is exactly divisible by 24, 15 and 36.

   b. A bag contains one rupee coins, 50p coins, 25p coins in the ratio 5 : 6 : 8 amounting to Rs.210. Find number of coins of each type and total number of coins

ஒரு பையில் ஒரு ரூபாய், 50 பைசா, 25 பைசா நாணயங்கள் 5 : 6 : 8 என்ற விகிதத்தில் உள்ளன. நாணயங்களின் மொத்த மதிப்பு ரூபாய் 210, எனில் ஒவ்வொரு வகை நாணயங்களின் எண்ணிக்கை மற்றும் மொத்த நாணயங்களின் எண்ணிக்கையைக் கண்டறியவும்.

**Explanation**

Given that a bag contains 1rupee, 50 paise (0.5 rupee) and 25 paise (0.25 rupee) coins in the ratio 5:6:8 and the total amount is 210Rs.

Let the no.of 1 Rupee coins, 0.5 Rupee coins and 0.25 Rupee coins be 5x, 6x and 8x respectively

So the total amount

$\Rightarrow 5x (1) + 6x (0.5) + 8x (0.25) = 210$

$\Rightarrow 5x + 3x + 2x = 210$

$\Rightarrow 10x = 210$

$\Rightarrow x = 21$

Hence, the no.of 1Rupee coins = $5x = 5 \times 21 = 105$

No.of 50 paise coins = $6x = 6 \times 21 = 126$

No.of 25 paise coins = $8x = 8 \times 21 = 168$

And the total no.of coins = 105 + 126 + 168 = 399

2. Write a short on the following
பின்வருவனவற்றிற்கு சிறுகுறிப்பு வரைக

**a. Operating System**
**இயக்கு தளம்**

**Operating System** – Directs the computer how to operate. It acts as a mediator between the hardware and the application programs that are used for work. This allows access to computer files, loads application programs into memory and closes programs.

**b. m-governance**
**கைப்பேசி ஆளுகை**

M-Governance is the use of mobile or wireless to improve Governance service and information "anytime, anywhere". M-Governance is not a replacement for e-Governance, rather it complements e-Governance. m-Governance takes electronic services and makes them available via mobile technologies using devices such as mobile phones.

**c. 5G**
**5ஆம் தலைமுறை**

In telecommunications, 5G is the fifth generation technology standard for broadband cellular networks, which cellular phone companies began deploying worldwide in 2019, and is the planned successor to the 4G networks which provide connectivity to most current cellphones.

**d. USB Port**
**அகிலத் தொடர் பாட்டை**

**USB Port** – The Universal Serial Bus is accessed through small rectangular port on the front or back of computer that allows peripheral devices such as digital cameras and external hard drives to connect to the computer. See **Ports** for other types of connections.

e. Mother Board
**தாய்ப்பலகை**

**Motherboard** – The circuit board that functioning parts of the computer connect to is the motherboard. The CPU, RAM and cache all plug into the motherboard.

## SECTION – B

**2 x 15 = 30**

## Answer not exceeding 250 words each

3. The temperature of two cities A and B in a winter season are given below

| | | | | | |
|---|---|---|---|---|---|
| Temperature of City A (in degree Celsius) | 18 | 20 | 22 | 24 | 26 |
| Temperature of city B (in degree Celsius) | 11 | 14 | 15 | 17 | 18 |

Find which city is more consistent in temperature changes?

இரண்டு நகரங்கள் A மற்றும் B யின் குளிர் காலத்தில் நிலவும் வெப்பநிலை அளவுகள் கீழே கொடுக்கப்பட்டுள்ளன.

| | | | | | |
|---|---|---|---|---|---|
| நகரம் A-ன் வெப்பநிலை (டிகிரி செல்சியஸ்) | 18 | 20 | 22 | 24 | 26 |
| நகரம் B-ன் வெப்பநிலை (டிகிரி செல்சியஸ்) | 11 | 14 | 15 | 17 | 18 |

எந்த நகரமானது வெப்பநிலை மாறுபாடுகளில் அதிகமான நிலைத்தன்மை கொண்டது?

**Explanation**

City A

| x | $d = x - \bar{x}$ | $d^2$ |
|---|---|---|
| 18 | - 4 | 16 |
| 20 | - 2 | 4 |
| 22 | 0 | 0 |
| 24 | 2 | 4 |
| 26 | 4 | 16 |
| 110 | 0 | 40 |

City B

| x | $d = x - \bar{x}$ | $d^2$ |
|---|---|---|
| 11 | - 4 | 16 |
| 14 | - 1 | 1 |
| 15 | 0 | 0 |
| 17 | 2 | 4 |
| 18 | 3 | 9 |
| 75 | 0 | 30 |

Now

$\bar{x} = \frac{110}{5} = 22$

Standard deviation $\sigma = \sqrt{\frac{\sum d^2}{n}}$

$= \sqrt{\frac{40}{5}} = \sqrt{8}$

$\sigma = 2.828 \simeq 2.83$

Coefficient of variation, C.V = $\frac{\sigma}{\bar{x}} \times 100$

$= \frac{2.83}{22} \times 100$

$= \frac{283}{22}$

$= 12.86\%$

$\therefore$ The coefficient of variation for the temperature of city A is 12.86%

$\bar{x} = \frac{75}{5} = 15$

Standard deviation $\sigma = \sqrt{\frac{\sum d^2}{n}}$

$= \sqrt{\frac{30}{5}} = \sqrt{6}$

$\sigma = 2.449 \simeq 2.45$

Coefficient of variation, C.V = $\frac{\sigma}{\bar{x}} \times 100$

$= \frac{2.45}{15} \times 100$

$= \frac{245}{15}$

$= 16.33\%$

$\therefore$ The coefficient of variation for the temperature of city B is 16.33%

i.e., C.V of city A < C.V of city B

$\therefore$ City A is more consistent in temperature change.

4. Answer the following questions
பின்வரும் வினாக்களுக்கு விடையளி

a. The LCM of two numbers is 14 times of their HCF. The sum of LCM and HCF of those number is 600. If one number is 280 then find the other number
இரு எண்களின் மீச்சிறு பொதுமடங்கானது அவைகளின் மீப்பெரு பொது காரணியின் 14 மடங்காகும். மீச்சிறு பொதுமடங்கு மற்றும் மீப்பெரு பொது காரணியின் கூடுதல் 600 ஆகும். ஒரு எண்ணானது 280 எனில் மற்றொரு எண்ணைக் காண்க

**Explanation**

Let the other number be 'x'

Given: LCM + HCF = 600

$\Rightarrow 14HCF + HCF = 600$

$\Rightarrow 15HCF = 600$

$\Rightarrow HCF = 40$

$\Rightarrow LCM = 14 \times 40 = 560$

Since HCFxLCM=Product of 2 numbers

$=>40 \times 560 = 280 \times x$

$$\Rightarrow x = \frac{40 \times 560}{280}$$

$\Rightarrow x = 40 \times 2$

$\Rightarrow x = 80$

hence the other number is 80.

b. Vaidegi sold two sarees for ₹ 2200 each. On one she gains 10% and on the other she loses 12%. Calculate her gain or loss percentage in the sales.
வைதேகி, இரு சேலைகளை தலா ₹ 2200 இக்கு விற்றாள். ஒன்றின் மீது 10 சதவீத இலாபத்தையும் மற்றொன்றின் மீது 12 சதவீத நட்டத்தையும் அடைந்தாள் எனில், சேலைகளை விற்றதில் அவளின் இலாபம் அல்லது நட்டச் சதவீதத்தைக் காண்க.

**Explanation**

**Saree 1**

The selling price is Rs.2200, Let cost price be $C.P_1$, gain is 10%.

We need to find $C.P_1$ using the formula


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$$S.P = C.P_1\left(1+\frac{gain\%}{100}\right)$$

$$\Rightarrow 2200 = C.P_1\left(1+\frac{10}{100}\right)$$

$$\therefore CP_1 = 2200\times\frac{100}{110} = 2000$$

**Saree 2**

The selling price is ₹ 2200. Let cost price be $C.P_2$, loss is given as 12%.

We need to find $CP_2$ using the formula

$$S.P = C.P_2\left(1-\frac{loss\%}{100}\right)$$

$$\Rightarrow 2200 = C.P_2\left(1-\frac{12}{100}\right)$$

$$= C.P_2\times\left(\frac{100-12}{100}\right)$$

$$= C.P_2\times\frac{88}{100}$$

$$\therefore C.P_2 = \frac{2200\times100}{88} = 2500$$

$\therefore$ Cost price of both together is $C.P_1 + C.P_2$

=2000 + 2500 = 4500

Selling price of both together is 2 x 2200 = 4400

Since net selling price is less than net cost price, there is a loss.

Loss = Net cost price – Net selling price

4500 – 4400 = 100

$$\therefore \text{ loss } \% = \frac{100}{4500}\times100$$

$$= \frac{100}{45}$$

$$= \frac{20}{9}$$

$$= 2\frac{2}{9}\%$$

$$= 2\frac{2}{9}\% loss$$

**Saree 2 :**

The selling price is 2200, let cost price be $CP_2$, loss is given as 12%. We need to find $CP_2$ using the formula as before,

$S.P = C.P_2\left(1 - \frac{loss\%}{100}\right)$ and substituting the values

$2200 = C.P_2\left(1 - \frac{12}{100}\right)$

$= C.P_2 \times \left(\frac{100 - 12}{100}\right)$

$= C.P_2 \times \frac{88}{100}$

$\therefore C.P_2 = \frac{2200 \times 100}{88}$

$= 2500$

$\therefore$ Cost price of both together is $C.P_1 + C.P_2$

$= 2000 + 2500 = 4500$ ...(1)

Selling price of both together is $2 \times 2200 = 4400$ ...(2)

Since net selling price is less than net cost price, there is a loss.

$Loss\ \% = \frac{loss}{cost\ price} \times 100$

Loss = Net cost price – Net selling price

(1) – (2) = 4500 – 4400 = 100

$\therefore$ loss $\% = \frac{100}{4500} \times 100$

$= \frac{100}{45}$

$= \frac{20}{9}$

$= 2\frac{2}{9}\%$

$= 2\frac{2}{9}\%$ loss


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