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The Question Bank

DI Mixed Chart Questions for SBI PO Mains, IBPS PO Mains and RBI Grade B Exams.

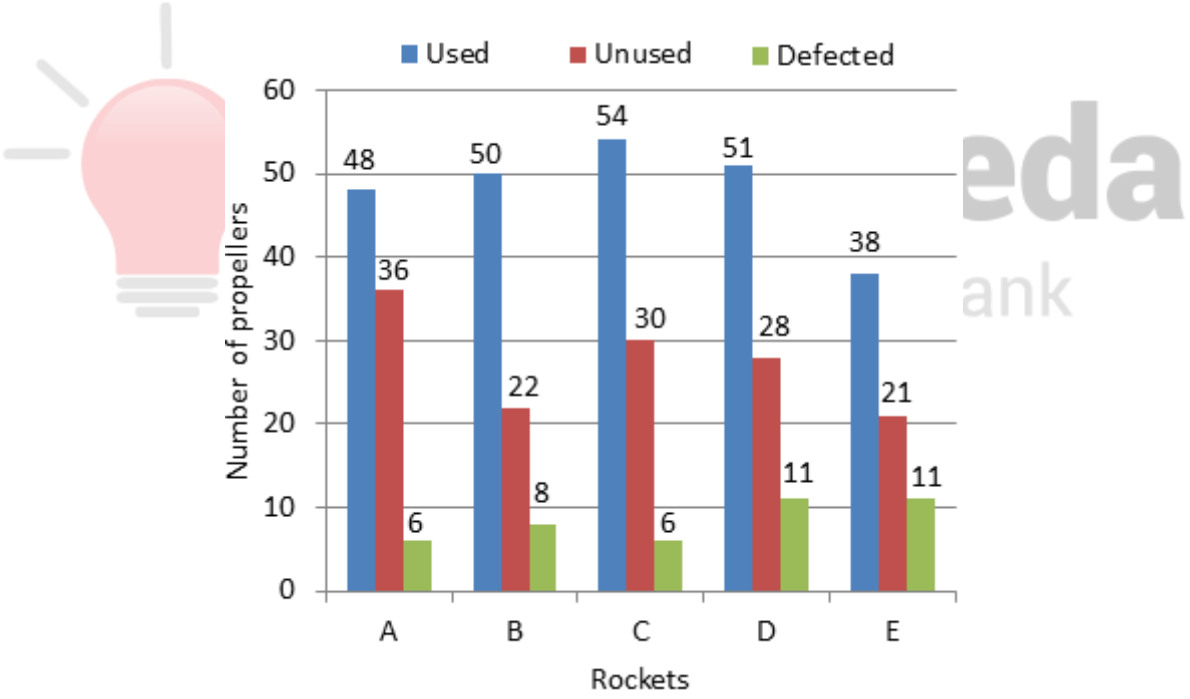
DI Mixed Chart No. 76

Directions : Study the following bar and table chart carefully and answer the questions given beside.

A new kind of rocket is produced by ISRO. It uses many small propellers to push the weight. A rocket can have many propellers and each propels the weight one by one. Means, one propeller pushes the rocket up for some time, and when it is run out of fuel, the next propeller starts, and so on.

In an experimental test, five similar rockets are tested. Each of them can have different number of propellers.

It is not necessary that all the propellers will be consumed while the test. Those which will not be consumed, are called unused, will be reused for a new rocket.
It might be possible that not all the propellers will work properly, such propellers are called defected. Some of the defected propellers can be improved to be used for new rocket.



All propellers are identical, but the height they can push the weight of the rocket varies with the altitude above the earth surface.

Table gives information about the same.

Range of altitude above Earth Surface	Height pushed by one propeller
0 – 10 km	0.4 km
10 – 16 km	0.6 km
16 – 20 km	1 km
above 20 km	1.2 km

1. Find the average number of propellers in the five rockets that were fittedin the rockets for the experimental test.

A. 80 B. 84 C. 86 D. 88 E. 85

2. If 66.66% of the defected propellers are improved to be used again, how many rockets can be made again if all the unused propellers are used along with improved propellers if each rocket is fitted with 55 propellers?

A. 2 B. 3 C. 4 D. 5 E. Can't be determined

3. Find the maximum height that a rocket will go among the five rockets.

A. 20 km B. 18 km C. 32 km D. 38 km E. 44 km

4. A propeller pushes a rocket for 0.006 minutes. Find the average speed of rocket E before it starts falling down towards the earth from the maximum height.

A. 5000 kmph B. 500 kmph C. 4000 kmph D. 10000 kmph E. Can't be determined

5. How many propellers are required to send a rocket to a height of 48,800 meters?

A. 48 B. 52 C. 58 D. 63 E. Can't be determined

Correct Answers:

1	2	3	4	5
B	B	D	A	D

Common explanations :

Each rocket has 3 kind of propellers = used + unused+ defected

We add the value for the three columns for each rocket to get the number of propellers used in each rocket.

Rockets	Used	Defected	Unused	Total
A	48	6	36	90
B	50	8	22	80
C	54	6	30	90
D	51	11	28	90
E	38	11	21	70
Total	241	42	137	420

Answers :

1. From common explanation, we have

$$\text{Average} = \frac{420}{5} = 84$$

Hence, option B is correct.

2. From common explanation, we have

Improved propellers = 66.66% of 42 = 28

Total reusable propellers = unused + improved = 137 + 28 = 165

$$\text{Number of rockets} = \frac{165}{55} = 3$$

Hence, option B is correct.

3. From common explanation, we have

It is obvious that the rocket which has maximum number of 'used' rocket will go maximum height. Rocket C is that rocket.

Now, to find the height, we use the information given in the table in question.

For 0-10 km range, number of propellers required

$$= \frac{10 \text{ km}}{0.4 \text{ km}} = 25$$

For 10-16 km range, number of propellers required

$$= \frac{6 \text{ km}}{0.6 \text{ km}} = 10$$

For 16-20 km range, number of propellers required

$$= \frac{4 \text{ km}}{1 \text{ km}} = 4$$

Till now, we have 39 used propellers to reach height of 20 km, for above this, we have 54 – 39 = 15 propellers.

Each of these 15 will go 1.2 km, so max height = 20 + 15 × 1.2 = 38 km

Hence, option D is correct.

4. From common explanation, we have

First we find out how high the rocket E can go. So,

For 0-10 km range, number of propellers required = $\frac{10\text{ km}}{0.4\text{ km}} = 25$

For 10-16 km range, number of propellers required = $\frac{6\text{ km}}{0.6\text{ km}} = 10$

From now, rocket E has only 3 propellers, so maximum height it can go = 10 + 6 + 3 = 19 km

Total time = 0.006 minutes × 38= $\frac{38 \times 0.006}{60}$ hours = 0.0038 hours

Average speed = $\frac{19\text{ km}}{0.0038\text{ hours}} = 5000$ kmph

Hence, option A Is correct.

5. From common explanation, we have

For 0-10 km range, number of propellers required = $\frac{10\text{ km}}{0.4\text{ km}} = 25$

For 10-16 km range, number of propellers required = $\frac{6\text{ km}}{0.6\text{ km}} = 10$

For 16-20 km range, number of propellers required = $\frac{4\text{ km}}{1\text{ km}} = 4$

Till now, we have send the rocket to a height of 20 km.

We need to go 48.8 km – 20 km = 28.8 km more, so

Number of propellers = $\frac{28.8\text{ km}}{1.2} = 24$

Total number of propellers = 25 + 10 + 4 + 24 = 63

Hence, option D is correct.