

Note :

Hello Sir, thank you for checking my exam. Could you be tell me areas of improvement in some of these questions that I quickly attempted?

General Science & Ability

Pt. II

Q.2(a) Data:

Data is the new oil, from the dual standpoint of both data and oil. "Data" is the raw, unorganized collection of facts and figures, which is used to generate information, the processed form of ~~concept~~ data. Consequently, the larger the 'quantity' of data, the higher the information generation. Information is then further used for decision making, with another direct relationship: the more (and accurate) the information, the more targeted the decision made.

oil =

oil, once the harbinger of wealth and prosperity, is currently on the unstable grounds of being replaced by comparatively cheaper renewable energy. Today, the world members no longer require oil as the basis of their growth.

The New Factor of Production:

Data is the new factor of production, as obvious by the stream of data produced and consumed everyday by all entities. Data is calculated, monitored and stored by all modern devices; be it the movement tracker application on phones, calculating number of steps taken or the likes and

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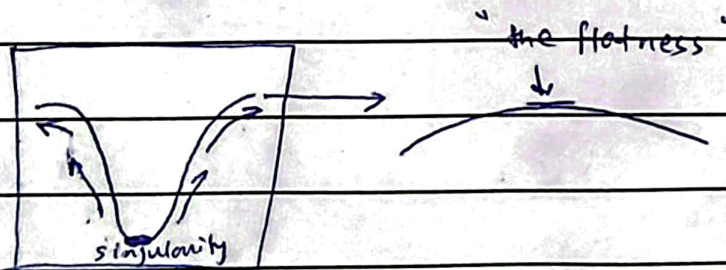
dislikes of a person on a social media platform. That individual level data tracking is then used to create a digital/virtual consumer profile for targeted ads and content. Algorithms understand preferences and cater to individuals with personalized feeds. While at the level of states, the recent tussle between America and China over the sale of TikTok is a clear proof for the fact that the state that controls the data, and in turn the information and narratives, is consequently the stronger state. After the sale of TikTok, America announced that the algorithm will be "retained" according to more suitable content. That will, very obviously, control what gets told and what remains hidden, controlling narratives and public perceptions at large. Similarly, China has initiated a digital ~~public~~ ID system, with over 65,000 voluntary sign-ups in the initial week. This allows the state to track the lives, and in turn their habits, on a daily, moment-to-moment basis and in turn offer rewards and punishments. These examples at both individual/corporation and state level exemplify that data is the new treasure trove and the one controlling and storing it will be the ultimate winner in the new race towards prosperity.

2(b) Universe Expansion Theory

The universe is expanding, as supported by multiple theories and also scientific evidences. The Accelerating universe theory purports that the universe is moving outwards and the supporting evidence is the red shift effect. When an object is moving towards the reference point, it creates a blue light spectrum called the blue-shift, while an object moving away from said reference point creates the red shift effect. The data collected and analyzed from distant objects shows

Date _____

them to produce a red shift effect. Once it has been established that the universe is accelerating, and in turn, expanding, it is easier to understand it by an analogy of a balloon. If a point is marked on the balloon, and it is continuously, but slowly, being blown into then the balloon will increase in size, however, the point will stay ~~near~~ on its original location. Except it will be more spread out, but the effect in that will be felt only a large galactic timescale. So although the size is increasing, the surface of it will appear to be flat (or 'same') to the observer placed on that surface. This is because, on a relative level the surface, like a balloon's, will "feel" flat.



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Section II

Q7 (a) Volume of sphere = $\frac{4}{3} \pi r^3$

diameter = 14cm

$$r = d/2 = 14/2 = 7$$

$$\text{volume} = \frac{4}{3} \times \frac{22}{7} \times 7^3$$

$$= \frac{4}{3} \times 22 \times 7^2$$

$$= \frac{4}{3} \times 22 \times 49 = \frac{4312}{3}$$

$$= 1437.3$$

Date _____

2(b)

total savings = 25,000

ratio = 1:2:3:4:5

total ratio (sum) = 15

$$\text{ratio} = \frac{1}{15} \times 25000 = 1666.7$$

2(c)

(i) 2, 6, 18, 54, 162, 486

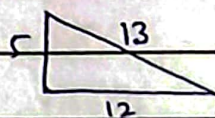
⇒ all ~~fit~~ numbers fit in the pattern of $(x \times 3)$ where x is the previous number in the series i.e. $2 \times 3 = 6$, $6 \times 3 = 18$...

(ii) 3, 5, 7, 11, 13, ...

the next no. is 17 because this is a series of prime numbers

2(d)

sides = 5, 12, 13



check Pythagorean theorem

$$H^2 = P^2 + B^2$$

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

$$169 = 25 + 144$$

the triangle is a right angle triangle so one angle is

90° } for other angles

$$\sin \theta = \frac{P}{H} = \frac{5}{13} = \sim 22.6^\circ$$

$$\cos \theta = \frac{B}{H} = \frac{12}{13} = \sim 67^\circ$$