

Option (b) 3 η 6 γ 2 δ 8 • 4 β 5  $\Rightarrow 3 \div 6 \times 2 + 8 - 4 > 5$ গ্যাচিঙাৰ্ম  $\Rightarrow \frac{3}{6} \times 2 + 8 - 4 > 5$  $\Rightarrow 1 + 8 - 4 \ge 5$ Option (c)  $3\gamma 6 \bullet 2 \delta 8 \eta 4 \propto 5$  $\Rightarrow$  3 × 6 - 2 + 8 ÷ 4 < 5  $\Rightarrow$  3 × 6 - 2 + 2 < 5  $\Rightarrow 18 - 2 + 2 \leq 5$ Option (d) 3δ6•2γ8η4ω5  $\Rightarrow$  3 + 6 - 2 × 8 ÷ 4 = 5  $\Rightarrow$  3 + 6 - 2 × 2 = 5  $\Rightarrow 9 - 4 = 5$ 

- 12. (c) Neurologist is related to medical profession. Others are related to the study of social sciences.
- (b) Moon and planets are two types of heavenly bodies. Stars twinkle in the sky. Players play in stadium. Students study in university.
- 14. (d) The number 64 is a perfect square as well as a perfect cube.

$$8 \times 8 = 4 \times 4 \times 4 = 64$$
15. (d) R G T F M L O K
$$\begin{array}{c} \begin{array}{c} \begin{array}{c} +2 \\ +2 \\ -1 \end{array} \end{array} \xrightarrow{} \begin{array}{c} -1 \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \rule{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \begin{array}{c} \end{array} \qquad \textcircled{} \\ \end{array} \qquad \rule{} \\ \end{array} \qquad \rule{} \end{array} \qquad \rule{} \\ \end{array} \qquad \rule{} \end{array} \qquad \rule{} \end{array} \qquad \rule{} \\ \end{array} \qquad \rule{} \end{array} \qquad \rule{} \\ \end{array} \qquad \rule{} \end{array}$$
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$$G \xrightarrow{+4} K$$

$$Y \xrightarrow{+4} C$$

$$M \xrightarrow{+4} Q$$

$$X \xrightarrow{+4} B$$

$$R \xrightarrow{+4} V$$

$$L \xrightarrow{+4} P$$

But, W 
$$\xrightarrow{+3}$$
 Z  
17. (d) 7 × 8 = 56  
56 × 8 = 448  
448 × 8 = 3584  
3584 × 8 = 28672  
Therefore, the number 447 is wrong in the series.

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Now he is driving towards east.

- 19. (b) Today is Saturday. Tomorrow will be Sunday. Sunday + 4 = Thursday.
- 20. (b) The given number series is based on the following pattern :
  - $2 \times 2 + 1 = 5$  $5 \times 2 - 1 = 9$

 $9 \times 2 + 1 = 19$ 

 $19 \times 2 - 1 = 37$ 

 $37 \times 2 + 1 = 75$ 

- 21. (b) Abu Bakr was a senior companion (Sahabi) and the father-in-law of the Islamic prophet Muhammad. He ruled over the Rashidun Caliphate from 632–634 CE when he became the first Muslim Caliph following Muhammad's death. As Caliph, Abu Bakr succeeded to the political and administrative functions previously exercised by Muhammad, since the religious function and authority of prophethood ended with Muhammad's death according to Islam. He was called Al-Siddiq (The Truthful).
- 22. (a) Baht is the currency of Thailand. It is subdivided into 100 satang. The issuance of currency is the responsibility of the Bank of Thailand.
- 23. (b) The Hundred Years' War was a series of conflicts waged from 1337 to 1453 between the Kingdom of England and the Kingdom of France and their various allies for control of the French throne. It was the result of a dynastic disagreement dating back to William the Conqueror who became King of England in 1066, while remaining Duke of Normandy. The war owes its historical significance to a number of factors. Although primarily a dynastic conflict, the war gave impetus to ideas of both French and English nationalism. Militarily, it saw the introduction of new weapons and tactics which eroded the older

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system of feudal armies dominated by heavy cavalry in Western Europe.

- 24. (c) Florence Nightingale was a celebrated English nurse, writer and statistician. She came to prominence for her pioneering work in nursing during the Crimean War, where she tended to wounded soldiers. She was dubbed "The Lady with the Lamp" after her habit of making rounds at night. Nightingale laid the foundation of professional nursing with the establishment, in 1860, of her nursing school at St Thomas' Hospital in London, the first secular nursing school in the world.
- 25. (c) The first programming languages predate the modern computer. At first, the languages were codes. The first modern programming language was FORTRAN (1955), the "FORMULA TRANSLATOR", invented by John Backus, then COBOL, (1959) the Common Business Oriented Language, was used. Then PASCAL and BASIC came into existence.
- 26. (d) WLL stands for Wireless in local loop, is a term for the use of a wireless communications link as the "last mile/first mile" connection for delivering plain old telephone service (POTS) and/or broadband Internet to telecommunications customers.
- 27. (b) C is a high level language. In computing is a general-purpose programming language initially developed by Dennis Ritchie between 1969 and 1973 at Bell Labs. C is one of the most widely used programming languages of all time, Many later languages have borrowed directly or indirectly from C, including C#, D, Go, Java, JavaScript, Limbo, LPC, Perl, PHP, Python, and Unix's C shell.
- 28. (d) First Computer came in India in 1956, in Calcutta now Kolkata In Indian statistical institute Kolkata under doctors Dutta, Majumdar and Roy. It was not only the first computer of India but also Asia's first computer outside Japan.
- 29. (d) A computer virus is a computer programme that can replicate itself and spread from one computer to another. The term "virus" is also commonly, but erroneously, used to refer to other types of malware, including but not limited to adware and spyware programs that do not have a reproductive ability. Malware includes computer viruses, computer worms, Trojan horses, most rootkits, spyware,

dishonest adware and other malicious or unwanted software, including true viruses. ٩

- 30. (b) Kanyakumari, formerly known as Cape Comorin, is a town in Kanyakumari District in the state of Tamil Nadu in India. Kanyakumari lies at the southernmost tip of mainland India. It borders the Laccadive Sea to the southwest, south, and to the south-east. It is the confluence of the Western Coastal Plains and Eastern Coastal Plains.
- 31. (d) In the Census 2011, Haryana (834), Punjab (846), Jammu & Kashmir (862), Delhi (871) and Chandigarh (880) had the lowest child sexratios. In the period 1991-2011, child sex-ratio declined from 943 to 919, whereas the overall sex-ratio climbed up to 945 from 927.
- 32. (a) The Isle of Man, otherwise known simply as Mann, is a self-governing British Crown Dependency, located in the Irish Sea between the islands of Great Britain and Ireland within the British Isle. The closest land is southern Scotland. It is 52 kilometres long and, at its widest point, 22 kilometres wide. The United Kingdom is responsible for the island's defence and ultimately for good governance, and for representing the island in international forums, while the island's own parliament and government have competence over all domestic matters.
- 33. (a) The Grand Canyon is a steep-sided canyon carved by the Colorado River in the United States in the state of Arizona. It is contained within and managed by Grand Canyon National Park, the Hualapai Tribal Nation, and the Havasupai Tribe. Nearly two billion years of the Earth's geological history have been exposed as the Colorado River and its tributaries cut their channels through layer after layer of rock while the Colorado Plateau was uplifted. While the specific geologic processes and timing that formed the Grand Canyon are the subject of debate by geologists, recent evidence suggests the Colorado River established its course through the canyon at least 17 million years ago.
- 34. (a) In semiconductor production, doping refers to the introduction of impurities into an extremely pure intrinsic semiconductor for the purpose of modulating its electrical properties. The impurities are dependent upon the type of semiconductor and the properties that it needs to have for its intended purpose.

35. (a) Boyle's law states that the absolute pressure and volume of a given mass of confined gas are inversely proportional, if the temperature remains unchanged within a closed system. Thus, it states that the product of pressure and volume is a constant for a given mass of confined gas as long as the temperature is constant. The law was named after chemist and physicist Robert Boyle, who published the original law in 1662. ন্দাগুৰাটে

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36. (a) The World Health Organization (WHO) has released the "WHO Fungal Priority Pathogens List" (WHO FPPL), a report that highlights the first-ever list of fungal "priority pathogens," a catalogue of the 19 fungi that pose the greatest harm to public health.

i. The report is based on research conducted by the University of Sydney in Australia.

ii. The WHO FPPL is divided into three categories: Critical, High and Medium Priority.

37. (b) Conservative party leader Rishi Sunak (42) becomes the 57th United Kingdom's (UK) Prime Minister. He was appointed by King Charles III. He succeeded Liz Truss, who resigned as PM after just 45 days in power. দি গুৰায়ে i. He is the youngest leader of the UK since 1812, after PM William Pitt, who was 24 years old when he took on the role in 1783 & he was also UK's 3rd PM in 2 months. Boris Johnson resigned in September 2022, and Liz Truss resigned on October 2022. He is the first Indian-origin Prime Minister of the UK. ii. Rishi Sunak first became a Member of Parliament (MP) in 2015. He was elected from Richmond, Yorkshire.

iii. Other appointment- Indian-origin Suella Braverman re-appointed as Home Secretary

38. (d) The Ministry of Corporate Affairs (MCA) appointed Dr Sangeeta Verma, a Member of the Competition Commission of India (CCI), as an acting Chairperson of the CCI with effect from 26th October 2022 for 3 months till the appointment of regular Chairperson.

i. Sangeeta Verma's appointment follows the resignation of the full-time chairperson Ashok Kumar Gupta, a IAS officer, on 25th October 2022. He was appointed as the CCI chairperson in November 2018.

39. (c) The Public Sector Undertaking (PSU) Indian Bank launched six digital transformation initiatives under its 'Project WAVE (World of Advance Virtual Experience)'.
i. Indian Bank has tied-up with Universal Sompo General Insurance for providing online two and three-wheeler insurance, and health insurance through its mobile banking app IndOASIS. This will enable bank's customers to access and buy general insurance products digitally, anytime, and anywhere.

40. (c) Hyderabadi Haleem has won the National Intellectual Property Awards 2021 & 2022 under the 'Most Popular Geographical Indications (GI) of India' (Food stuff) category. Hyderabadi Hallem won the award. Other Winners of Most Popular GI of India:

- Agriculture Kandhamal Haladi (Odisha)
- Handicraft Thanjavur Art Plate (Tamil Nadu)
- Manufactured Mysore Sandal Soap
- (Karnataka)
- Natural Chunar Balua Patthar (Uttar Pradesh)

## **Mathematics**

41. (d) Weight of paper bundles

 $5\frac{x}{y}+3$ 

$$= \left(\frac{22}{25} \times 36\right) \text{kg}$$

$$= \left(\frac{22 \times 36 \times 1000}{25}\right) = 31680 \text{ gm}$$
42. (b) A : B = 1 : 2  
B : C = 3 : 4  
C : D = 2 : 3  
D : E = 3 : 4  
 $\therefore$  A : B : C : D : E = 1 × 3 × 2 × 3 : 2 × 3  
 $\times 2 \times 3 : 2 \times 4 \times 2 \times 3 : 2 \times 4 \times 3 \times 3 : 2$   
 $\times 4 \times 3 \times 4 = 3 : 6 : 8 : 12 : 1 6$ 
43. (a) We have,  $\frac{x}{y} = \frac{2}{5}$   
 $\therefore 9x + 6y : 5x + 3y = \frac{9x + 6y}{5x + 3y}$   
 $9\frac{x}{y} + 6$ 

(On dividing Numerator and Denominator by y) আচিতার্ম

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$$= \frac{9 \times \frac{2}{5} + 6}{5 \times \frac{2}{5} + 3} = \frac{18 + 30}{5}$$

$$= \frac{48}{5 \times 5} = \frac{48}{25}$$
44. (b) Here,  $\frac{4a + 9b}{4a - 9b} = \frac{4c + 9d}{4c - 9d}$ 
On applying componendo and dividendo, we have
$$\frac{4a + 9b + 4a - 9b}{4a + 9b - 4a + 9b}$$

$$= \frac{4c + 9d + 4c - 9d}{4c + 9d - 4c + 9d}$$

$$\Rightarrow \frac{8a}{18b} = \frac{8c}{18d} \Rightarrow \frac{a}{b} = \frac{c}{d}$$
45. (d) First of all we write the fraction of milk and water in each mixture.
Milk Water
$$A \frac{4}{5} \qquad \frac{1}{5} \qquad \text{Opperform}$$

$$B \frac{9}{20} \qquad \frac{11}{20}$$
Both A and B are mixed in the ratio 3 : 2.  
 $\therefore (3A + 2B)$  will have ratio of milk and water as follows :
Milk : Water
$$= \left(3 \times \frac{4}{5} + 2 \times \frac{9}{20}\right) : \left(3 \times \frac{1}{5} + 2 \times \frac{11}{20}\right)$$

$$= \left(\frac{12}{5} + \frac{9}{10}\right) : \left(\frac{3}{5} + \frac{11}{10}\right)$$

$$= \frac{33}{10} : \frac{17}{10} = 33 : 17$$
46. (d) Let C = 100
Then, A = 150
B = 125
 $\therefore$  Required percentage
$$= \frac{150 - 125}{125} \times 100 = 20\%$$
47. (c) After taking away respective balls,
Number of balls in the box
$$= 75 + 25 + 50 = 150$$
 $\therefore$  Percentage of black balls
$$= \frac{50}{150} \times 100$$

$$=\frac{100}{3}=33\frac{1}{3}\%$$

48. (d) His monthly income

$$=\frac{1800}{100 - (20 + 56)} \times 100$$
$$=\frac{180000}{100 - 76} = \frac{180000}{24} = ₹7,500$$

49. (c) Total marks obtained  
= 
$$25 + 30 + 70 = 125$$
  
50. (c) Gain per cent

$$=\frac{400-320}{320} \times 100$$
$$=\frac{80}{320} \times 100 = 25\%$$

51. (d) According to the question, First discount = 15%S.P. of dinner set after first discount = (100 -15)% of Rs. 1500 (1500, 05)

$$= \operatorname{\mathfrak{T}}\left(\frac{1500 \times 85}{100}\right) = \operatorname{\mathfrak{T}}1275$$

Second discount

= ₹ (1275 - 1173) = ₹ 102If second discount be x%, then

$$\therefore \frac{1275 \times x}{100} = 102$$
  
 $\Rightarrow x = \frac{102 \times 100}{1275} = 8\%$ 

52. (c) Let the marked price be x.

$$\therefore x \times \frac{84}{100} = \frac{1200 \times 112}{100}$$
$$\Rightarrow x \times \frac{84}{100} = 112 \times 12$$
$$\Rightarrow x = \frac{112 \times 1200}{84} = ₹ 1600$$

53. (b) S.P. for a profit of 12%

$$=\frac{8000 \times 112}{100} = ₹8960$$
  
∴ Discount = 11200 - 8960 = ₹2240  
If the discount per cent be x, then  

$$\frac{11200 \times x}{100} = 2240$$

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$$x = \frac{2240 \times 100}{11200} = 20\%$$
54. (a) Equal instalment
$$= \frac{6450 \times 200}{4(210) + (4 - 1) \times 5}$$

$$= \frac{6450 \times 200}{4(215)}$$

$$= \frac{6450 \times 200}{4(215)}$$

$$= \frac{6450 \times 200}{4(215)}$$

$$= \frac{6450 \times 200}{215} = 7 1500$$
55. (a)  $T = \left(\frac{(n - 1)}{R}\right) \times 100\%$ 

$$= \frac{2 - 1}{25} \times 100$$

$$= \frac{2 - 1}{25} \times 100$$

$$= \frac{2 - 1}{25} \times 100$$

$$= \frac{400}{25} = 16 \text{ years}$$
56. (b) Let he sum be ₹ P and rate of interest be R% per annum. Then,
P(1 +  $\frac{R}{100}\right)^2 = 9680$  ...(i)
$$P(1 + \frac{R}{100}\right)^2 = 9680$$
 ...(i)
$$P(1 + \frac{R}{100}\right)^2 = 10648$$
 ...(ii)
$$P(1 + \frac{R}{100}\right)^2 = 10648$$
 ...(ii)
$$P(1 + \frac{R}{100} = \frac{10648}{9680} = 1$$

$$= \frac{10648 - 9680}{9680}$$

$$\Rightarrow \frac{R}{100} = \frac{9688}{9680} = 1$$

$$= \frac{10648 - 9680}{9680}$$

$$\Rightarrow \frac{R}{100} = \frac{9688}{9680} = 1$$

$$\Rightarrow R = \frac{1}{10} \times 100 = 10\%$$
57. (b) Interest is compounded half yearly.  

$$\therefore \text{ Rate of interest = 5\%}$$

$$Time = \frac{n}{2} \text{ years (let) or n half-years}$$

$$A = P(1 + \frac{R}{100})^{T}$$

$$\Rightarrow 9261 = 8000 \left(1 + \frac{5}{100}\right)^{*}$$
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Singular Subject  $\rightarrow$  Singular Verb (Main Verb + S) Plural Subject  $\rightarrow$  Plural Verb (Main Verb without S) Hence, attracts many students is the right usage. দ্যান্তৰায়ে 62. (d) No error 63. (c) Here, Future Perfect Continuous i.e. I will have been is the right usage. The sentence shows future time. 64. (a) whom is used instead of who as the object of a verb or preposition. Look at the examples given below : Whom did they invite? To whom should I write? Here, whom is the right usage. 65. (c) Here, so am I is the right usage. 66. (d) No improvement to (Prep.) : used for showing a relationship between one person/thing and another Sujata  $\rightarrow$  junior  $\rightarrow$  me (shows the relationship) between Sujata and me) 67. (b) My question has not been answered by anybody. (Passive) The sentence is in Present Perfect Tense. (Active) 68. (b) No one can repair my watch (Active) The sentence is in Simple Present Tense. (Passive) দ্যাচিডাৰ্ম 69. (c) 70. (c) 71. (c) pull down (Phr. V.) : to destroy Here, pulled is the right usage 72. (d) integral (Adj.) : being an essential part of something 73. (b) anger (Noun) : the strong feeling you have when you think that something bad or unfair has happened indignation (Noun) : a feeling of anger and surprise caused by something that you feel is unfair or unreasonable hatred (Noun) : a very strong feeling of dislike disapproval (Noun) : a feeling that you do not like an idea because you feel it is bad or unsuitable contempt (Noun) : the feeling that something or somebody has no value and deserves no respect at all 74. (d) careful (Adjective) : giving attention and thought

in order to avoid mistakes or doing something wrong or hurting somebody দিন গুৰাদেও

meticulous (Adjective) : paying careful attention to every detail; thorough; fastidious interfere (Verb) : to get involved in a situation which is not liked by other people. দিন গুৰায়ে courage (Noun) : bravery agreement (Noun) : a promise or contract made

with somebody 75. (b) revoke (Verb) : to officially cancel something so that it may no longer be valid rescind (Verb) : to officially state that a law, contract, decision etc. is no longer valid; revoke change (Verb) : to become different repeat (Verb) : to say or write something again or more than once reconsider (Verb) : to think about something again in order to change your decision or opinion 76. (a) increase (Verb) : to become larger diminish (verb) : to decrease ; to become/make smaller, weaker, etc. improve (Verb) : to become/make better than before introduce (Verb) : to make someone learn about

something গ্যাচিভাৰ্ম

decrease (Verb) : to diminish

77. (c) faithful (Adjective) : loyal; true and accurate; not changing anything; staying with or supporting a particular person treacherous (Adjective) : deceitful; that cannot be trusted; intending to harm you; unfaithful tactful (Adjective) : diplomatic; careful not to say or do anything that will annoy/upset other people violent (Adjective) : intense; severe; showing

or caused by very strong emotion; very strong and sudden

false (Adjective) : incorrect; wrong; untrue

78. (a) poverty (Noun) : the state of being poor affluence (Noun) : prosperity; the state of being wealthy/rich influence (Noun) : the effect that somebody/ something has on the way a person thinks or behaves or on the way that something works/ develops neglect (Noun) : to fail to take care of ; not to give enough attention semblance (Noun) : a situation in which

something seems to exist although this may not, in fact, be the case 79. (b) dipsomania

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dipsomania (N.) : an intense persistent desire to drink alcoholic beverages to excess; alcoholism

megalomania (N.) : a mental illness/condition in which one has an exaggerated belief in one's own importance/power

kleptomania (N.) : a mental illness in which one has a strong desire, which one cannot control, to steal things

pyromania (N.) : a mental illness that causes a strong desire to set fire to things

80. (d) convent (M.) : a place where nuns live and work church (N.) : a place of worship of the Christians school (N.) : a place where children go to be educated abode (N.) : a place where somebody lives

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