

SSC CGL | SPECIAL MOCK TEST – 86 : SOLUTIONS

A-GENERAL INTELLIGENCE & REASONING

1. (c) Jurisprudence related to law Similarly, Epistemology related to knowledge

2. (c) S I G N A T U R E

3. (c)
- | | | |
|----|----|----|
| M | N | K |
| +1 | +1 | -1 |
| N | O | J |
| +1 | +1 | -1 |
| O | P | I |
| +1 | +1 | -1 |
| P | Q | H |
| +1 | +1 | -1 |
| Q | R | G |

4. (d)
- | | | |
|----|----|----|
| Q | A | Z |
| +2 | +4 | +6 |
| S | D | F |
| +2 | +4 | +6 |
| U | G | L |
| +2 | +4 | +6 |
| W | J | R |

5. (b)

6. (c)

7. (c)
- | | | | | | |
|----|----|----|----|-----|-----|
| 0 | 6 | 24 | 60 | 120 | 210 |
| 6 | 18 | 36 | 60 | 90 | |
| 12 | 18 | 24 | 30 | | |
| 6 | 6 | 6 | | | |

8. (a) 3, 4, 13, 14, 45, 46, 143

9. (b)

10. (a)

11. (c) G A R D E N
Alphabetical order-
A D E G N R
6 letters

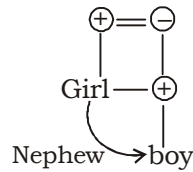
12. (d) E L E V A T E
E L V A

13. (b) Rajesh verma 15B, Sapphire Tower, Jaipur, 302018

14. (c)
- | | | | | |
|----|----|-----------|----|----|
| E | K | Similarly | F | P |
| +8 | +8 | | +8 | +8 |
| M | S | | N | X |

15. (c)
- | | | | | | |
|---|---|---|---|---|---|
| N | U | M | B | E | R |
| X | X | X | X | X | X |
| U | N | B | M | R | E |
- | | | | | | |
|---|---|---|---|---|---|
| G | H | O | S | T | S |
| X | X | X | X | X | X |
| H | G | S | O | S | T |

16. (c)



17. (c) 2, 6, 24, 120, 720, 1000

$$\times 3 \quad \times 4 \quad \times 5 \quad \times 6 \quad \times 1.38$$

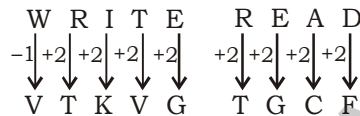
18. (d) $(11 \times 2 + 22) = 44$

$$(13 \times 2 + 26) = 52$$

$$(15 \times 2 + 30) = 60$$

$$(14 \times 2 + 28) = 56 \text{ odd}$$

19. (a)



20. (d) $(5 \times 3) + 4 = 19$

$$(7 \times 2) + 3 = 17$$

Similarly

$$(9 \times 1) + 2 = 11$$

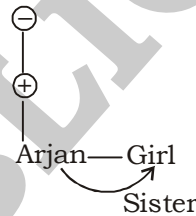
21. (d)

$$\text{Milk} = \frac{7}{10} \times 60 = 42$$

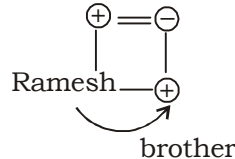
$$\text{Water} = \frac{3}{10} \times 60 = 18$$

24 lit

22. (c)



23. (a)



24. (a) $A - B = \frac{11}{19} - \frac{2}{9}$

$$= \frac{99 - 38}{171} = 0.36$$

25. (c) According to the question
 $\Rightarrow (35 + 46) \times 2 = 162$

B-GENERAL AWARENESS

26. (a) Income or land obtained from royal agricultural land
Correct: In the Mauryan period, the royal agricultural land managed or controlled by the state,

as well as the income derived from it, was called Sita. It was supervised by an official known as the Sitadhyaksha.

राजकीय कृषि भूमि से प्राप्त होने वाली आय अथवा भूमि

सही मौर्य काल में राज्य द्वारा प्रबंधित या नियंत्रित राजकीय कृषि भूमि को तथा उससे होने वाली आय को शसीताश कहा जाता था, जिसकी देखभाल शसीताध्यक्ष करता था।

27. (b) Correct Answer: During the post-Gupta period, the judicial powers of the king weakened, and local feudatories, village councils, and trade guilds were granted the authority to administer justice in their respective areas. This process was known as the feudalization of the judicial system.

(सही उत्तर): गुप्तोत्तर काल में राजा की न्यायिक शक्तियाँ कमजोर हुईं और स्थानीय सामंतों, ग्राम पंचायतों तथा व्यापारिक श्रेणियों (Guilds) को अपने-अपने क्षेत्रों में न्याय करने का अधिकार मिल गया, जिसे न्याय व्यवस्था का सामंतीकरण (Feudalization) कहा जाता है।

28. (b) Correct Some early coins of Muhammad Ghori featured the image of Goddess Lakshmi on one side and the Kalima (Islamic declaration of faith) inscribed on the other side.

सही! मोहम्मद गोरी के कुछ प्रारंभिक सिक्कों पर देवी लक्ष्मी की आकृति तथा दूसरी तरफ कलामा खुदा हुआ था।

29. (a) Explanation: The role of peasant women in the Tebhaga Movement was historically significant. They formed the Nari Vahini (Women's Brigade), armed with sticks and brooms, to confront the police. Statement 2 is incorrect because the

movement generated such strong awareness among women that they openly raised patriarchal issues, including domestic violence and women's rights in the division of crops, through the movement's platform.

व्याख्या: तेभागा आंदोलन में किसान महिलाओं की भूमिका ऐतिहासिक थी। उन्होंने लाठियां और झाड़ू लेकर पुलिस का मुकाबला करने के लिए 'नारी वाहिनी' बनाई थी। कथन 2 गलत है क्योंकि इस आंदोलन ने महिलाओं के भीतर इतनी चेतना जगाई कि उन्होंने आंदोलन के मंच से घरेलू हिंसा और फसलों के बंटवारे में महिलाओं के हक जैसे पितृसत्तात्मक मुद्दों पर भी खुलकर आवाज उठाई थी।

30. (b) Correct Under the Cabinet Mission Plan, the Muslim-majority provinces in the north-west were placed in Group B, while Bengal and Assam were placed in Group C.

सत्य कैबिनेट उपेपवद योजना के अंतर्गत उत्तर-पश्चिमी मुस्लिम बहुल प्रांतों को 'ग्रुप B' में रखा गया था, जबकि बंगाल और असम को ग्रुप B में रखा गया था।

31. (d) When moist air rises, it cools, causing its water vapour to condense into water droplets. This process is known as condensation. During this process, latent heat of condensation is released from the water vapour, warming the air internally. This internal heat slows the rate at which the air cools, causing the temperature of moist air to decrease at a slower rate than that of dry air. Therefore, the Moist Adiabatic Lapse Rate (MALR) is lower than the Dry Adiabatic Lapse Rate (DALR).

जब नम हवा ऊपर उठती है, तो ठंडी होने के कारण उसकी जलवाष्प पानी

की बूंदों में बदलने लगती है, जिसे संघनन (Condensation) कहते हैं। इस प्रक्रिया के दौरान जलवाष्प से संघनन की गुप्त ऊष्मा (Latent Heat) बाहर निकलती है, जो हवा को अंदर से थोड़ा गर्म कर देती है। यह आंतरिक गर्मी हवा के ठंडे होने की रफ्तार (शीतलन की दर) को धीमा कर देती है, जिससे नम हवा के तापमान गिरने की दर (MALR) शुष्क हवा (DALR) की तुलना में कम हो जाती है।

32. (b) Correct According to the National Forest Policy (1952/1988), approximately one-third (33%) of the total land area should be under forest cover to maintain ecological stability.

सत्य राष्ट्रीय वन नीति (1952/1988) के अनुसार पारिस्थितिक स्थिरता बनाए रखने के लिए कुल भूमि का एक-तिहाई (33%) हिस्सा वनों के अधीन होना चाहिए।

33. (c) Correct The provisions borrowed from the Australian Constitution include the Concurrent List, freedom of trade, commerce and intercourse, and the provision for a joint sitting of both Houses of Parliament under Article 108.

सही ऑस्ट्रेलिया के संविधान से समवर्ती सूची (Concurrent List), व्यापार, वाणिज्य एवं समागम की स्वतंत्रता और अनुच्छेद 108 के तहत दोनों सदनों की संयुक्त बैठक के प्रावधान लिए गए हैं।

34. (d) Correct Article 129 declares that the Supreme Court shall be a Court of Record and shall have the power to punish for its own contempt.

सत्य अनुच्छेद 129 यह घोषित करता है कि उच्चतम न्यायालय एक अभिलेख न्यायालय होगा और उसे अपनी अवमानना के लिए दंड देने की शक्ति होगी।

35. (c) Correct China claims a large part of the South

China Sea through the Nine-Dash Line.

सत्य चीन दक्षिण चीन सागर के बड़े हिस्से पर 'नाइन-डैश लाइन' के जरिए अपना दावा करता है।

36. (b) Explanation: The National Development Council (NDC) was the highest body responsible for giving final approval to the Five-Year Plans prepared by the Planning Commission. It was established on 6 August 1952.

व्याख्या: योजना आयोग द्वारा तैयार की गई पंचवर्षीय योजनाओं को अंतिम रूप से अनुमोदित करने वाली सर्वोच्च संस्था राष्ट्रीय विकास परिषद (National Development Council) थी, जिसकी स्थापना 6 अगस्त 1952 को हुई थी।

37. (d) Correct The Employees' State Insurance (ESI) scheme applies to factories using power with a threshold of 10 employees and to factories not using power with a threshold of 20 employees. The provision for cash payment for 91 days under the Sickness Benefit is also correct.

सही पावर वाले कारखानों पर ईएसआई 10 कर्मचारियों की सीमा पर लागू होता है और गैर-पावर वाले कारखानों पर 20 की सीमा होती है। बीमारी लाभ (Sickness benefit) के तहत 91 दिन का नकद भुगतान प्रावधान भी सही है।

38. (c) Short Explanation:
- Fixed Energy: According to Niels Bohr's atomic model, the orbits in which electrons revolve around the nucleus have fixed energy levels.
 - While revolving in the same orbit, an electron neither loses nor gains energy.
 - Due to these fixed energy levels, the electron remains in its orbit and does not fall into the nucleus.

शॉर्ट स्पष्टीकरण (Short Enplanation):

- निश्चित ऊर्जा (Fixed Energy): नील्स बोर (Niels Bohr) के परमाणु मॉडल के अनुसार, इलेक्ट्रॉन नाभिक के चारों ओर जिन कक्षाओं (Orbits) में घूमते हैं, उनकी ऊर्जा हमेशा स्थिर या निश्चित (Fixed) होती है।
- एक ही कक्षा में चक्कर लगाते समय इलेक्ट्रॉन न तो ऊर्जा खोता है और न ही ग्रहण करता है।
- इसी निश्चित ऊर्जा के कारण इलेक्ट्रॉन लगातार अपनी कक्षा में बना रहता है और नाभिक (Nucleus) में नहीं गिरता।

39. (b) Explanation: When the different types of waves in the electromagnetic spectrum are arranged in increasing order of wavelength, from the shortest to the longest, the correct sequence is as follows:

- Gamma rays: They have the shortest wavelength and the highest frequency and energy.
- X-rays: Their wavelengths are longer than those of gamma rays.
- Infrared rays: Their wavelengths are longer than those of visible light and much longer than those X-rays.
- Microwaves: Among the given options, they have the longest wavelength. Therefore, the correct increasing order of wavelength is 4 (Gamma rays), 2 (X-rays), 3 (Infrared rays), 1 (Microwaves).

स्पष्टीकरण (Explanation):

विद्युत चुंबकीय स्पेक्ट्रम (Electromagnetic Spectrum) में विभिन्न तरंगों को उनकी तरंग दैर्ध्य (Wavelength) के बढ़ते क्रम (सबसे छोटी से सबसे बड़ी तरंग दैर्ध्य) में व्यवस्थित करने पर सही क्रम निम्नलिखित है:

- गामा किरणें (Gamma rays): इनकी तरंग दैर्ध्य सबसे कम (और आवृत्ति/ऊर्जा सबसे अधिक) होती है।
- एक्स-रे (X-तलें): इनकी तरंग दैर्ध्य गामा किरणों से अधिक होती है।
- अवरक्त किरणें (Infrared rays): इनकी तरंग दैर्ध्य दृश्य प्रकाश (Visible light) से अधिक और एक्स-रे से बहुत बड़ी होती है।
- सूक्ष्म तरंगें (Microwaves): दिए गए विकल्पों में इनकी तरंग दैर्ध्य सबसे अधिक होती है।

अतः बढ़ता हुआ सही क्रम 4 (गामा किरणें) 2 (एक्स-रे) 3 (अवरक्त किरणें) 1 (सूक्ष्म तरंगें) है।

40. (a) Oxalic Acid: It is primarily found in natural sources such as tomatoes and spinach.

- Lactic Acid: It is found in fermented milk products, particularly curd.
- Methanoic Acid: Also known as formic acid, it is found in ant stings and the stinging hairs of nettle plants.

ऑक्जेलिक अम्ल (बंसपब/बपक): यह मुख्य रूप से टमाटर और पालक जैसे प्राकृतिक स्रोतों में पाया जाता है।

- लैक्टिक अम्ल (Lactic Acid): यह खट्टे दूध के उत्पादों, विशेष रूप से दही में पाया जाता है।

- मेथेनोइक अम्ल (Methanoic Acid): इसे फॉर्मिक अम्ल भी कहा जाता है, जो चींटी के डंक (ant-sting) या नेटल के पौधे के कांटों में पाया जाता है।

41. (a) The absorption of water and minerals from the soil is primarily carried out by the root hairs present on roots. These are extensions of the outer layer of the root (epidermal cells) and are elongated, unicellular structures.

मिट्टी से पानी और खनिजों को सोखने का काम मुख्य रूप से जड़ों पर मौजूद रूट हेयरस (मूल रोम) या रूट फॉलिकल्स करते हैं। ये जड़ की बाहरी परत

(epidermal cells) के विस्तार होते हैं, जो एककोशिकीय (unicellular) और लंबे आकार के होते हैं।

42. (c) Hemodialysis Hemodialysis is an artificial treatment used in cases of kidney failure.

- When the kidneys can no longer perform their natural function of filtering the blood, a dialysis machine (artificial kidney) is used.
- The machine draws blood from the patient's body, filters it to remove harmful waste products and excess water, and then returns the purified blood to the body.

हीमोडायलिसिस (Hemodialysis): यह गुर्दे खराब (Kidney failure) होने पर किया जाने वाला एक कृत्रिम उपचार है।

- जब किडनी खून को साफ करने का अपना प्राकृतिक काम नहीं कर पाती, तब किडनी मशीन (कृत्रिम गुर्दा) का उपयोग किया जाता है।
- यह मशीन मरीज के शरीर से खून को बाहर निकालकर उसे छानती है, उसमें से हानिकारक कचरा और अतिरिक्त पानी अलग करती है, और फिर साफ खून को वापस शरीर में भेज देती है।

43. (c) The Melissa virus was a highly disruptive computer virus that spread in March 1999.

- It operated by attaching itself to Microsoft Word files.
- When someone opened an infected file, the virus replicated itself.

मेलिसा वायरस (Melissa Virus) एक बेहद खतरनाक कंप्यूटर वायरस है जो मार्च 1999 में फैला था।

- यह वायरस Microsoft Word की फाइल से जुड़कर काम करता था।
- जैसे ही कोई इस फाइल को खोलता, यह वायरस खुद को कॉपी (Replicate) कर लेता था।

44. (c) Correct In August 2021, India's highest sporting

honour was renamed after the legendary hockey player Major Dhyan Chand. सही अगस्त 2021 में देश के सर्वोच्च खेल सम्मान का नाम बदलकर हॉकी के महान खिलाड़ी मेजर ध्यानचंद के नाम पर रख दिया गया था।

46. (b) Correct The Beneshwar Fair is held at Navatapura in Dungarpur, Rajasthan, at the Triveni Sangam (confluence) of the Som, Mahi, and Jakham rivers. सत्य नवाटपरा (डूंगरपुर) में सोम, माही और जाखम नदियों के त्रिवेणी संगम पर बेणेश्वर मेला आयोजित होता है।

47. (b)
48. (d)
49. (a)
50. (c)

C - QUANTITATIVE APTITUDE

51. (a) According to the question,

$$x = \sqrt{2} + \sqrt{3}, y = \sqrt{5} + 1 \text{ and}$$

$$z = 2\sqrt{2} + 1.$$

Now,

$$\sqrt{2} \approx 1.414 \text{ and } \sqrt{3} \approx 1.732, \text{ so } x \approx 3.146.$$

$$\text{Also, } y = \sqrt{5} + 1 \approx 2.236 + 1 = 3.236.$$

$$\text{And } z = 2\sqrt{2} + 1 \approx 2(1.414) + 1 = 3.828.$$

Therefore, $x < y < z$.

52. (c) Let the original total budget be 10 units.

Land = 5 units, materials = 3 units and labor = 2 units
Change in land cost

$$= 5 \times \frac{5}{100} = 0.25 \text{ unit}$$

Change in material cost

$$= 3 \times \frac{10}{100} = 0.30 \text{ unit}$$

Change in labor cost

$$= 2 \times \left(\frac{-20}{100} \right) = -0.40 \text{ unit}$$

$$\text{Net change} = 0.25 + 0.30 - 0.40 = 0.15 \text{ unit}$$

Percentage change

$$= \left(\frac{0.15}{10} \right) \times 100$$

$$= 1.5\% \text{ increase}$$

53. (a) According to the question, First solve the expression inside the braces.

$$1 - \frac{1}{3} = \frac{2}{3}$$

Therefore,

$$\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$$

$$\text{So, } \frac{1}{6} + \frac{1}{3} = \frac{1}{2}$$

Now,

$$\frac{2}{3} \div \frac{1}{2} = \frac{2}{3} \times 2 = \frac{4}{3}$$

Therefore,

$$6 - \frac{4}{3} = \frac{18}{3} - \frac{4}{3} = \frac{14}{3}$$

54. (a) Since the investments are made for the same period, profit is divided in the ratio of investments.

$$X : Y : Z = 25,000 : 35,000 : 40,000 = 5 : 7 : 8$$

$$\text{Total ratio} = 5 + 7 + 8 = 20$$

$$\text{Y's share} = \left(\frac{7}{20} \right) \times ₹30,000 = ₹10,500$$

55. (c) According to the question, for the first 6 months A invested ₹48,000\$ and B invested ₹72,000.

After 6 months, A's capital became ₹24,000, while B's capital became ₹96,000.

$$\text{A's capital-months} = 48,000 \times 6 + 24,000 \times 6 = 72 \times 6 \text{ (thousand).}$$

$$\text{B's capital-months} = 72,000 \times 6 + 96,000 \times 6 = 168 \times 6 \text{ (thousand).}$$

Thus,

$$A : B = 72 : 168 = 3 : 7$$

$$\text{B's share} = \left(\frac{7}{10} \right) \times ₹55,000 = ₹38,500$$

56. (a) Worker C's earnings for the four days are ₹220, ₹230, ₹215 and ₹225.

$$\text{Total earning} = 220 + 230 +$$

$$215 + 225 = ₹890.$$

Average daily earning

$$= \frac{₹890}{4} = ₹222.5$$

57. (c) Let the present number of literate males be M.

Then the number of literate females = 25,000 - M.

After the changes:

$$0.95M + 1.10(25,000 - M) = 25,250$$

$$0.95M + 27,500 - 1.10M = 25,250$$

$$0.15M = 2,250$$

$$\text{Therefore, } M = 15,000$$

58. (b) Let the quantity of standard flour be x kg and its price be ₹1 per kg. Then premium flour cost ₹2 per kg

$$\text{Original cost} = 10 \times 2 + x \times 1 = 20 + x$$

$$\text{After interchange, cost} = 10 \times 1 + x \times 2 = 10 + 2x$$

Since the cost decreases by 25%,

$$10 + 2x = 75\% \text{ of } (20 + x).$$

$$10 + 2x = 15 + 0.75x$$

$$1.25x = 5, \text{ so } x = 4 \text{ kg}$$

$$\text{Therefore, premium : standard} = 10 : 4 = 5 : 2$$

59. (b) Since ₹3000 is the selling price of 15 toys at 25% profit, their cost price =

$$₹3000 \times \frac{100}{125} = ₹2400.$$

Cost price of one toy

$$= \frac{₹2400}{15} = ₹160$$

For a 10% profit, selling price

$$\text{of one toy} = ₹160 \times \frac{110}{100} = ₹176.$$

$$\text{Number of toys} = \frac{₹2816}{₹176}$$

$$= 16.$$

60. (a) Cost price of the first brand

$$= ₹150 \times \frac{100}{75} = ₹200 \text{ per kg}$$

Cost price of the second

$$\text{brand} = ₹200 \times \frac{100}{80} = ₹250 \text{ per kg}$$

Since the brands are mixed in equal proportions, average cost price

$$= \frac{200 + 250}{2} = ₹225 \text{ per kg}$$

Selling price = ₹175 per kg

Loss = ₹225 - ₹175 = ₹50

Loss percentage

$$= \left(\frac{50}{225} \right) \times 100$$

= 22.22% (approximately)

61. (a) According to the question,

$$A + B = \frac{1}{12}, B + C = \frac{1}{15} \text{ and}$$

$C + A = \frac{1}{20}$ of the work per day.

Adding the first and third equations and subtracting the second:

$$2A = \frac{1}{12} + \frac{1}{20} - \frac{1}{15}$$

Taking LCM 60,

$$2A = \frac{5}{60} + \frac{3}{60} - \frac{4}{60}$$

$$= \frac{4}{60} = \frac{1}{15}$$

$$\text{Therefore, } A = \frac{1}{30}$$

Hence, A alone can complete the work in 30 days.

62. (d) After each operation, the fraction of spirit remaining

$$\text{is } \frac{64-8}{64} = \frac{56}{64} = \frac{7}{8}$$

Since the operation is performed three times,

$$\text{final spirit} = 64 \times \left(\frac{7}{8} \right)^3$$

$$= 64 \times \frac{343}{512} = 42.875 \text{ liters}$$

Therefore, the final quantity is approximately 42.88 liters

63. (b) Let the cost price of pure orange juice be ₹1 per unit

and the quantity of pure juice be ₹1 unit.

Let water be x units. The cost of the mixture is ₹1, while its selling price is also ₹1.

Since there is a 20% profit, cost price of the mixture =

$$\frac{100}{120} = \frac{5}{6} \text{ per unit.}$$

$$\text{Thus, } \frac{1}{x+1} = \frac{5}{6}$$

$$6 = 5x + 5, \text{ so } x = \frac{1}{5}$$

Therefore, water : pure juice = 1 : 5

64. (b) Let the total distance be 100 km.

$$\text{Time for first 40 km} = \frac{40}{20} =$$

2 hours.

Time for remaining 60 km

$$= \frac{60}{30} = 2 \text{ hours}$$

Total time = 4 hours

Average speed

$$= \frac{\text{Total distance}}{\text{Total time}} = \frac{100}{4} = 25 \text{ km/h}$$

65. (b) Since they run in opposite directions, their relative speed = 5 + 7 = 12 km/h

Time for the first meeting

$$= \frac{1.2}{12} = 0.1 \text{ hour} = 6 \text{ min}$$

They meet every 6 min

For the fifth meeting, time = 5 × 6 = 30 min after 6:00 a.m.

Therefore, the fifth meeting occurs at 6:30 a.m.

66. (a) Area of a sector

$$= \left(\frac{\theta}{360^\circ} \right) \times \pi r^2$$

Here, $\theta = 90^\circ$ and $r = 7 \text{ cm}$

$$\Rightarrow \text{Area} = \left(\frac{90}{360} \right) \times \left(\frac{22}{7} \right) \times 7^2$$

$$= \frac{1}{4} \times \frac{22}{7} \times 49 = 38.5 \text{ cm}^2$$

Using $\pi = \frac{22}{7}$, the value is approximately 38.48 cm² as given in the options.

67. (a) To convert degrees into radians, multiply by $\frac{\pi}{180}$.

Therefore, $150^\circ =$

$$150 \times \frac{\pi}{180} = \frac{5\pi}{6}$$

68. (a) Area of a sector

$$= \left(\frac{\theta}{360^\circ} \right) \times \pi r^2$$

Here, $\theta = 120^\circ$ and $r = 8 \text{ cm}$

$$\text{Area} = \left(\frac{120}{360} \right) \times \pi \times 8^2$$

$$= \frac{1}{3} \times 64\pi = \frac{64\pi}{3} \text{ cm}^2$$

69. (a) Two lines are parallel if their coefficients of x and y are proportional.

The given line is $3x + 2y = 5$.

Option (a), $3x + 2y = 7$, has the same coefficients of x and y .

Therefore, its slope is the same as the given line.

70. (a) Since $\sin(90^\circ - x) = \cos x$, the equation becomes $\cos x = \cos 2x$.

For the principal value in the given options, $x = 0^\circ$ satisfies the equation.

At $x = 0^\circ$, $\cos 0^\circ = \cos 0^\circ = 1$. Therefore, $x = 0^\circ$

71. (c) According to the question,

$$x = \sqrt{5} + 2$$

Squaring both sides:

$$x^2 = (\sqrt{5} + 2)^2$$

$$= 5 + 4 + 4\sqrt{5} = 9 + 4\sqrt{5}$$

Therefore,

$$x^2 - 4\sqrt{5} = 9$$

72. (a) According to the question, all three corresponding sides are equal:

AB = XY, BC = YZ

and $CA = ZX$

When all three corresponding sides of two triangles are equal, the SSS congruence rule is applicable.

73. (a) Since A and B are complementary angles, $A + B = 90^\circ$.
Therefore,
 $\tan B = \cot A$

Given: $\sin A = \frac{3}{5}$

Taking a right triangle,
opposite = 3 and hypotenuse = 5.

Then adjacent = $\sqrt{5^2 - 3^2}$
 $= \sqrt{16} = 4$

So, $\cot A = \frac{\text{adjacent}}{\text{opposite}} = \frac{4}{3}$

Hence, $\tan B = \frac{4}{3}$

74. (b) Since ABCD is a cyclic quadrilateral, its opposite angles are supplementary.
Therefore, $\angle A + \angle C = 180^\circ$
Given $\angle A = 100^\circ$

So, $\angle C = 180^\circ - 100^\circ = 80^\circ$

75. (b) According to the question,

$$\sin^2 A - \cos^2 A = \frac{1}{4}$$

Also, $\sin^2 A + \cos^2 A = 1$

Adding the two equations:

$$2 \sin^2 A = 1 + \frac{1}{4} = \frac{5}{4}$$

Therefore, $\sin^2 A = \frac{5}{8}$

Thus, $\cos^2 A = 1 - \frac{5}{8} = \frac{3}{8}$

D-ENGLISH LANGUAGE

76. (d) Hue and Cry (शोर-शराबा) means a loud public outcry or protest, especially to express dissatisfaction or demand attention.

77. (b) All words are correctly spelled: "employed," "commodities," "assisting," and "rescue."

78. (d) **Active Voice Structure:**

would + Subject + verb ($V_{b,f}$) + object

Would you repair the bike?

Passive Voice Structure:

would + Object + be + V_3 + by + subject ?

Would the bike be repaired by you?

- 79 (d). Reassured (आश्वासित किया) means to comfort oneself or calm fears, especially by convincing oneself that there is no danger.

Retained (रखा/संजोए रखा) means to keep or hold something.

Remembered (याद किया) means to recall something from memory.

- 80 (b). Articles are not used with **uncountable nouns** like "tea" when speaking generally. The sentence refers to tea in general, not a specific type or instance of tea.

- 81 (b). The correct spelling is "messing", which means to make something untidy or disorganized.

Entire (पूरा): Correctly spelled. It means complete or whole.

Laundry (कपड़े धोने का काम): Correctly spelled. It refers to clothes that need to be washed or have been washed.

Important (महत्वपूर्ण): Correctly spelled. It means having great significance or value.

- 82 (d). The correct order is: **ADCB**.

A: Introduces the narrator's walk along the beach and finding plastic waste.

D: Provides the background information about how the waste ended up there (dumped by an industry).

C: Describes the reaction of children who came to clean the beach after seeing the waste.

B: Concludes with the narrator joining the children to clean the beach, emphasizing the importance of the action.

- 83 (d). Pull yourself together (शांत होना) refers to regaining control of your emotions and calming down after being upset or distressed.

- 84 (d). **Fragmented** (टुकड़ों में बिखरे हुए) refers to something that is broken into parts or pieces. Similarly, "**broken**" (टूटी हुई) means something that is damaged or not whole.

Unified (एकीकृत) means something that is brought together as a whole

Compact (संकुचित) means something closely packed together or small in size

Rectified (सुधारित) means something that has been corrected or fixed

- 85 (d). In comparison, the correct pronoun to use is "**I**" (subject form), not "**me**" (object form).

The correct sentence should be "**as concerned as I am.**"

- 86 (d). It should be "**of one another,**" when referring to mutual actions or feelings between two or more people.

- 87 (b). **Active Voice Structure:**

Subject + verb (V_1) + object
He + ordered + the police to pursue the robber and his gang.

Passive Voice Structure:
Object + were + ordered + to + verb (V_1) + by + subject

The police + were ordered + to pursue + the robber and his gang + by him.

- 88 (a). **Keen** (तेज) means having a sharp or highly developed

sense, or being eager and enthusiastic. Its opposite is **Insensitive** (असंवेदनशील), which refers to lacking sensitivity, awareness, or concern for others' feelings.

Accurate (सही) means being exact or correct

Perceptive (सूक्ष्म निरीक्षण करने वाला) means having good insight or understanding

Subtle (सूक्ष्म) means not easily noticeable

89 (d). A **valley** (घाटी) refers to a low area of land between hills or mountains, often with a river running through it.

Plateau (पठार) This is a flat, elevated area of land.

Beach (समुद्र तट) Refers to a sandy shore by the sea.

Gulf (खाड़ी) : Refers to a large area of sea partly enclosed by land.

90 (c). **Winsome** (आकर्षक) means charming or attractive, particularly in a way that draws people in or appeals to them. Its opposite is **repelling** (अस्वीकार्य), which refers to something that causes a strong feeling of dislike or disgust.

Cunning (धूर्त) means being skillful in deceit or trickery.

Satisfying (संतोषजनक) means providing fulfillment or contentment

Winning (विजेता) refers to being victorious

91 (b). but neither of them knew it

Neither is used to refer to **two things or people** when the statement indicates that both of them are involved in a negative scenario.

92 (d). **Vindicate** (निर्दोष साबित करना) refers to clearing someone of blame or suspicion, or proving their innocence. Similarly, **"exonerate"** (मुक्त करना) also means to officially declare someone not guilty or free from blame.

Prove (सिद्ध करना) means to demonstrate the truth of something

Assess (मूल्यांकन करना) means to evaluate or judge

Banish (निकालना) means to expel or remove someone

93 (c). **"during"** is used to indicate that something happens within a specific period or event. In this case, it means trying to phone someone at some point when the meeting is happening.

94 (b). **This is one of the most beautiful places in the area.**

This sentence uses the superlative form **"most beautiful"** to emphasize that this place is among the most beautiful in the area.

95 (c). **Quixotic** (अवास्तविक) refers to someone who is extravagantly romantic, chivalrous, and impractical.

Teetotaler (शराब से परहेज करने वाला) refers to someone who abstains from alcohol.

Blonde (सांवला रंग) refers to a person with light-coloured hair, usually describing physical appearance.

Virago (महिला योद्धा) refers to a woman who is strong, fierce, or dominant.

96 (d)

97 (c)

98 (c)

99 (a)

100 (b)

ANSWER KEY

1. (c)	21. (d)	41. (a)	61. (a)	81. (b)
2. (c)	22. (c)	42. (c)	62. (d)	82. (d)
3. (c)	23. (a)	43. (c)	63. (b)	83. (d)
4. (d)	24. (a)	44. (c)	64. (b)	84. (d)
5. (b)	25. (c)	45. (c)	65. (b)	85. (d)
6. (c)	26. (a)	46. (b)	66. (a)	86. (d)
7. (c)	27. (b)	47. (b)	67. (a)	87. (b)
8. (a)	28. (b)	48. (d)	68. (a)	88. (a)
9. (b)	29. (a)	49. (a)	69. (a)	89. (d)
10. (a)	30. (b)	50. (c)	70. (a)	90. (c)
11. (c)	31. (d)	51. (a)	71. (c)	91. (b)
12. (d)	32. (b)	52. (c)	72. (a)	92. (d)
13. (b)	33. (c)	53. (a)	73. (a)	93. (c)
14. (c)	34. (d)	54. (a)	74. (b)	94. (b)
15. (c)	35. (c)	55. (c)	75. (b)	95. (c)
16. (c)	36. (b)	56. (a)	76. (d)	96. (d)
17. (c)	37. (d)	57. (c)	77. (b)	97. (c)
18. (d)	38. (c)	58. (b)	78. (d)	98. (c)
19. (a)	39. (b)	59. (b)	79. (d)	99. (a)
20. (d)	40. (a)	60. (a)	80. (b)	100. (b)