1. **MATHEMATICS**

1. A and B started a business with the investment of ₹350,000 and ₹140,000. In which A got 20% annual profit for business management. They got its profit according to their investment. Therefore, if after one year A got total ₹38,000 more in compare to B, then the profit is:
   (a) ₹ 28,000 (b) ₹ 2,80,000 (c) ₹ 1,05,000
   (d) ₹ 70,000 (e) None of these

2. A, B and C can do a piece of work in 30, 20 and 10 days respectively. A does one day work with the help of B, and next day with help of C. This process forwards continue, then in how many days the work will be finished?
   (a) $\frac{3}{8}$ day (b) $\frac{8}{3}$ day (c) $\frac{8}{13}$ day
   (d) $\frac{9}{13}$ day (e) None of these

3. A shopkeeper allows 20% discount on his business and he also give 6$\frac{1}{4}$% cash discount on the marked price then he earns 20% profit on his goods. What must be more his marked price from his cost price?
   (a) 40% (b) 50% (c) 60%
   (d) 70% (e) None of these

4. The mixture of milk and water in two part is 3 : 2 and 7 : 3. Find such ratio. When mixture of both the part mixed and the new mixture ratio could be obtained 2 : 1.
   (a) 2 : 1 (b) 1 : 2 (c) 4 : 1
   (d) 1 : 4 (e) None of these

5. The ratio of 3 classes students is 4 : 6 : 9. Due to 12 students more in each classes the ratio becomes 7 : 8 : 12, then find the original number of students in three classes.
   (a) 95 (b) 76 (c) 100
   (d) 114 (e) None of these

6. P is 27 km apart from Q. Two trains together moves simultaneously 24 km/h and 18 km/h from P and Q and travels in the same direction, respectively therefor if they meet at R which is forwards from Q, then find the distance of QR.
   (a) 126 km (b) 81 km (c) 48 km
   (d) 36 km (e) None of these

7. A boat moves 12 km upstream and 18 km downstream in 3 hours. While the same, boat moves 36 km upstream and 24 km downstream in 6$\frac{1}{2}$ hours. Find the speed of the current.
   (a) 1.5 km/hr. (b) 1 km/hr. (c) 2 km/hr.
   (d) 2.5 km/hr. (e) None of these

8. A train travels a distance between two stations A and B in 45 minutes. If the speed of the train is decreased by 5 km/h then same distance is travelled in 48 minutes. Find the distance between the station A and B.
   (a) 60 km (b) 64 km (c) 80 km
   (d) 55 km (e) None of these

9. A sum on compound interest amounts to ₹3840 in 4 years and ₹3936 in 5 years, then, find the rate of interest.
   (a) 2.5% (b) 2% (c) 3.5%
   (d) 2.05% (e) None of these

10. Sita invested ₹5000 at 10% per annum at simple interest for 2 years. If Sita gets interest half yearly of compound interest, then how much extra amount will she get in her account.
    (a) ₹50 (b) ₹40 (c) ₹77.50

(d) ₹ 85.50 (e) None of these

**Directions (11–15) :** In these questions two equations numbered I and II are given. You have to solve both the equations and mark the appropriate option.

(a) If $x \leq y$ (b) If $x \geq y$
(c) If relationship between $x$ and $y$ cannot be established
(d) If $x < y$ (e) If $x > y$

11. I. $12x^2 - 55x + 63 = 0$ II. $8y^2 - 32y + 15 = 0$
12. I. $x^2 - 12x + 35 = 0$ II. $y^2 - 14y + 48 = 0$
13. I. $6x^2 - 43x + 72 = 0$ II. $y^2 - 8y + 15 = 0$
14. I. $12x^2 - 31x + 20 = 0$ II. $y^2 - 12y + 32 = 0$
15. I. $2x^2 - 11x + 15 = 0$ II. $2y^2 - 21y + 40 = 0$

**Directions (16–20) :** Study the following table carefully and answer the questions which follow:

Number of Candidates found Eligible and the Number of Candidates Short–listed for interviews for a recent Recruitment Process for six Posts from Different States (E–Eligible S–Short–listed)

<table>
<thead>
<tr>
<th>Post</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>States</td>
<td>E</td>
<td>S</td>
<td>E</td>
<td>S</td>
<td>E</td>
<td>S</td>
</tr>
<tr>
<td>A</td>
<td>2500</td>
<td>65</td>
<td>220</td>
<td>5200</td>
<td>240</td>
<td>5200</td>
</tr>
<tr>
<td>B</td>
<td>3200</td>
<td>220</td>
<td>500</td>
<td>4200</td>
<td>8400</td>
<td>190</td>
</tr>
<tr>
<td>C</td>
<td>2800</td>
<td>280</td>
<td>4500</td>
<td>350</td>
<td>7600</td>
<td>180</td>
</tr>
<tr>
<td>D</td>
<td>2400</td>
<td>85</td>
<td>4800</td>
<td>200</td>
<td>2600</td>
<td>55</td>
</tr>
<tr>
<td>E</td>
<td>3000</td>
<td>120</td>
<td>5600</td>
<td>280</td>
<td>3800</td>
<td>75</td>
</tr>
<tr>
<td>F</td>
<td>1800</td>
<td>325</td>
<td>6400</td>
<td>320</td>
<td>4400</td>
<td>220</td>
</tr>
<tr>
<td>G</td>
<td>5600</td>
<td>550</td>
<td>7000</td>
<td>140</td>
<td>6000</td>
<td>325</td>
</tr>
</tbody>
</table>

16. From State 'B', which post had the highest percentage of candidates short–listed?
   (a) V (b) IV (c) VI
   (d) II (e) None of these

17. Approximately, what is the average number of candidates found eligible from all States Post III?
   (a) 6700 (b) 6200 (c) 4200
   (d) 4500 (e) 5430

18. What is the overall percentage (rounded off to one digit after decimal) of candidates short–listed over the total number of candidates eligible from all the States together for Post I?
   (a) 9.5% (b) 12.5% (c) 7.2%
   (d) 6.5% (e) None of these

19. What is the ratio between total number of candidates short–listed for all the posts together from States E and G respectively?
   (a) 307 : 369 (b) 73 : 79 (c) 6 : 5
   (d) 9 : 7 (e) None of these

20. Total number of candidates found eligible from all States together for Post I is approximately what percent of the total number of candidates found eligible from all States together for Post VI?
    (a) 45 (b) 50 (c) 60
    (d) 55 (e) 64

**Directions (21–25) :** What should come in place of the question mark (?) in the following questions?

21. 14% of 905 + ? = 287
   (a) 148.7 (b) 160.3 (c) 163.1
   (d) 162.5 (e) None of these

22. 2073.5 + (22 × 14.5) = ?
   (a) 7.5 (b) 6.5 (c) 4.5
   (d) 3.5 (e) None of these

23. 6824 + 7864 = ? × 40
   (a) 376.4 (b) 359.2 (c) 363.4
   (d) 367.2 (e) None of these

www.ibpsadda.com  www.gujradiusalert.com  www.currentaffairstoday.in
24. 10000 ÷ 100 ÷ 10 = ?
   (a) 1        (b) 0.1       (c) 1000
   (d) 100      (e) None of these
25. \((49)^2 \times (7)^8 \div (343)^3\) = (7)?
   (a) 3        (b) 11        (c) 7
   (d) 9        (e) None of these

Directions (26–30) : What should come in place of the question mark (?) in the following number series?
26. 1 5 13 29 ? 125 253
   (a) 83       (b) 69        (c) 61
   (d) 65       (e) 81
27. 25 57 81 117 165 ?
   (a) 235      (b) 215       (c) 205
   (d) 245      (e) 225
28. 353 354 351 356 349 ?
   (a) 348      (b) 358       (c) 338
   (d) 385      (e) 340
29. \(\frac{1}{4} \quad \frac{3}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{3}{4} \quad ?\)
   (a) 2        (b) 4         (c) 6
   (d) 1\frac{4}{5}  (e) \frac{2}{3}
30. 17 18 26 53 117 ? 458
   (a) 342      (b) 142       (c) 257
   (d) 262      (e) 242

Directions (31–35) : Study the Pie charts and answer the given questions

Distribution of number of Watches (Sports Watches and Luxury Watches) sold by 8 stores in 2015
Total number : 56000

1. What is the respective ratio between total number of sport watches sold by stores C, F and G together and total number of watches (sport and luxury) sold by stores C and F together?
   (a) 64 : 77       (b) 48 : 61       (c) 56 : 77
   (d) 64 : 81       (e) 48 : 73

2. A and B have agreed to buy a laptop for ₹ 3,50,000 and then, they divide the cost according to their percentage of marks in the test, A having scored 60% and B having scored 70%. In what ratio should they divide ₹ 3,50,000?
   (a) 6 : 7        (b) 7 : 6        (c) 7 : 8
   (d) 8 : 7        (e) 9 : 8

3. If the number of watches sold by stores A, D and E increased by 10%, 35% and 15% respectively from 2015 to 2016. What was the total number of luxury watches sold by these three stores in 2016?
   (a) 16172       (b) 14966       (c) 15848
   (d) 15964       (e) 16392

1. संयंत्रिक संबंधों का अभिगमन

1. A और B ने एक व्यवसाय, क्रमशः ₹ 3,50,000 तथा ₹ 1,40,000 के निवेश से शुरू किया। उसमें, A को व्यवसाय के प्रभाव के लिए लाभ का 20% बराबरिम भुगतान। यदि A को ₹ 38,000 अधिक मिला, तो लाभ है?
   (a) ₹ 28,000     (b) ₹ 2,80,000   (c) ₹ 1,05,000
   (d) ₹ 70,000    (e) इनमें से कोई नहीं

2. A, B और C एक कार्य क्रमशः : 30, 20 तथा 10% में कर सकते हैं। A को एक दिन का काम में B का सहयोग मिलता है और अगले दिन C का सहयोग मिलता है। यहों क्या यह चाहिए?
   (a) 120% या अधिक    (b) 120% या कम    (c) 150% या अधिक
   (d) 150% या कम    (e) इनमें से कोई नहीं

3. एक व्यापारी अपने व्यापार पर 20% छूट की अनुमति देता है और अपने माल के अंकित मूल्य पर 50% की लाभ भी देता है। इस तरह उसे अपनी लाभ पर 20% छूट लाभ मिलता है। तदनुसार, बेचने के लिए उसे अपने माल का अंकित मूल्य, उसकी लागत-मूल्य से कितना ज्यादा रखना चाहिए?
   (a) 40%        (b) 50%        (c) 60%
   (d) 70%        (e) इनमें से कोई नहीं

4. दो बंदरों में दूध तथा पानी का अनुपात 3:2 तथा 7:3 है। तदनुसार, उन अनुपात को जात कोरिए, जिसके अनुसार दोनों बंदरों के भिंतरों को मिलाकर दूध और पानी का अनुपात 2:1 का नया आयन तैयार किया जा सके?
   (a) 2:1        (b) 1:2        (c) 4:1
   (d) 1:4        (e) इनमें से कोई नहीं

5. तीन काश्मीर के विचारधिकार का अनुपात 4:6:9 हैं। उन काश्मीर में प्रकेक में 12 विचारधिकार की जरूर के अनुपात 7:9:12 हो जाता है। तदनुसार उन तीनों काश्मीर को जुड़ के सहले विचारधिकार की कुल संख्या कितनी है?
   (a) 95         (b) 76         (c) 100
   (d) 114        (e) इनमें से कोई नहीं

6. P और Q, 27 किमी की दूरी पर हैं। दो रेलवे दिशाओं क्रमशः, 24 किमी/घ. तथा 18 किमी/घ. की गति से एक साथ P तथा Q से चलती हैं और एक हो रीया में यात्रा करती है। तदनुसार, यदि B से आगे एक बिन्दु R पर मिलती हो, तो QR की दूरी कितनी है?
   (a) 126 किमी.  (b) 81 किमी.  (c) 48 किमी.
   (d) 36 किमी.  (e) इनमें से कोई नहीं

7. एक नाव, धारा के विचारधिकार 12 किमी. तथा धारा के साथ 18 किमी.
16. राष्ट्र 'B' में किस राज्य के लिए लघु सूची में शामिल उम्मीदवारों का प्रतिशत समानांतर था?
(a) V (b) IV (c) VI (d) II (e) इसमें से कोई नहीं

17. पद III के लिए सभी राज्यों से पात्र पाए गए उम्मीदवारों की औसत संख्या क्या थी?
(a) 6700 (b) 6200 (c) 4200 (d) 4500 (e) 5430

18. पर I के लिए सभी राज्यों से निवासियों पात्र कुल उम्मीदवारों की संख्या में से लघु सूची में शामिल उम्मीदवारों का कुल प्रतिशत (राज्यकीय रूप से यह एक अंक प्रतिशत कवर) क्या है?
(a) 9.5% (b) 12.5% (c) 7.2% (d) 6.5% (e) इसमें से कोई नहीं

19. राज्य E और G से जुड़ा; सभी पदों के लिए मिलकर लघु सूची में शामिल उम्मीदवारों का कुल संख्या के पात्र का अनुपात क्या है?
(a) 307 : 369 (b) 73 : 79 (c) 6 : 5 (d) 9 : 7 (e) इसमें से कोई नहीं

20. पर I के लिए सभी राज्यों से निवासियों पात्र पाए गए उम्मीदवारों की संख्या पद VI के लिए सभी राज्यों से मिलकर पात्र पाए गए उम्मीदवारों का कुल संख्या का लगभग कितना प्रतिशत है?
(a) 45% (b) 50% (c) 60% (d) 55% (e) 65%

निर्देश (21–25): निम्नलिखित प्रश्नों में प्रश्नमालिका (a) के स्थान पर क्या आदेश?

21. 905 का 14% + ? = 287
(a) 148.7 (b) 160.3 (c) 163.1 (d) 162.5 (e) इसमें से कोई नहीं

22. 2073.5 + (22 × 14.5) = ?
(a) 7.5 (b) 6.5 (c) 4.5 (d) 3.5 (e) इसमें से कोई नहीं

23. 6824 + 7864 = ? × 40
(a) 376.4 (b) 359.2 (c) 363.4 (d) 367.2 (e) इसमें से कोई नहीं

24. 10000 + 100 – 10 =?
(a) 1000 (b) 0.1 (c) 1000 (d) 100 (e) इसमें से कोई नहीं

25. (49)² × (7)² × (343)³ = (7)²
(a) 3 (b) 11 (c) 7 (d) 9 (e) इसमें से कोई नहीं

निर्देश (26–30): निम्नलिखित संख्या संख्या सूची में प्रश्नमालिका (a) के स्थान पर क्या आदेश?

26. 1 5 13 29 ? 125 253
(a) 83 (b) 69 (c) 61 (d) 65 (e) 81

27. 45 57 81 117 165 ?
(a) 235 (b) 215 (c) 205 (d) 245 (e) 225

28. 353 354 351 356 349 ?
(a) 348 (b) 358 (c) 338 (d) 385 (e) 340

29. 1 1 1 3 1 3 1 ?
(a) 2 (b) 4 (c) 6 (d) 1 (e) 1/3

30. 17 18 26 53 117 ?
(a) 432 (b) 142 (c) 257 (d) 282 (e) 242

निर्देश (31–35): यूंत्र पीआर का अध्ययन कर प्रश्नों के उत्तर दीजिए।
वर्ष 2015 में 8 राज्यों द्वारा बनाई गई घड़ियों (स्पोर्ट्स और 
लक्जरी) का वितरण कुल संख्या = 56000

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31. If a country was visited by exactly three persons, then which is the only country to which three people travelled.

32. Minimum two persons travelled to each country and South Africa travelled on different days of the week (no two persons travelled to the same country). Shweta, Gifty, Paul and Mohit – travelled to three different countries.

33. Seven representatives of a company – Samir, Nita, Richa, Shweta, Gifty, Paul and Mohit – traveled to South Africa, Australia and France. Each of them travelled on different days of the week (no two persons traveled on the same day), starting on Monday and ending on Sunday. Minimum two people traveled to each country and South Africa is the only country to which three people travelled.

34. Samir travelled to South Africa on Monday. Paul travelled to Australia on Wednesday. Richa travelled to South Africa on Monday. Gifty travelled to South Africa on Wednesday. Shweta travelled to France on Sunday. Paul travelled to Australia on Tuesday. Saturday.

35. If everyone's trip is postponed by one day, who will be traveling on Wednesday?

36. Who amongst the seven representatives travelled on Saturday?

37. Which one of the following combinations is true according to the given information?

38. To which country and on which day did Nita travel?

39. What will be the code for 'likes' in the given code language?

40. Who was the last one to travel?

Directions (41–45) : Study the following information carefully and answer the questions given below.

In a certain code language 'Rajiv is a handsome boy' is written as 'ba ji si na by', 'each boy likes a beautiful movie' is written as 'by ke ch na ut rl', 'Rajiv loves each movie' is written as 'rl ch ji vr' and 'Delhi is a beautiful place' is written as 'na lh si cp ut'.

41. What will be the code for 'Rajiv' in the given code language?

42. What is the code for 'Delhi' in the given code language?

43. What will be the code for 'movie is beautiful'?

44. What will be the code for 'likes' in the given code language?

45. What will be the code for 'Handsome' in the given code language?

Directions (46–50) : In each question given below three statements are followed by two conclusions numbered I and II. You have to take all the given statements to be true even if they seem to be at variance from the commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows from all the given statements disregarding commonly known facts.

Give answer–

(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusion I and II follow.

46. Statements : All fruit are white.

Conclusions :

I. Some fruits are not grapes.
II. All white being not grapes is a
47. Statements : Some singers are dancers. 
No hero is a heroine. 
All heroes are singers. 

Conclusions : I. All singers are not heroes. 
II. No heroine is a singer. 

48. Statement : No good is a bad. 
Some beautiful are good. 
All bad are black. 

Conclusions : I. Some black are not good. 
II. Some bad are not black is a possibility. 

49. Statements : All ins are blue. 
Only red is blue. 
No white is red. 

Conclusions : I. All blue is ins. 
II. All white being blue is a possibility. 

50. Statements : Some adult are short. 
All short are strong. 
Some strong are free. 
All boy are free. 

Conclusions : I. Some strong are adult. 
II. Some boy being short is a possibility. 

Directions (51–55) : Study the information below and answer the given questions : 
Eight friends A, B, C, D, F, G and H are sitting in a circle, not necessarily in the same order. Four of them are facing outside and four of them are facing the centre. 
* E faces outside. Both the immediate neighbours of E face the centre. 
* H sits second to the right of E. B sits third to the left of E. 
* D faces the centre. Both the immediate neighbours of D face outside. 
* G sits second to the left of A. B sits third to the right of H. 
* F is an immediate neighbour of D. C is an immediate neighbour of G. 
* D is not an immediate neighbour of B. 

51. Who amongst the following sits to the immediate right of H? 
(a) A 
(b) D 
(c) C 
(d) G 
(e) None of these 

52. Who amongst the following sits third to the right of A? 
(a) D 
(b) E 
(c) F 
(d) A 
(e) None of these 

53. If all the people are made to sit in alphabetical order, in clockwise direction, starting from A, the position of whom amongst the following remains the same (Excluding A)? 
(a) E 
(b) F 
(c) C 
(d) G 
(e) None of these 

54. Four of the following five are alike in a certain way, based on the information given above and so form a group. Which is the one that does not belong to that group? 
(a) HA 
(b) FH 
(c) GC 
(d) DE 
(e) BC 

55. How many people are seated between A and C (counting clockwise from A)? 
(a) Two 
(b) Four 
(c) None 
(d) One 
(e) None of these 

Directions (56–69) : In these questions, a relationship between different elements is shown in the statements. 
The statements are followed by two conclusions. 

Give answer.– 
(a) If only conclusion I is true 
(b) If only conclusion II is true 
(c) If either conclusion I or II is true 
(d) If neither conclusion I nor II is true 
(e) If both conclusion I and II are true 

56. Statements : E < N, N = S, S ≥ W, W > T 
Conclusions : I. E > T 
II. T < S 

57. Statements : M ≥ R > P = S, T ≥ P > N ≥ L 
Conclusions : I. M > T 
II. R ≥ L 

58. Conclusions : I. F > S 
II. M > G 

59. Conclusions : I. L > G 
II. T = G 

Directions (60–62) : In the following questions, the symbols +, × and – are used with following meaning as illustrated below: 
If ‘P × Q’ means ‘P is sister of Q’
If ‘P + Q’ means ‘P is wife of Q’
If ‘P – Q’ means ‘P is father of Q’
If ‘P ÷ Q’ means ‘P is brother of Q’

58. If the given expression is T – N + J × S × V then which of the following statement is definitely true? 
(a) T is father of S 
(b) J is son-in-law of T 
(c) V is brother of S 
(d) S is sister-in-law of N 
(e) Both (b) and (d) 

61. In the expression V ÷ K + J – E, how is V related to E? 
(a) Maternal Aunt 
(b) Maternal Uncle 
(c) Paternal Uncle 
(d) Father 
(e) None of these 

62. Which of the following expression is true that K is daughter of L? 
(a) V + K ÷ J – E = L 
(b) R ÷ L – K × T 
(c) R – K – L × P 
(d) J × K – T – L 
(e) None of these 

Directions (63–67) : Study the following information carefully and answer the questions given below— 
P, Q, R, S, T, V, W and Z are eight students in a class. 
Three of them play cricket and badminton each and two of them play hockey. Each one of them has different height. The tallest does not play hockey and the shortest does not play cricket. V is taller than P and S but shorter than Z and Q, T, who does not play cricket, is taller than Q and is second to the tallest. W is shorter than S but taller than P, Z, who is the fourth from the top, plays badminton with S. W does not play either cricket or hockey. Q does not play Hockey. 

63. Who is the tallest? 
(a) Q 
(b) Z 
(c) R 
(d) Data inadequate 
(e) None of these 

64. Who is the shortest? 
(a) W 
(b) S 
(c) Z 
(d) Data inadequate 
(e) None of these 

65. Which of the following pairs of students plays hockey? 
(a) TV 
(b) ZT 
(c) ZV 
(d) Data inadequate 
(e) None of these 

66. What is V’s position from the top when they are arranged in descending order of their height? 
(a) Third 
(b) Fifth 
(c) Fourth 
(d) Sixth 
(e) None of these 

67. Which of the following groups of students plays cricket? 
(a) RPT 
(b) RQV 
(c) RPQ 
(d) Data inadequate 
(e) None of these 

68. If 53629718 is arranged in ascending order, how many digits will be unchanged? 
(a) None 
(b) One 
(c) Two 
(d) Three 
(e) None of these 

69. In a certain code ‘TERMINAL’ is written as ‘5%3942’ and ‘ARM’ is written as ‘%@9’, then how ‘CREDIBLE’ is written as in that code? 
(a) BQDCJCMF 
(b) BQDCHAKD 
(c) DSFEJCMF 
(d) DSFEHAKD 
(e) None of these 

70. In a certain code ‘BASKET’ is written as ‘5%3#42’ and ‘ARM’ is written as ‘%@9’, then how ‘TERM’ is written as in that code? 
(a) 23%9 
(b) 24@9 
(c) 42@9 
(d) 24%9 
(e) None of these
43. दी गई कूट भाषा में ‘likes’ के लिए कूट क्या होगा?
(a) rl    (b) ke    (c) si
(d) ut    (e) इसमें से कोई नहीं

44. दी गई कूट भाषा में ‘Handsome’ के लिए कूट क्या होगा?
(a) ha    (b) by    (c) ji
(d) ch    (e) इसमें से कोई नहीं
51. If A, B, C, and D are the four propositions and E, F, G, and H are the four conclusions, then which of the following statements is true?
   (a) A → E
   (b) B → F
   (c) C → G
   (d) D → H

52. Which of the following statements is a valid conclusion?
   (a) If A, then B.
   (b) If B, then C.
   (c) If C, then D.
   (d) If D, then E.

53. If A is true and B is false, which of the following conclusions must be true?
   (a) C
   (b) D
   (c) E
   (d) F

54. In a certain logic problem, the statement "A implies B" is true. Which of the following statements must also be true?
   (a) B implies A
   (b) A implies C
   (c) B implies D
   (d) C implies A

55. If A is false, what is the truth value of the statement: "If A, then B"?
   (a) True
   (b) False
   (c) Cannot be determined
   (d) Depends on the value of B

56. If A and B are false, which of the following statements is true?
   (a) A ∨ B
   (b) A ∧ B
   (c) A → B
   (d) B → A

57. Which of the following statements is a tautology?
   (a) A ∨ ¬A
   (b) A ∧ ¬A
   (c) A → A
   (d) A ⊕ ¬A

58. If A is true and B is false, which of the following statements is false?
   (a) A ∨ B
   (b) A ∧ B
   (c) A → B
   (d) B → A

59. Which of the following statements is a contradiction?
   (a) A ∨ B
   (b) A ∧ ¬A
   (c) A → B
   (d) B → A

60. If A is true, which of the following statements is false?
   (a) A
   (b) ¬A
   (c) A → B
   (d) A ∧ B

61. If A is false, which of the following statements is true?
   (a) A
   (b) ¬A
   (c) A → B
   (d) A ∧ B

62. If A is false, which of the following statements is true?
   (a) A ∨ B
   (b) A ∧ B
   (c) A → B
   (d) A ⊕ B

Directions (63-75): Read the following passage carefully and answer the questions given below it. Certain words/ phrases are printed in bold to help you locate them while answering some of the questions:

The past decade has seen many conceptions about development and this, more than anything else, makes it difficult to be overly definite about what the next decade has in store. But there are a few things that one can assert with some confidence. First, education, health and productive employment are crucial both for growth and for equity. We have tended to assume that all of these are the consequences
of rapid economic growth and that only growth can generate the resources required for these purposes. But increasingly, it appears that these are better seen as the causes rather than as consequences of development. Virtually every case of successful development involves a prior improvement in literacy, technical skills, health status and access to productive work.

Second, technological competence is the most important resource endowment and it explains a far larger proportion of growth in output and trade than more conventional factors like natural resources or capital accumulation. The competence required is not just in research. In fact, technological dynamism in the factory and the farm is more important than the presence of a large research establishment.

Third, the environmental imperative can no longer be ignored. Today, as an international issue, it is second only to disarmament. Nationally, the developmental consequences of environmental neglect are increasingly obvious.

In the Indian context there are at least two further factors which reinforce the above propositions. The first is population growth. Given the pace of expansion of the population and the workforce, human resource development acquires an added urgency. Population growth is also one, but not necessarily the most important factor, which underlines environmental stress in rural and urban areas. The second factor is that as a large country we cannot carve out an independent position in the global system without building up a substantial capacity for self-reliant growth. The acquisition of technical competence is crucial for this purpose.

Until now we have tended to treat human resource development technology issues and environment as subsidiary to the main task of planning. The thrust has been on quantitative expansion of infrastructure and production with a focus on production targets like tonnes of steel, kwh of electricity, etcetera: capacity targets like road length, rail kilometer age: and coverage targets like number of schools and students, number of villages electrified, etcetera: catching up with known technologies, fuller use of natural resources, maximum mobilization of financial resources.

71. According to the author, which of the following factors support and strengthen his point of view?
(i) Necessity for carrying out growth on the basis of our own strength
(ii) Increased emphasis on production and coverage targets
(a) Only (i) and not (ii)
(b) Only (ii) and not (i)
(c) Either (i) or (ii)
(d) Both (i) and (ii)
(e) Not mentioned in the passage

72. According to the passage, we have so far placed more emphasis on which of the following?
(a) Maximum utilization of available finances
(b) Following known technologies
(c) Increased number of basic facilities and meeting number targets
(d) Optimum use of available natural resources
(e) All of these

73. According to the author, at the national level with passage of time the effects of which of the following are being felt?
(a) Progressive degradation of technologist competence in urban areas
(b) Emphasis on slow rate of disarmament as compared to other nations
(c) Expansion of work force of high quality
(d) Lack of attention and action for protecting environmental wealth
(e) Reduction in growth rate of population

74. What seems to be the purpose of the author in writing this passage?
(a) To show how the policy makers have failed
(b) Review of the past with a view to evolving positive directions for future
(c) A review of world affairs with special emphasis on developed countries
(d) To prove how his prediction have turned out to be correct
(e) To appreciate the steps taken by our Government in the past and doubts about future

75. According to the author, which of the following cannot be viewed as the cause of development?
(a) Improvement in literacy
(b) Betterment in health services
(c) Increase in underemployment
(d) Speedy economic growth
(e) Enhancement in technical skills

76. Which of the following statements is not true in the context of the passage?
(a) We will have bright future by only catching up with known technologies
(b) Optimum self-reliance is the need of the day
(c) We have now to emphasise aspects of human resource development
(d) Technological competence has to be given due priority over more conventional factors
(e) We cannot afford to ignore the importance of environment

77. What seems to be the approach of the author regarding present status of research?
(i) He desires that more research establishments should come up
(ii) Application of new technologies in factories and field is more vital than setting up of research laboratories
(a) Only (i)
(b) Only (ii)
(c) Neither (i) nor (ii)
(d) Both (i) and (ii)
(e) Not mentioned in the passage

78. According to the author, which of the following is a less important factor resulting in environmental stress in rural and urban areas?
(a) Continued environmental neglect
(b) Rapid economic growth
(c) Rate of growth of population
(d) Availability of productive employment
(e) Increase in capital accumulation

Directions (79-88) : Read each sentence to find out whether there is any grammatical error in it. The error, if any, will be in one part of the sentences. The number of that part is the answer. If there is no error, the answer is 'e': (Ignore the errors of punctuation, if any)

79. The environment in which (a)/ companies operating (b)/ today is (c)/ undergoing frenetic changes. (d) No error (e)
80. Even at the planning stage (a)/ Rajesh was quite sure (b)/ that the scheme was (c)/ binding to fail. (d) No error (e)
81. He could succeed (a)/ in catching the ball (b)/ before it reaches (c)/ the boundary line. (d) No error (e)
82. Generally, people have not receptive (a)/ and fail to notice the (b)/ irrelevant answers they (c)/ get for straight questions. (d) No error (e)
83. He ought (a)/ not have (b)/ done such a (c)/ filthy thing. (d) No error (e)
84. Your machine would not have (a)/ given you so much trouble (b)/ if you had (c)/ maintained it proper. (d) No error (e)
85. What is need today is (a)/ a new breed of managers (b)/ with a new set of concepts (c)/ and a flexible way about thinking. (d) No error (e)
86. Motivating employees with (a)/ traditional authority and financial (b)/ incentives have become (c)/ increasingly difficult. (d) No error (e)
87. Several issues raising (a)/ in the meeting could (b)/ be
amicably resolved (d) due to his tactful handling. (d) No error (e)

88. The health workers are (a) being tried their best (b) to popularize (c) preventive measures. (d) No error (e)

Directions (89-93) : Rearrange the following seven sentences, (A), (B), (C), (D), (E), (F) and (G) in the proper sequence to form a meaningful paragraph: then answer the questions given below them:

(A) Another important aspect of stress is that the human body reacts to stress in a stereotyped, physiological way.
(B) But as long as we are alive, we are experiencing stress.
(C) Besides the fact that stress is unavoidable there are several aspects of stress that one should understand.
(D) Sometimes the stress is small and sometimes it is large.
(E) Stress cannot be avoided, and our stress level is never at zero.
(F) One is that both too high and too low stress level is damaging.
(G) We are always under the stress as along as we are alive.

89. Which of the following would be the FOURTH sentence?
   (a) A  (b) E  (c) B
   (d) D  (e) C

90. Which of the following would be the FIRST sentence?
   (a) B  (b) E  (c) G
   (d) F  (e) D

91. Which of the following would be the SEVENTH sentence?
   (a) E  (b) B  (c) G
   (d) A  (e) C

92. Which of the following would be the FIFTH sentence?
   (a) F  (b) G  (c) D
   (d) C  (e) E

93. Which of the following would be the SIXTH sentence?
   (a) B  (b) A  (c) D
   (d) C  (e) F

Directions (94–100) : In the following passage there are blanks, each of which has been numbered. These numbers are printed below the passage and against each, five words are suggested, one of which fits the blank appropriately in the context of the whole passage. Find out the appropriate words:

... (94)... all the rhetoric about teaching, about enhancing teachers' power, about raising pay, the reality bears... (95)... resemblance to the rhetoric. Rather than moving in the direction of... (96)... autonomy, the daily lives of teachers in the... (97)... are becoming even more... (98)... Instead of given more autonomy, the attempt seems to be at... (99)... the administrative... (100) ...

94. (a) Historically (b) Tragically (c) For (d) Despite (e) Mainly
95. (a) little (b) all (c) some (d) full (e) crude
96. (a) strict (b) increased (c) absolute (d) decreased (e) simple
97. (a) homes (b) schools (c) libraries (d) colleges (e) classrooms
98. (a) rigidified (b) homogeneous (c) ridiculous (d) redundant (e) controlled
99. (a) simplifying (b) strangulating (c) tightening (d) smoothening (e) sacrificing
100. (a) orders (b) areas (c) efforts (d) controls (e) matters

: Answers :

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

: Explanations :

1. A तथा B के रेट का अनुपात = \frac{350,000}{140,000} = \frac{5}{2}

A को प्रबंधन के लिए लाभ का 20% मिला अर्थात् लाभ का 80% A
tथा B में 5 : 2 में बढ़ता।

B का हिस्सा = \frac{2}{5} \times 80 = \left(\frac{160}{7}\right)

तथा A का हिस्सा = \frac{5}{2} \times 80 = \left(\frac{400}{7}\right)

. A का कुल हिस्सा (\%) = 20% + \left(\frac{400}{7}\right)

. A का कुल हिस्सा (\%) = \frac{540}{7}

A तथा B के प्रारंभ लाभ में अंतर = \frac{540}{7} - \frac{160}{7} = \left(\frac{380}{7}\right)

लाभ का \frac{380}{7} \% = 38000

:\text{ लाभ को राशि = } 38000 \times \frac{7 \times 100}{380} = 70,000

2. पहले दिन में A + B द्वारा किया गया कार्य = \frac{1}{30} + \frac{1}{20}

\text{= } \frac{4 + 6}{120} = \left(\frac{11}{12}\right)

. दूसरे दिन A + C द्वारा किया गया कार्य = \frac{1}{30} + \frac{1}{10}

\text{= } \frac{1 + 3}{30} = \left(\frac{2}{15}\right)

. दूसरे दिन में किया गया कार्य = \frac{1}{12} + \frac{2}{15} = \frac{5}{60} + \frac{13}{60}

. \text{i.e. } x = 4

. \text{अतः } (4 \times 2) \text{ दिन में किया गया कार्य = } \frac{52}{60}
5. वृद्धि से पहले तीनों कश्मीर का संख्या क्रमशः 4x, 6x तथा 9x माना कोई दो कश्मीर के छायाएँ का बर्तन रात्रिवाह अनुपात तथा वृद्धि के परमाणु अनुपात में संबंध था:

\[
\begin{align*}
4x + 12 &= 7 \\
6x + 12 &= 19 \\
\Rightarrow 3x + 108 &= 42x + 84 \\
\Rightarrow 6x &= 24 \\
\Rightarrow x &= 4 \\
\therefore \text{अभीष्ट संख्या} &= (4 + 6 + 9) \times 4 \\
&= 19 \times 4 \\
&= 76.
\end{align*}
\]

6. दोनों रेलगाड़ियों के चीक सापेक्ष की दूरी = 27 km सापेक्षिक गति = 24 – 18 = 6 km/hr.

\[
\text{इस दूरी को तय करने में लगा समय} = \frac{27}{6} = \left(\frac{9}{2}\right) \text{ घंटे}
\]

\[
\text{QR} = 81 \text{ km.}
\]

7. यदि भाग के विपरीत नाब की चाल = \(x\) हो तथा भाग के साथ \(y\) किमी/hr. तो

\[
\begin{align*}
12 + \frac{18}{x} &= 3 \quad \cdots \cdots \text{(i)} \\
36 + \frac{24}{y} &= 13 \quad \cdots \cdots \text{(ii)} \\
\text{eq. (i)} \times 3 - \text{eq (ii)} &\Rightarrow \frac{54}{y} = \frac{9 - 13}{2} \Rightarrow \frac{54}{y} = \frac{-4}{2} \Rightarrow y = 12 \cdots \cdots \text{(iii)}
\end{align*}
\]

\[
\frac{12}{x} + \frac{18}{12} = 3 \Rightarrow \frac{12}{x} = \frac{3 - 18}{12} \Rightarrow x = \frac{12 \times 12}{18} \Rightarrow x = 8 \text{ किमी/hr.}
\]

8. यदि गाड़ी का वास्तविक चाल \(S\) किमी/hr हो तो

\[
\begin{align*}
\text{A तथा B के चीक की दूरी} &= S \left(\frac{45}{60}\right) = \frac{3S}{4} \text{ किमी} \\
\text{गाड़ी की गति} &= 5\text{किमी/hr} \text{ तथा नाब की गति} = \left(S - \frac{5}{4}\right) \text{ किमी/hr}
\end{align*}
\]

\[
\begin{align*}
\text{अस:} & \Rightarrow \frac{3S}{4} = \left(S - \frac{5}{4}\right) \Rightarrow 15S = 16S - 80 \Rightarrow S = 80
\end{align*}
\]

9. 5 में वर्ष का व्याज = 3936 – 3840 = \(₹\) 96

\[
\text{व्याज दर} = \frac{96 \times 100}{3840} = 2.5\%.
\]

10. 2 वर्ष का साधारण व्याज = \(\frac{5000 \times 10 \times 2}{100} = ₹1000\) यदि व्याज अईंदिव्याधि संप्रदायित हो, तो 

\[
\text{व्याज दर} = 5\%
\]
15. \[ \frac{(2y - 5)(y - 8)}{0} \]
\[ y = \frac{5}{2}, 8 \]
- No relationship between \( x \) and \( y \) exists.

16. \( \text{Table:} \)
- \( \text{Pad I:} \frac{320}{3200} \times 100 = 6.875\% \)
- \( \text{Pad II:} \frac{420}{8500} \times 100 = 4.94\% \)
- \( \text{Pad III:} \frac{190}{8400} \times 100 = 2.26\% \)
- \( \text{Pad IV:} \frac{320}{6200} \times 100 = 5.16\% \)
- \( \text{Pad V:} \frac{180}{5800} \times 100 = 3.10\% \)
- \( \text{Pad VI:} \frac{430}{6200} \times 100 = 6.93\% \) (approx)

17. \( \text{Total luxury and sport watches sold by F} \)
\[ = 5000 \times 1 \times 34481 \]
\[ = 165 \times 5000 + 1 \times 5000 \times 34481 \]
\[ = \frac{5000}{16000} \times 5 \times 5000 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 = 1077.5 \]
- Given the total number of luxury and sport watches sold by F.

18. \( \text{Total number of luxury watches sold by C and H} \)
\[ = 5000 \times 1 \times 11 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 = 1077.5 \]
- Given the total number of luxury watches sold by C and H.

19. \( \text{Total number of luxury watches sold by A} \)
\[ = 5000 \times 1 \times 11 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 = 1077.5 \]
- Given the total number of luxury watches sold by A.

20. \( \text{Total number of luxury sport watches sold by F} \)
\[ = 5000 \times 1 \times 3 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 \]
\[ = \frac{5000}{16000} \times 5 \times 1000 = 1077.5 \]
- Given the total number of luxury sport watches sold by F.
33. Required ratio = \(\frac{(5120+5120)}{(7840 + 4480)} = \frac{10240}{12320} = 64 : 77\)

34. Average = \(\frac{4960 + 4240 + 4160 + 1920 + 1200}{5} = 3296\)

35. Total number of luxury watches sold by stores A, D and E = \(4960 \times \frac{110}{100} + 4240 \times \frac{135}{100} + 4160 \times \frac{115}{100} = 15964\)

36. Required percentage = \(\frac{9520 - 800}{9520} \times 100 = 28.4\%\)

37. South Africa | Australia | France
--- | --- | ---
Samir - Monday | Paul - Thursday | Shweta - Saturday
Richa - Friday | Nita - Tuesday | Gifty - Wednesday
Mohit - Sunday |  |  

41. (rajiv – ji) a – na is – si
beautiful – ut boy – by handsome – ha
each/movie – ch/rl likes – ke loves – vr
delhi/place – lh/cp

50. (51–55)

56. E < N = S > T
57. M > R > P = S < T
58. F > G = S < M ≤ L = R < Q > P
59. F > G = S > T
60. T
   \[N \rightarrow J \rightarrow S \rightarrow V\]
61. \[V^* \rightarrow K \rightarrow J^*\]
   \[E \rightarrow T\]
62. \[R^* \rightarrow L^*\]
   \[K \rightarrow T\]

63. (Cricket | Badminton | Hockey)
   \[V, Q, R | Z, S, W | P, T\]

71. Refer the second-last sentence of the fourth paragraph.
72. Refer the second sentence of the last paragraph.
73. Refer the third paragraph.
74. The author begins with the attitude in ‘the past decade’ and talks about the future ‘imperatives’.
75. Refer the last sentence of the first paragraph.
76. In the last paragraph the author’s tone is critical.
77. Refer the last two sentences of the second paragraph.
78. Refer the fourth sentence of the fourth paragraph.
79. Put ‘are’ after ‘companies’ because in the relative clause verb is missing.
80. Replace ‘binding’ with ‘bound’. (Binding = obligatory, Bound = sure)
81. Replace ‘reaches’ with ‘reached’.
82. Replace ‘have’ with ‘are’.
83. Use ‘to’ after ‘not’ (ought to = should).)
84. Replace ‘proper’ with ‘properly’.
85. Replace ‘about’ with ‘of’.
86. Replace ‘have’ with ‘has’ because the subject is ‘motivating’.
87. Replace ‘raising’ with ‘raised’.
88. Replace ‘being tried’ with ‘trying’ because the verb should be in active.
89-93: Final sequence is GDBECFA