CAT 1994

Section – I

Q1 - 5: Arrange sentences A, B, C and D between sentences 1 and 6 to form a logical sequence of six sentences.

1. 1. It is often said that good actors can get out of play more than the author has put into it.
   A. A good actor, bringing to a part his own talent, often gives it a value that the layman on reading the play had not seen in it, but at the utmost he can do no more than reach the ideal that the author has seen in his mind's eye.
   B. In all my plays I have been fortunate enough to have some of the parts acted as I wanted; but in none have I had all the parts so acted.
   C. That is not true.
   D. He has to be an actor of address to do this; for the most part the author has to be satisfied with an approximation of the performance he visualized.
   6. This is obviously inevitable, for the actor who is suited to a certain role may well be engaged and you have to put up with the second or third best, because there is no help for it.

   (a) BACD (b) DACB (c) CADB (d) DCBA

2. 1. I can think of no serious prose play that has survived the generation that gave it birth.
   A. They are museum pieces.
   B. They are revived now and then because a famous part tempts a leading actor, or a manager in want of a stop-gap thinks he will put on a play on which he has no loyalties to pay.
   C. A few comedies have haphazardly traveled down a couple of centuries or so.
   D. The audience laugh at their wit with politeness and at their farce with embarrassment.
   6. They are not held nor taken out of themselves.

   (a) CDBA (b) CBAD (c) ABDC (d) BACD

3. 1. The wind had savage allies.
   A. If it had not been for my closely fitted helmet, the explosions might have shattered my eardrums.
   B. The first clap of thunder came as a deafening explosion that literally shook my teeth.
   C. I didn't hear the thunder, I actually felt it – an almost unbearable physical experience.
   D. I saw lighting all around me in every shape imaginable.
   6. It was raining so torrentially that I thought I would drown in mid air.

   (a) BCAD (b) CADB (c) CBDA (d) ACDB

4. 1. All human beings are aware of the existence of a power greater than that of the mortals – the name given to such a power by individuals is an outcome of birth, education and choice.
   A. Logically, therefore such a power should be remembered in good times also.
   B. Their other philanthropic contributions include the construction and maintenance of religious places such as temples or gurudwaras.
   C. Industrial organizations also contribute to the veneration of this power by participating in activities such as religious ceremonies and festivities organized by the employees.
   D. This power provides an anchor in times of adversity, difficulty and trouble.
   6. The top management/managers should participate in all such events, irrespective of their personal choice.

   (a) CADB (b) BCAD (c) DACB (d) DBCA

5. 1. A thorough knowledge of the path or course to be followed is essential for achieving success.
   A. Seniors must show the path clearly by laying down the precise expectations of the management in terms of job description, key result areas and personal targets.
   B. They should also 'light the path' by personal example.
   C. Advice tendered or help offered must be objectively evaluated for its effectiveness in achieving the desired goal.
   D. A display of arrogance and a false sense of 'self-worth', in order to belittle those who come to help prove dysfunctional.
   6. The individuality of each employee must be respected.

   (a) CDAB (b) CADB (c) BADC (d) ABCD

Q6 - 10: In each of the following questions, the answer choices suggest alternative arrangements of four sentences A, B, C and D. Choose the alternative which suggests a coherent paragraph.

6. A. To have settled one's affairs is a very good preparation to leading the rest of one's life without concern for the future.
   B. When I have finished this book I shall know where I stand.
   C. One does not die immediately after one has made one's will; one make's one's will as a precaution.
   D. I can afford then to do what I choose with the years that remain to me.

   (a) DBAC (b) CABD (c) BDAC (d) CBDA

7. A. It is sad that India has always been in a hurry to conform to the western thought, especially the American.
   B. Even the smaller countries have the guts to take a firm contrarian stand if they feel the policies happen to compromise their country's interest.
   C. It's one thing to sprout theories on liberalization, and entirely another to barter the interests of the nation in it's name.
   D. In this case too, while a large number of countries are yet to ratify the GATT, India has not only ratified the treaty, but is also preparing to amend the Patents Act.

   (a) CABD (b) DCAB (c)CBDA (d) BDCA

8. A. But instead you are faced with another huge crag and the weary trail continues.
   B. No, the path wind on and another mountain bars your way.
   C. When for days you have been going through a mountain pass, a moment comes when you are sure that after winding around the great mass of rock in front of you, you will come upon the plain.
   D. Surely after this you will see the plain.

   (a) CDBA (b) BADC (c) CADB (d) BCAD

9. A. During one exhibition, however, some air became mixed with the hydrogen, and in the words of the shaken performer: "The explosion was so dreadful that I imagined all my teeth had been blown out!"
   B. An entertainer would finish his acts by blowing the hydrogen he had inhaled towards a lighted candle; as the hydrogen caught fire, flames would shoot menacingly from his lips.
   C. A paper bag filled with hydrogen amazed guests by zooming off into space.
   D. When people learned about its unique lighter-than-air property, they began to use it in all sorts of parlor stunts.

   (a) DCBA (b) DBAC (c) CABD (d) ACBD

10. A. It is exciting and various.
    B. I am a writer as I might have been a doctor or a lawyer.
    C. The writer is free to work in what he believes.
    D. It is so pleasant a profession that it not surprising if a vast number of persons adopt it who have no qualifications for it.

    (a) CADB (b) ABDC (c) DBCA (d) BDAC

Q11 – 15: four statements with blanks have been given. These statements are followed by four alternatives. Choose the one which fits into the set of statements the maximum number of times.

11. A. Professional studies has become the _____ of the rich.
    B. Every citizen has the _____ to speak, travel and live as he pleases.
    C. He has a definite _____ over all his rivals.
    D. Sheron no longer has the _____ of the company's bungalow and car.

    (a) advantage (b) privilege (c) right (d) concession

12. A. People sensed _____.
    B. A bad _____ case had come in – a person with a smashed arm.
    C. And then, without warning, _____ struck.
    D. The dogs were the first to recognize the signs of oncoming _____.

    (a) tragedy (b) accident (c) disaster (d) calamity

13. A. The men there have fought _____ and emotional withdrawal, and were more capable of helping Jim.
B. But _____ does occasionally inflict all the adults.
C. A person who is deeply hurt feels very _____.
D. It is hard to survive this feeling of _____.

(a) dejection (b) lonely (c) trouble (d) depression

14. A. I have had a small power of _____.
B. Down with a very high fever, he suffers from frequents fits of _____.
C. They are now bitter enemies – all because of a small _____.
D. Her _____ is the most creative thing she has ever possessed.

(a) illusion (b) imagination (c) hallucination (d) misunderstanding

15. A. Communism states that every individual must live for the _____.
B. The _____ of the affairs of the nation is deplorable.
C. _____ have been laid down by the United States : states The Statesman.
D. No _____ has succeeded in gaining complete autonomy from the Federal government.

(a) state (b) nation (c) government (d) condition

Q16 - 18: From the given alternatives, select the one in which the pairs of words have a relationship similar to the one between the bold words.

16. lying : perjury
(a) statement : testimony (b) seeing : observing
(c) taking : stealing (d) eating : dining

17. prehistoric : medieval
(a) Akbar : British (b) present : future
(c) Shakesphere : Tennyson (d) colossus : elephant

18. loud : stentorian
(a) mild : noisy (b) painful : prickly
(c) adjective : descriptive (d) bright : resplendent

Q19 – 23 : four parts of a sentence have been given. From the alternatives, find the combination which best gives a meaningful sentence.

19. A. there was the hope that in another existence a greater happiness would reward one
B. previous existence, and the effort to do better would be less difficult too when
C. it would be less difficult to bear the evils of one's own life if
D. one could think that they were but the necessary outcome of one's errors in a

(a) CABD (b) BDCA (c) BADC (d) CDBA

20. A. he can only renew himself if his soul
B. he renews himself and
C. the writer can only be fertile if
D. is constantly enriched by fresh experience

(a) CBAD (b) CADB (c) BDCA (d) BACD

21. A. but a masterpiece is
B. untaught genius
C. a laborious career than as the lucky fluke of
D. more likely to come as the culminating point of

(a) CDAB (b) ADCB (c) CDBA (d) ACDB

22. A. what interests you is the way in which you have a created the illusion
B. they are angry with you, for it was
C. the public is easily disillusioned and then
D. the illusion they loved; they do not understand that

(a) ACBD (b) BDCA (c) CBDA (d) BCAD

23. A. an adequate physical and social infrastructure level
B. the pattern of spatial growth in these towns as also to
C. the failure of the government to ensure
D. the roots of the riots are related to
(a) ACBD (b) DBCA (c) ABDC (d) CBDA

Q24 - 30 : Fill in the blanks of the following sentences using one from the words, idioms or phrases provided in the four alternatives.

24. One dark night a Darvesh _____ passing by a dry well.
(a) wasn't (b) happened to be (c) discovered in (d) found to

25. Nordisk have recently _____ a product called Glucometer.
(a) started (b) commissioned (c) launched (d) begun

26. I had already published a novel and it was an unexpected success. I thought my _____.
(a) days were up (b) chances were good
(c) ladyluck was happy (d) fortune was made

27. The neighbour grabbed the boy, and rolled him on the road to _____ the flames.
(a) smother (b) kill (c) burn out (d) fizz out

28. Sam asked me to keep his secret _____.
(a) secret (b) in myself (c) amongst us (d) between us

29. Sometimes the greatest inventions _____ an idea of starting simplicity
(a) stumbles upon (b) hinge upon (c) starves without (d) lacks

30. Real friends, genuinely wanting the best for the organization, _____different garbs.
(a) come in (b) clad in (c) dressed in (d) clothed in

Q31 – 40 : From the alternatives, choose the one which correctly classifies the four sentences as a
F : Fact : If it relates to a known matter of direct observation, or an existing reality or something known to be true.

J : Judgement : If it is an opinion or estimate or anticipation of common sense or intention.
I : Inference : If it is a logical conclusion or deduction about something based on the knowledge of facts.

31. A. If India has embarked on the liberalization route, she cannot afford to go back.
B. Under these circumstances, being an active supporter of WTO policies will be a good idea.
C. The WTO is a truly global organization aiming at freer trade.
D. Many member countries have already drafted plans to simplify tariff structures.

(a) FJFI (b) IFJF (c) IJFF (d) IFIF

32. A. The Minister definitely took the wrong step.
B. Under the circumstances, he had many other alternatives.
C. The Prime Minister is embarrassed due to the Minister's decision.
D. If he has put the government in jeopardy, the Minister must resign.

(a) JFFI (b) IFJI (c) FFJI (d) IFIJ

33. A. The ideal solution will be to advertise aggressively.
B. One brand is already popular amongst the youth.
C. Reducing prices will mean trouble as our revenues are already dwindling.
D. The correct solution will be to consolidate by aggressive marketing.

(a) JFIJ (b) FJJI (c) IJFF (d) JJIF

34. A. If democracy is to survive the people must develop a sense of consumerism.
B. Consumerism has helped improve the quality of goods in certain countries.
C. The protected environment in our country is helping the local manufacturers.
D. The quality of goods suffers if the manufacturers take undue advantage of this.

(a) IJFJ (b) JFJI (c) IJJF (d) IFJJ

35. A. Unless the banks agree to a deferment of the interest, we cannot show profits this year.
B. This would not have happened had we adopted a stricter credit scheme.
C. The revenues so far cover only the cost and salaries.
D. Let us learn a lesson: we cannot make profits without complete control over credit.

(a) IIJF (b) IJFI (c) FJIF (d) FJFI

36 A. Qualities cannot be injected into one's personality.
B. They are completely dependent on the genetic configuration that one inherits.
C. Hence changing our inherent traits is impossible as the genes are unalterable.
D. The least one can do is to try and subdue the "bad qualities".

(a) FIJI (b) JFFI (c) JFIJ (d) JIFI

37. A. Everything is purposeless.
B. Nothing before and after the existence of the universe is known with certainty.
C. Man is a part of the purposeless universe; hence man is also purposeless.
D. There is only one way of adding purpose to this universe: Union with Him.

(a) JFIJ (b) FJJI (c) JFFI (d) IJFJ

38. A. Everyday social life is impossible without interpersonal relationships.
B. The root of many misunderstandings has been cited in poor relations among individuals.
C. Assuming the above to be true, social life will be much better if people understand the importance of good interpersonal relations.
D. A study reveals that interpersonal relations and hence life in general can be improved with a little effort on the part of individuals.

(a) FJIJ (b) JFIF (c) FIFJ (d) IFFJ

39. A. The prices of electronic goods are falling.
B. Sine we have substantial reductions in import duties, this is obvious.
C. The trend is bound to continue in the near future.
D. But the turnover of the electronic industry is still rising, because the consumers are increasing at a rapid rate.

(a) IFJF (b) FJII (c) FIJF (d) JIFF

40. A. In the past, it appears, wealth distribution, and not wealth creation has dominated the economic policy.
B. Clearly, the government has not bothered to eradicate poverty.
C. Today's liberalization is far from the hitherto Nehruvian socialism.
D. Results are evident I n the form of a boom in the manufacturing sector output and turnover of all industries.

(a) FJIF (b) FIFJ (c) IJIF (d) JIFF

Q41 - 50 : Each question contains six statements followed by four sets of combinations of three. Choose the set in which the combinations are logically related.

41. A. All vegetarians eat meat.
B. All those who eat meat are not vegetarians.
C. All those who eat meat are herbivorous.
D. All vegetarians are carnivorous.
E. All those who eat meat are carnivorous.
F. Vegetarians are herbivorous.

(a) BCE (b) ABE (c) ACD (d) ACF

42. A. All roses have thorns.
B. All roses have nectar.
C. All plants with nectar have thorns.
D. All shrubs have roses.
E. All shrubs have nectar.
F. Some roses have thorns.

(a) BEF (b) BCF (c) BDE (d) ACF

43. A. No spring is a season.
B. Some seasons are springs.
C. Some seasons are autumns.
D. No seasons are autumns.
E. Some springs are not autumns.
F. All springs are autumns.

(a) DFA (b) BEF (c) CEB (d) DEB

44. A. All falcons fly high.
B. All falcons are blind.
C. All falcons are birds.
D. All birds are yellow.
E. All birds are thirsty.
F. All falcons are yellow.

(a) ABC (b) CDF (c) DEF (d) BCA

45. A. No wires are hooks.
B. Some springs are hooks.
C. All springs are wires.
D. Some hooks are not wires.
E. No hook is a spring.
F. All wires are springs.

(a) AED (b) BCF (c) BEF (d) ACE

46. A. Some abra are dabra.
B. All abra are cabra.
C. All dabra are abra.
D. All dabra are not abra.
E. Some cabra are abra.
F. Some cabra are dabra

(a) AEF (b) BCF (c) ABD (d) BCE

47. A. No plane is a chain.
B. All manes are chains.
C. No mane is a plane.
D. Some manes are not planes.
E. Some planes are manes.
F. Some chains are not planes.

(a) ACD (b) ADF (c) ABC (d) CDF

48. A. All dolls are nice.
B. All toys are nice.
C. All toys are dolls.
D. Some toys are nice.
E. Some nice things are dolls.
F. No doll is nice.

(a) CDE (b) CEF (c) ACD (d) BEF

49. A. Some buildings are not sky-scrappers.
B. Some sky-scrappers are not buildings.
C. No structure is a sky-scrapper.
D. All sky-scrappers are structures.
E. Some sky-scrappers are buildings.
F. Some structures are not buildings.

(a) ACE (b) BDF (c) CDE (d) ACF

50. A. All bins are buckets.
B. No bucket is a basket.
C. No bin is a basket.
D. Some baskets are buckets.
E. Some bins are baskets.
F. No basket is a bin.

(a) BDE (b) ACB (c) CDF (d) ABF

Section – II

Q51 – 90 : Choose the best alternative.

51. The number of votes not cast for the Praja Party increased by 25% in the National General Election over those not cast for it in the previous Assembly Polls, and the Praja Party lost by a majority twice as large as that by which it had won the Assembly Polls. If a total 2,60,000 people voted each time. How many voted for the Praja Party in the Assembly Elections.
(a) 1,10,000 (b) 1,50,000 (c) 1,40,000 (d) 1,20,000

Q52 – 54 : are based on the following information:

Ghoshbabu is staying at Ghosh Housing Society, Aghosh Colony, Dighospur , Calcutta. In Ghosh Housing Society 6 persons read daily Ganashakti and 4 read Anand Bazar Patrika; in his colony there is no person who reads both. Total number of persons who read these two newspapers in Aghosh Colony and Dighospur is 52 and 200 respectively. Number of persons who read Ganashakti in Aghosh Colony and Dighospur is 33 and 121 respectively; while the persons who read Anand Bazar Patrika in Aghosh Colony and Dighospur are 32 and 117 respectively.

52. Number of persons in Dighospur who read only Ganashakti is
(a) 121 (b) 83 (c) 79 (d) 127

53. Number of persons in Aghosh Colony who read both of these newspapers is
(a) 13 (b) 20 (c) 19 (d) 14

54. Number of persons in Aghosh Colony who read only one paper
(a) 29 (b) 19 (c) 39 (d) 20

55. If $\log_7 \log_5 \left(\sqrt{x+5}+\sqrt{x}\right)=0$, find the value of *x*.
(a) 1 (b) 0 (c) 2 (d) None of these

56. A right circular cone, a right circular cylinder and a hemisphere, all have the same radius, and the heights of the cone and cylinder equal to their diameters. Then their volumes are proportional, respectively to
(a) 1 : 3 : 1 (b) 2 : 1 : 3 (c) 3 : 2 : 1 (d) 1 : 2 : 3

57. Two towns A and B are 100 km apart. A school is to be built for 100 students of town B and 30 students of Town A. Expenditure on transport is Rs. 1.20 per km per student. If the total expenditure on transport by all 130 students is to be as small as possible, then the school should be built at
(a) 33 km from Town A. (b) 33 km from Town B
(c) Town A (d) Town B

58. One man can do as much work in one day as a woman can do in 2 days. A child does one third the work in a day as a woman. If an estate-owner hires 39 pairs of hands, men, women and children in the ratio 6 : 5 : 2 and pays them in all Rs. 1113 at the end of the days work. What must the daily wages of a child be, if the wages are proportional to the amount of work done?
(a) Rs.14 (b) Rs.5 (c) Rs.20 (d) Rs.7

59. A right circular cone of height h is cut by a plane parallel to the base and at a distance h/3 from the base, then the volumes of the resulting cone and the frustum are in the ratio
(a) 1 : 3 (b) 8 : 19 (c) 1 : 4 (d) 1 : 7

60. If $a + b + c = 0$, where $a \neq b \neq c$, then $\frac{a^2}{2a^2+bc} + \frac{b^2}{2b^2+ac} + \frac{c^2}{2c^2+ab}$ is equal to
(a) zero (b) 1 (c) –1 (d) *abc*

61. If the harmonic mean between two positive numbers is to their geometric mean as 12 : 13; then the numbers could be in the ratio
(a) 12 : 13 (b) 1/12 : 1/13 (c) 4 : 9 (d) 2 : 3

62. If one root of $x^2 - 7 + 12 = 0$ is 4, while the equation $x^2 - 7x + q = 0$ has equal roots, then the value of *q* is
(a) $\frac{49}{4}$ (b) $\frac{4}{49}$ (c) 4 (d) $\frac{1}{4}$

Q63 – 64 : are based on the following information:

If $md(x) = |x|$,

$mn(x,y) =$ minimum of *x* and *y* and

$Ma(a,b,c,...) =$ maximum of *a,b,c…*

63. Value of $Ma\left[md(a), mn\left(md(b), a\right), mn\left(ab, md(ac)\right)\right]$ where $a = -2$, $b = -3$, $c = 4$ is
(a) 2 (b) 6 (c) 8 (d) –2

64. Given that $a > b$ then the relation $Ma[md(a), mn(a,b)] = mn[a, md(Ma(a,b)))]$ does not hold if
(a) $a < 0, b < 0$ (b) $a > 0, b > 0$
(c) $a > 0, b < 0, |a| < |b|$ (d) $a > 0, b < 0, |a| > |b|$

65. A water tank has three taps A, B, and C. A fills four buckets in 24 minutes, B fills 8 buckets in 1 hour and C fills 2 buckets in 20 minutes. If all the taps are opened together a full tank is emptied in 2 hours. If a bucket can hold 5 litres of water, what is the capacity of the tank?
(a) 120 litres (b) 240 litres (c) 180 litres (d) 60 litres

66. Shyam went from Delhi to Shimla via Chandigarh by car. The distance from Delhi to Chandigarh is $\frac{3}{4}$ times the distance from Chandigarh to Shimla. The average speed from Delhi to Chandigarh was half as much again as that from Chandigarh to Shimla. If the average speed for the entire journey was 49 kmph. What was the average speed from Chandigarh to Shimla?
(a) 39.2 kmph (b) 63 kmph (c) 42 kmph (d) None of these

67. Fourth term of an arithmetic progression is 8. What is the sum of the first 7 terms of the arithmetic progression?
(a) 7 (b) 64 (c) 56 (d) Cannot be determined

68. It takes the pendulum of a clock 7 seconds to strike 4 o'clock. How much time will it take to strike 11 o'clock?
(a) 18 seconds (b) 20 seconds (c) 19.25 seconds (d) 23.33 seconds

69. Along a road lie an odd number of stones placed at intervals of 10m. These stones have to be assembled around the middle stone. A person can carry only one stone at a time. A man carried out the job starting with the stone in the middle, carrying stones in succession, thereby covering a distance of 4.8 km. Then the number of stones is
(a) 35 (b) 15 (c) 29 (d) 31

70. What is the smallest number which when increased by 5 is completely divisible by 8, 11 and 24?
(a) 264 (b) 259 (c) 269 (d) None of these

71. A man buys spirit at Rs. 60 per litre, adds water to it and then sells it at Rs. 75 per litre. What is the ratio of spirit to water if his profit in the deal is 37.5%?
(a) 9 : 1 (b) 10 : 1 (c) 11 : 1 (d) None of these

72. Four friends start from four towns, which are at the four corners of an imaginary rectangle. They meet at a point which falls inside the rectangle, after travelling distances of 40, 50 and 60 metres. The maximum distance that the fourth could have traveled is (approximately) ….
(a) 67 metres (b) 52 metres (c) 22.5 metres (d) Cannot be determined

73. A and B walk from X to Y, a distance of 27 km at 5 kmph and 7 kmph respectively. B reaches Y and immediately turns back meeting A at Z. What is the distance from X to Z?
(a) 25 km (b) 22.5 km (c) 24 km (d) 20 km

Q74 – 76 : are based on the following information:
Alphonso, on his death bed, keeps half his property for his wife and divide the rest equally among his three sons Ben, Carl and Dave. Some years later Ben dies leaving half his property to his widow and half to his brothers Carl and Dave together, shared equally. When Carl makes his will he keeps half his property for his widow and the rest he bequeaths to his younger brother Dave. When Dave dies some years later, he keeps half his property for his widow and the remaining for his mother. The mother now has Rs. 1,575,000.

74. What was the worth of the total property?
(a) Rs. 30 lakh (b) Rs. 8 lakh (c) Rs. 18 lakh (d) Rs.24 lakh

75. What was Carl's original share?
(a) Rs. 4 lakh (b) Rs. 12 lakh (c) Rs. 6 lakh (d) Rs. 5 lakh

76. What was the ratio of the property owned by the widows of the three sons, in the end?
(a) 7 : 9 : 13 (b) 8 : 10 : 15 (c) 5 : 7 : 9 (d) 9 : 12 : 13

77. $\log_6 216\sqrt{6}$ is

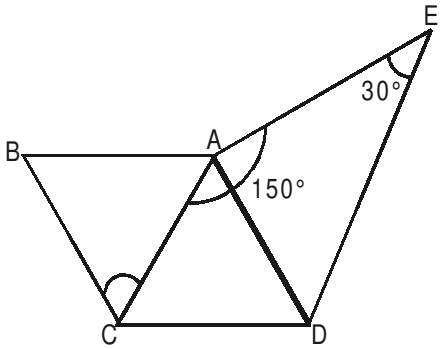
(a) 3 (b) $\frac{3}{2}$ (c) $\frac{7}{2}$ (d) None of these

78. There is a leak in the bottom of the tank. This leak can empty a full tank in 8 hours. When the tank is full, a tap is opened into the tank which admits 6 litres per hour and the tank is now emptied in 12 hours. What is the capacity of the tank?
(a) 28.8 litres (b) 36 litres (c) 144 litres (d) Cannot be determined

79. Which is the least number that must be subtracted from 1856, so that the remainder when divided by 7, 12, and 16 is 4.
(a) 137 (b) 1361 (c) 140 (d) 172

80. A dealer offers a cash discount of 20% and still makes a profit of 20%, when he further allows 16 articles to a dozen to a particularly sticky bargainer. How much percent above the cost price were his wares listed?
(a) 100% (b) 80% (c) 75% (d) 66 2/3%

Q81 – 85 : Data is provided followed by two statements – I and II – both resulting in a value, say I and II. As your answer,
Mark (a) if I > II.
Mark (b) if I < II.
Mark (c) if I = II.
Mark (d) if nothing can be said.

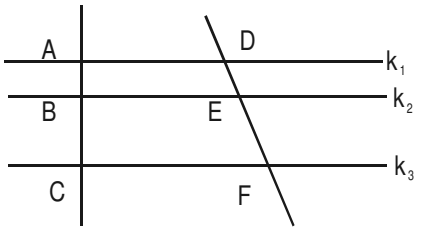


81. Nineteen year from now Jackson will be 3 times as old as Joseph is now. Johnson is three years younger than Jackson.
I. Johnson's age now.
II. Joseph's age now.

82. In ΔACD, AD = AC and $\angle C = 2\angle E$. The distance between parallel lines AB and CD is h. Then
I. Area of parallelogram ABCD
II. Area of ΔADE

83. Last week Martin received $ 10 in commission for selling 100 copies of a magazine. Last week Miguel sold 100 copies of this magazine. He received his salary of $ 5 per week plus a commission of 2 cents for each of the first 25 copies sold, 3 cents for each of next 25 copies sold and 4 cents for each copy thereafter. ($1 = 100 cents).
I. Martin's commission in the last week.
II. Miguel's total income for last week.

84. k_1, k_2, k_3 are parallel lines. AD = 2 cm, BE = 8 cm and CF = 32 cm.



I. (AB) × (EF)
II. (BC) × (DE)

85. I. The probability of encountering 54 Sundays in a leap year.
II. The probability of encountering 53 Sundays in a non-leap year.

86. The winning relay team in a high school sports competition clocked 48 minutes for a distance of 13.2 km. Its runners A, B, C and D maintained speeds of 15 kmph, 16 kmph, 17 kmph, and 18 kmph respectively. What is the ratio of the time taken by B to than taken by D?
(a) 5 : 16 (b) 5 : 17 (c) 9 : 8 (d) 8 : 9

Q87 – 90 : are based on the following information:

If $f(x) = 2x + 3$ and $g(x) = \frac{x-3}{2}$, then

87. *fog*(x) is equal to

(a) 1 (b) gof(x) (c) $\frac{15x+9}{16x-5}$ (d) $\frac{1}{x}$

88. For what value of *x*; $f(x) = g(x-3)$?

(a) –3 (b) $\frac{1}{4}$ (c) –4 (d) None of these.

89. What is the value of (gofofogogof) (x) (fogofog)(x)?

(a) x (b) x^2 (c) $\frac{5x+3}{4x-1}$ (d) $\frac{(x+3)(5x+3)}{(4x-5)(4x-1)}$

90. What is the value of fo(fog)o(gof)(x)?

(a) x (b) x^2 (c) 2x + 3 (d) $\frac{x+3}{4x-5}$

Q91 to 100 : Each of these items has a question followed by two statements. As the answer,
Mark (a), If the question can be answered with the help of statement I alone,
Mark (b), If the question can be answered with the help of statement II, alone,
Mark (c), If both, statement I and statement II are needed to answer the question, and
Mark (d), If the question cannot be answered even with the help of both the statements.

91. Is the distance from the office to home less than the distance from the cinema hall to home?
   I. The time taken to travel from home to office is as much as the time taken from home to the cinema hall, both distance being covered without stopping.
   II. The road from the cinema hall to home is bad and speed reduces, as compared to that on the road from home to the office.

92. A and B work at digging a ditch alternately for a day each. If A can dig a ditch in *'a'* days and B can dig that ditch in '*b*' days, will work get done faster if A begins the work?

   I. n is a positive integer such that $n\left(\frac{1}{a}+\frac{1}{b}\right)=1$

   II. b > a

93. If twenty sweets are distributed among some boys and girls such that each girl gets two sweets and each boy gets three sweets, what is the number of boys and girls?
   I. The number of girls is not more than five.
   II. If each girl gets 3 sweets and each boy gets 2 sweets, the number of sweets required for the children will still be the same.

94. If the selling price were to be increased by 10%, the sales would reduce by 10%. In what ratio would profits change?
   I. The cost price remains constant.
   II. The cost price increased 10%.

95. What is the average weight of the 3 new team members who are recently included into the team?
   I. The average weight of the team increases by 20 kg.
   II. The 3 new men substitute earlier members whose weights are 64 kg, 75 kg and 66 kg.

96. Is segment PQ greater than segment RS?
   I. $PB > RE, BQ = ES$.
   II. B is a point on PQ, E is a point on RS.

97. Three boys had a few coffee Bite toffees with them. The number of toffees with the second were four more than those with the first and the number of toffees with the third were four more than those with the second. How many toffees were there in all?
    I. The number of toffees with each of them is a multiple of 2.
    II. The first boy ate up four toffees from what he had and the second boy ate up six toffees from what had and the third boy gave them two toffees each from what he had and the number of toffees remaining with each of them formed a geometric progression.

98. Little Beau Peep lost her sheep. She couldn't remember how many were there. She knew she would have 400 more next year, than the number of sheep she had last year. How many sheep were there?
    I. The number of sheep last year was 20% more than the year before that and this simple rate of increase continues to be the same for the next 10 years.
    II. The increase is compounded annually.

99. What will be the total cost of creating a 1- foot border of tiles along the inside edges of a room?
    I. The room is 48 feet in length and 50 fet in breadth.
    II. Every tile costs Rs. 10.

100. Ten boys go to a neighbouring orchard. Each boy steals a few mangoes. What is the total number of mangoes they steal?
    I. The first boy steals 4 mangoes and the fourth boy steals 16 mangoes and the eight boy 32 mangoes and the tenth boy steals 40 mangoes.
    II. The first boy stole the minimum number of mangoes and the tenth boy stole the maximum number of mangoes.

Section – III

Passage – 1

The communities of ants are sometimes very large, numbering even up to 500, individuals: and it is a lesson to us that no one has ever yet seen quarrel between any two ants belonging to the same community. On the other hand, it must be admitted that they are in hostility not only with most other insects, including ants of different species, but even with those of the same species if belonging to different communities. I have over and over again introduced ants from one of my nests into another nest of the same species; and they were invariably attacked, seized by a leg or an antenna, and dragged out.

It is evident, therefore, that the ants of each community all recognize one another, which is very remarkable. But more than this, I several times divided a nest into two halves and found that even after separation of a year and nine months they recognize one another and were perfectly friendly, while they at once attacked ants from a different nest, although of the same species.

It has been suggested that the ant of each nest have some sign or password by which they recognize one another. To test this I made some of them insensible, first I tried chloroform; but this was fatal to them, and I did not consider the test satisfactory. I decided therefore to intoxicate them. This was less easy than I had expected. None of my ants would voluntarily degrade themselves by getting drunk. However, I got over the difficulty by putting them into whisky for a few moments. I took fifty specimens - - twenty five percent from one nest and twenty five percent from another made them dead drunk, market each with a spot of paint, and put them on a table close to where other ants from one the nests were feeding. The table was surrounded as usual with a moat of water to prevent them from straying. The ants, which were feeding, soon noticed those, which I had made drunk. They seemed quite astonished to find their comrades in such a disgraceful condition, and as much at a loss to know what to do with their drunkards as we were. After a while, however, they carried them all away; the strangers they took to the edge of the moat and dropped into the water, while they bore their friends home into the nest, where by degrees they slept off the effects of the spirits. Thus it is evident that they know their friends even when incapable of giving any sign or password.

101. An appropriate title for this passage might be
(a) Nature's Mysteries
(b) Human Qualities in the Insect world
(c) Drunken Ants
(d) Communication in Ant Communities

102. Attitudes of ants towards strangers of the same species may be categorized as
(a) indifferent (b) curious (c) hostile (d) passive

103. The author's anecdotes of the inebriated ants would support all the following inductions except the statement that
(a) ants take unwillingly to intoxicants
(b) ants aid comrades in distress
(c) ants have invariable recognition of their community members
(d) ants recognize their comrades by a mysterious password.

104. According to the passage, chloroform was less successful than alcohol for inhibiting communication because of
(a) its expense (b) its unpredictable side effects
(c) its unavailability (d) its fatality

105. Although the author is a scientist, his style of writing also exhibits a quality of
(a) sophistry (b) whimsy (c) hypocrisy (d) tragedy

Passage – 2

Compared with other experimental sciences, astronomy has certain limitations. First, apart from meteorites, the Moon, and the nearer planets, the objects of study are inaccessible and cannot be manipulated, although nature sometimes provides special conditions, such as eclipses and other temporary effects. The astronomer must content himself with studying radiation emitted or reflected from celestial bodies.

Second, from the Earth's surface these are viewed through a thick atmosphere that completely absorbs most radiation except within certain "windows", wavelength regions in which the radiation can pass through the atmosphere relatively freely in the optical, near-infrared, and radio bands of the electromagnetic spectrum; and even in these windows the atmosphere has considerable effects. For light, these atmospheric effects are as follows: (1) some absorption that dims the radiation somewhat, even in a clear sky; (2) refraction, which causes slight shift in the direction so that the object appears in a slightly different place; (3) scintillation (twinkling); i.e., fluctuations in brightness of effectively point – like sources such as stars, fluctuations that are, however, averaged out for objects with larger images, such as planets (the ionosphere, an ionized layer high in the atmosphere, and interplanetary medium have similar effects on radio sources); (4) image movement because of atmospheric turbulence ("bad seeing") spreads the image of a tiny point over an angle of nearly one arc second or more on the celestial sphere (one arc second equals 1/3, 600 degrees); and (5) background light from the night sky. The obscuring effects of the atmosphere and its clouds are reduced by placing observing stations on mountains, preferably in desert regions (e.g., southern California and Chile), and away from city lights. The effects are eliminated by observing from high-altitude aircraft, balloons, rockets, space probes, and artificial satellites. From stations all or most of the atmosphere, gamma rays and X-rays-that is, high-energy radiation at extremely short wave-lengths and far-ultraviolet rays and far-infrared radiation, all completely absorbed by the atmosphere at ground level observatories can be measured, At radio wave-lengths between about one centimeter and 20 meters, the atmosphere (even when cloudy) has little effect, and man-made radio signals are the chief interference.

Third, the Earth is a spinning, shifting, and wobbling platform. Spin on its axis causes alternation of day and night and an apparent rotation of the celestial sphere with stars moving from east to west. Ground – based telescopes use a mounting that makes it possible to neutralize the rotation of Earth relative to the stars; with an equatorial mounting driven at a proper speed, the direction of the telescope tube can be kept constant for hours while the Earth turns under the mounting. Large radio telescopes usually have vertical and horizontal axes (altazimuth mounting), with their pointing continuously controlled by a computer.

In addition to the daily spin, there are much more gradual effects, called precession and nutation. Gravitational action of the Sun and Moon on the Earth's equatorial bulge causes the Earth's axis to process like a top or gyroscope, gradually tracing out a circle on the celestial sphere in about 26,000 years, and also to nutate or wobble slightly in a period of 18.6 years. The Earth's rotation and orbital motion provide the basic standard of directions of stars, so that uncertainties in the rate of these motions can lead to quite small but important uncertainties in measurements of stellar movements.

106. One of the type of radiations that cannot pass through the atmospheric 'windows' without distortion is
(a) near infra-red spectrum. (b) far-ultraviolet spectrum.
(c) optical band in the spectrum. (d) radio band in the spectrum.

107. One of the atmospheric effects earth – based experiments that is not mentioned in the passage is
(a) twinkling. (b) refraction.
(c) image movement. (b) clouds from volcano eruptions.

108. The purpose of telescope mounting is to neutralize
(a) atmospheric interference. (b) the effect of precession.
(c) the effect of nutation. (d) the effect of diurnal spinning.

109. The precession period of Earth is
(a) 24 hours (b) 365.25 days (c) 18.6 years (d) 26,000 years

110. Gravitational action of the Sun and the Moon on Earth causes
I. diurnal spinning
II. Precession
III. Nutation
(a) I only (b) I and II only (c) II and III only (d) I, II and III

111. The orbital motion of the Earth
(a) is partly caused by the moon. (b) can have uncertain rates.
(c) has a periodicity of 18.6 years. (d) is neutralized by telescope mounting.

112. The man-made radio signals have wave-lengths of
(a) more than 20 meters. (b) less than one centimeter.
(c) between one centimeter and 20 meters. (d) gamma rays.

Passage – 3

If American policy towards Europe in the postwar years had been a conspicuous success, and towards Asia a disappointing balance between success and failure, it could be said that the most conspicuous thing about relations with Latin America was the absence of any policy. Franklin Roosevelt, to be sure, had launched a "Good Neighbour" policy, but being a good neighbour was, it seemed, a negative rather than a positive affair, a matter of keeping hands off, of making the Monroe Doctrine, in form at least, multilateral. All through the postwar years, the states of Latin America - - Mexico and Chile were partial exceptions - - were in the throes of major economic and social crises. Population was growing faster than in any other part of the globe, without a comparable increase in wealth or productivity; the gap between the poor and the rich was widening; and as the rich and powerful turned to the military for the preservation of order and privilege, the poor turned to revolution.

Deeply involved in other quarters of the globe, the United States paid little attention to the fortunes or misfortunes of her neighbours to the south, and when she did intervene, it appeared to be on the side of order and the status quo rather than on the side of reform. So frightened was the United States of "Communism" in Latin America that it preferred military dictatorship to reformers who might drift too far to the "left", and

sustained a Batista in Cuba, a Trujillo in the Dominican Republic, a Peron in Argentina, and a Jimenez in Venezuela.

In his last two years, President Eisenhower had tried to mend his Latin American fences. Though rejecting a Brazilian proposal of a Marshall Plan for Latin America, he did take the initiative in setting up an Inter-American development Bank with a capital of one billion dollars, almost half of it supplied by the United States. Other government investments in Latin America ran to some four million dollars, while private investments exceeded nine billion. Yet though to most Americans, all this seemed a form of economic aid, many Latin Americans regarded it as economic imperialism. In September 1960, came a co-operative plan that could not be regarded as other than enlightened: the Act of Bogota, which authorized a grant of half a billion dollars to subsidize not only economic but social and educational progress in Latin America. "We are not saints", said President Eisenhower when he visited Santiago de Chile, "We know we make mistakes, but our heart is in the right place".

But was it? President Kennedy was confronted by the same dilemma that had perplexed his predecessors. Clearly it was essential to provide a large-scale aid to the countries south of Rio Grande, but should this aid go to bolster up established regimes and thus help maintain status quo, or should it be used to speed up social reforms, even at the risk of revolt? As early as 1958, the then Senator Kennedy had asserted that "the objective of our aid program in Latin America should not be to purchase allies, but to consolidate a free and democratic Western Hemisphere, alleviating those conditions which might foster opportunities for communistic infiltration and uniting our peoples on the basis of constantly increasing living standards".

This conviction that raising the standards of living was the best method of checking Communism now inspired President Kennedy's bold proposal for the creation of the alliance for progress - - a ten year plan designed to do for Latin America what Marshall Plan had done for Western Europe. It was to be "a peaceful revolution on a hemispheric scale, a vast co-operative effort, unparalleled in magnitude and nobility of purpose, to satisfy the basic needs of the American people for homes, work, land, health and schools. "To achieve this, the United States pleaded an initial grant of one billion dollars, with the promise of additional billions for the future.

113. Following World War II, which problem was the United States most concerned with regarding Latin America?
(a) Economic stability.
(b) Political ideology.
(c) Religious persecution.
(d) Military dictatorship.

114. A key reason why Latin Americans rejected the Inter-American development Bank was that
(a) it primarily provided money for social reform subsidies.
(b) the moneys provided were only for specific performance projects.
(c) it constituted an extension of the Marshall Plan into Latin America
(d) it was being used as a means to control the economic destiny of Latin America.

115. Which of the following is most closely associated with the concept of a Marshall Plan for Latin America?
(a) The Good Neighbour Policy.
(b) The Alliance for Progress.
(c) The Act of Bogota.
(d) The Monroe Doctrine.

116. According to the passage, the fundamental change in U.S. foreign policy directed towards Latin America
(a) resulted in a deterioration of U.S. Latin American relations.
(b) was responsible for Peron remaining as a dictator in Peru.
(c) recognized that economic aid alone would prevent social revolutions.
(d) provided for increased military and economic aid to prevent the spread of communism in Latin America.

117. Which of the following statements is not true?
(a) Mexico and Chile did not experience the general social crises that are common to the majority of Latin American countries.
(b) President Eisenhower continued in practice the theory that economic aid was the best defense against communist incursion into Latin America
(c) The Good Neighbour Policy favoured a multilateral interpretation of the Monroe Doctrine.
(d) The traditional U.S. approach in Latin America was to protect the status quo.

118. Which of the inferences can be drawn if everything said in the passage were assumed to be true?
(a) Rebellions are fuelled by social reforms and avoided by supporting established authorities or continuing the present state of affairs.
(b) The American policy towards Asia can be called an overall success, though small in magnitude.
(c) Kennedy, in 1958, wanted America to aid South American countries to acquire more support in their fight against communism.
(d) Eisenhower rejected the Marshall Plan, whereas Kennedy implemented a similar one.

Passage – 4

In order to better understand conservation in China, it is essential that one has a grasp of what the term "Chinese conservatism" means. Chinese conservatism is markedly different from the conservatism of the modern West. The political term "conservative" came about during the French Revolution and inspired men who were determined to preserve Christian and aristocratic elements in European society. Chinese conservatism began around the time of the Taiping Rebellion and had as its primary objectives the preservation of both Confucian society and non-feudal strains of pre-Opium War Chinese society. While western conservatism believes in sacredness of private property and distrust of cosmopolitanism, the Chinese conservatism is the defense of a rational cosmopolitan order. Thus, the only common area of agreement between European and Chinese conservatism is the intent to conserve.

During the Tung-chin Restoration, the great aim was the revival of Confucian values and institutions. But these aims had to be modified so that they might endure. Restoration statesmen had no desire to create a new society – they wanted to restore a society that they believed had been based on truth. The statesmen of the Restoration stretched the traditional ideology to its limits in an effort to make the Confucian system under new conditions. They were true conservatives in a great tradition, living in an age when revolutionary change was unavoidable. The aim of the Restoration was to restore to their original vitality the best of the ancient institutions. During the Restoration, the two immediate problems were the suppression of rebellion and the stabilization of foreign relations. In addition, the people were striving for a restoration of the system of government by superior civil officials.

The men in the hierarchy of the Restoration rose to prominence through proven ability in both civil and military affairs. They emphasized human and social training – that is, indoctrination, morality, and the art of leadership through the cultivation of character. The great majority of the officials rose through the examination system.

During the chaos of this period, the examination system had lost much of its effectiveness. This is important and must be noted because the examination system was the traditional avenue for selecting officials. The senior official of Restoration realized that their policies would be ineffective unless the quality of the junior official was improved, so it was their duty to weed out the officials who had attained office in irregular ways and to promote the examination system as the only way to high position. But these men of the Restoration had enough foresight to determine that it was impossible to select officials automatically on the basis of objective tests alone. As a result, the system of recommendation was ushered in, whereby; a high official sponsored the career of a promising young man. This acted as an important supplement to the examination system.

119. The traditional method for selecting officials was
(a) approximately by the civil government.
(b) the examination system.
(c) through a subjective testing system.
(d) sponsorship by a high government official.

120. A primary objective in the development of Restoration thought was
(a) to modify traditional Chinese society to reflect new conditions.
(b) to create a new society based on truth.
(c) the knowledge that Chinese conservatism is superior to western conservatism.
(a) the desire to familiarized China with military technology.

121. The major similarity between Chinese and western conservatism is
(a) that Chinese conservatism attempted to preserve traditions.
(b) that Chinese conservatism developed during the Taiping Revolution.
(c) the cosmopolitan nature of western conservatism.
(d) that Chinese conservatism is primarily land oriented.

122. The most significant Chinese philosopher mentioned in the passage is
(a) Tung-chin.
(b) I. Ching.
(c) Buddha
(d) None of the above.

123. During the Restoration, ancient institutions
(a) were no longer accepted as a viable alternative to western technology.
(b) were studied only as classical examples of a former glorious past.
(c) were to be the cornerstones of a changing but traditional society.
(d) were considered as a primary reason for the decline of traditional China.

124. The western conservatives intended to preserve all the following except
(a) Christianity.
(b) private property.
(c) cosmopolitanism.
(d) aristocratic elements.

125. The most appropriate title for the passage will be
(a) The Chinese examination system.
(b) Chinese Conservatism
(c) How the officials rose
(d) Impact of the Taiping Rebellion

Passage – 5

Every state has a constitution, since every state functions on the basis of certain rules and principles. It has often been asserted that the United States has a written constitution, but that the constitution of Great Britain is unwritten. This is true only in the sense that, in the United States, there is a formal document called the Constitution, whereas there is no such document in Great Britain. In fact, however, many parts of the British constitution exist in written form, whereas important aspects of the American constitution are wholly unwritten. The British constitution includes the bill of Rights (1689), the Act of Settlement (1700 – 01), the Parliament Act of 1911, the successive Representation of the People Acts (which extended the suffrage), the statutes dealing with the structure of the courts, the various local government acts, and many others. These are not ordinary statutes, even though they are adopted in the ordinary legislative way, and they are not codified within the structure of single orderly document. On the other hand, such institutions in the United States as the presidential cabinet and the system of political parties, though not even mentioned in the written constitution, are most certainly of constitutional significance. The presence or absence of a formal written document makes a difference, of course, but only one of degree. A single-document constitution has such advantages as greater precision, simplicity, and consistency. In a newly developing state as Israel, on the other hand, the balance of advantage has been found to lie with an uncodified constitution evolving through the growth of custom and the medium of statutes. Experience suggests that some codified constitutions are much too detailed. An overlong constitution invites disputes and litigation is rarely read or understood by the ordinary citizen and injects too much rigidity in cases in which flexibility is often preferable. Since a very long constitution says to many things on too many subjects, it must be amended often, and this makes it still longer. The United States Constitution of 7,000 words is a model of brevity, whereas many of that country's state constitutions are much too long - the longest being hat of the sate of Louisiana, whose constitution now has about 255,000 words. The very new, modern constitutions of the recently admitted states of Alaska and Hawaii and the Commonwealth of Puerto Rico have, significantly, very concise constitutions ranging from 9,000 to 15,000 words. The 1949 constitution of India, with 395 articles, is the wordiest of all national constitutions. In contract, some of the world's new constitutions, such as those of Japan and Indonesia, are very short indeed.

Some constitutions are buttressed by powerful institutions such as an independent judiciary, whereas other, though committed to lofty principles, are not supported by governmental institutions endowed with the authority to defend these principles in concrete situation. Accordingly, many juristic writers distinguish between "normative" and "normal" constitutions. A normative constitution is the one that not only has the status of supreme law but it also fully activated and effective; it is habitually obeyed in the actual life of the state. A nominal constitution may express high aspirations, but it does not, in fact, reflect the political realities of the state. Article 125 of the 1936 constitution of the Soviet Union and the article 87 of the 1954 constitution of the People's Republic of China both purport to guarantee freedom of speech, but in those countries even mild expressions of dissent are likely to be swiftly and sternly repressed. Where the written constitution is only nominal, behind the verbal façade will be found the real constitution containing the basic principles according to which power is exercised in actual fact. Thus in the Soviet Union, the rules of the Communist Party describing its organs and functioning are more truly the constitution of that country than are the grand phases of the 1936 Stalin constitution. Every state, in short has a constitution, but in

some, real constitution operates behind the façade of a nominal constitution.

126. The lengthiest constitution in the world is that of
(a) Great Britain.
(b) India
(c) Puerto Rico.
(d) Soviet Union.

127. The instance of a country without a written constitution mentioned in the passage is
(a) People's Republic of China
(b) Japan.
(c) Israel.
(d) Indonesia.

128. The unwritten parts of the US constitution deal with
(a) Courts.
(b) presidential cabinet.
(c) relationship between the Centre and the States.
(d) fundamental rights.

129. In the United States
(a) the newly admitted states have lengthy constitutions.
(b) the newly admitted states have concise constitutions.
(c) the political parties have no constitutional significance.
(d) the constitution can be termed 'normal'.

130. In countries with 'normative' constitutions
(a) there will be very little freedom of speech.
(b) there are effective instruments to enforce their provisions.
(c) political realities are different from what are enshrined in them.
(d) there are frequent amendments to them.

131. By 'normal' constitution, the author means
(a) a written constitution.
(b) one that contains lofty ideals.
(c) a lengthy constitution.
(d) a constitution that is not being enforced.

132. One of the drawbacks of a long constitution is
(a) its publication is expensive.
(b) it is difficult to understand.
(c) it may require to be amended frequently.
(d) it is difficult to enforce.

133. According to the author, the difference between a written and an unwritten constitution
(a) has no significance.
(b) is just one of degree.
(c) has been exaggerated by politicians.
(d) cannot be defined.

Passage – 6

An urgent problem is now threatening libraries throughout the world. Their collections, which are crucial for diverse purposes as economic development, educational research and recreational pursuits, are in danger of disintegrating.

The problem is mainly due to one cause – the type of paper on which books have been printed for the past one and a half centuries. Until the 1850s, paper was produced from linen or cotton rags and proved to be relatively long-lasting. In the mid-19th century, however, the popular demand for paper and the commercial need for an economic method of production led to the use of mechanically ground wood pulp. Paper manufactured for wood pulp is highly acidic and therefore inherently unstable. It contains lignin – a major factor in causing paper to discolour and disintegrate. The useful lifespan of most 20th-century book papers has been estimated to be no more than a few decades.

Libraries comprise an important part of the market for printed books and they are increasingly aware of the fragility of this material. The extent of the deterioration of library collections is alarming. Surveys conducted at various major institutions reveal that 26% to 40% of the books they hold are seriously embrittled and thus unavailable for normal use.

Programmes are now being developed with two main aims in mind – on the one hand, to improve the physical condition of library collections, especially by the process called 'mass de-acidification' (which is designed to eliminate acid from the paper of published books and insert a buffer compound that will provide protection against future acid attack from the environment); and on the other, to transfer the contents of existing books to another medium (such as microfilm or optical disk).

Libraries will only be able to carry out these special tasks with the assistance of other experts such as book conservators and high-technology specialists. But here is another group with whom librarians have traditionally enjoyed strong affinities and whose co-operation will be crucial if the problem of decaying collections is to be arrested – namely, the printing and publishing industries. The existing problem – that of book collections already assembled in libraries – is of vast proportions, but it is intensified by the continuing use of acid-based paper in book publishing. The key issue is how to preserve the books of the future, not simply those of the past.

If the future dimensions of the conservation problem are to be curbed, there will need to be widespread adoption of paper which is of archival quality.

This change does not relate to a narrowly perceived need because the long term preservation of library collections is important – both for the overall social benefits they bring as well as for the special advantages they bestow on the printing and publishing industries.

In the first place, libraries are of critical importance to the future well-being of citizens since they provide the knowledge base of society. They contain the record of humanity – the accumulation of ideas and insights and discoveries on which social effort and progress are possible. The destruction of libraries would represent an immense cultural loss, a form of amnesia which would affect every member of society.

In the second place, printers and publishers have an economic interest in turning to paper of archival quality. So long as the libraries are acquiring books with a short lifespan they will be forced to devote an increasing share of their budgets to conservation. These budgets are severely strained by the combined

impact of inflation and currency devaluation, and there is scarcely any prospect of enlarged government funding. As a result, libraries will be compelled to balance the preservation of their collections against the expansion of those collations. In short, the choice will be between conservation and acquisition – and the funds for conservation are likely to come from acquisition budgets. This unpalatable choice will damage both libraries and the printing and publishing industries and can only be minimized in its effects by a bold decision to convert to use of permanent paper.

134. The tone of the passage is one of
(a) informed concern.
(b) destructive criticism.
(c) derisive ridicule.
(d) helpless alarm.

135. The phrase 'archival quality' implies
(a) a smooth paper.
(b) thick paper.
(c) long-lasting paper.
(d) alkaline paper.

136. Wood-pulp as raw material for paper was developed because of
(a) the need to produce large quantities of paper.
(b) the shortage of linen.
(c) the need to develop non-acidic paper.
(d) scientific research.

137. If paper has to last long …
(a) it should be made of cotton rags.
(b) it should be non-acidic.
(c) it should be alkaline.
(d) preservatives must be used.

138. On of the reasons not mentioned in the passage in favour of producing long-lasting paper is
(a) it will help preserve the knowledge-base of society.
(b) it will enable more books to be brought by libraries.
(c) it will lead to more governmental allocation to libraries.
(d) it will help the publishing industry.

139. Purchase of new books by libraries are bound to be curtailed because of all the following reasons except
(a) drastic reduction in governmental funding.
(b) the need for spending more money for conservation of old books.
(c) the need to microfilm books.
(d) inflationary trends.

140. Continued use of wood-pulp paper in book will affect
I. libraries.
II. General public.
III. the publishing industry.
IV. The governments.
(a) I and III only (b) II and III only (c) I, II, III and IV (d) I, II, and III only

141. The substance which causes paper to discolour is
(a) acid. (b) linen. (c) lignin. (d) preservatives.

Passage – 7

The Japanese want their Emperor to reign for long, very long, but their Prime Ministers to have very short tenures. During the 61 years Hirohito has been on the Chrysanthemum throne, 38 Prime Ministers have come and gone (or at least 32, if returns to power are left out of account). Eisaku Sato's eight uninterrupted years as Prime Minister in the Sixties and early Seventies provoked fears about the possible ill-effects of one-man leadership on Japanese democracy, and led the dominant Liberal Democratic Party (LDP) to lay down the norm of a two-year for a party chief and head of Government. Mr.Yasuhiro Nakasone, now bowing out, has served for an unusual five years. His success as Prime Minister was evidenced by the ruling party re-electing him leader more than once. But his plan to push through the Diet a Bill to levy a 5% indirect tax as part of financial reforms failed, in spite of the LDP majority in both the chambers. It was time then for him to go.

The quick turnover of Primate Minister has contributed to the functioning of the LDP through factions. In the party that has ruled Japan for 32 years continuously, factionalism is not something unseemly. The leader is chosen by hard bargaining – some foreigners call it horse-trading– among the faction leaders, followed, if necessary, by a party election. For the decision in favour of Noboru Takeshita as the next President of the LDP and Primate Minister of Japan, voting was not necessary. His hopes were stronger than those of he other two candidates – Finance Minister Kiichi Miyazawa and former Foreign Minister, Shintaro Abe – if only because he had proved himself more skillful in the game of factional politics. A one-time protégé of Mr. Kakuei Tanaka, he thrust himself forward when the leader was disgraced on a charge of accepting bribes for sale of Lockheed aircraft to Japan and debilitated by physical ailments. Mr. Takeshita took away most of Mr. Tanaka's following and now leads the biggest faction in the LDP. Mr. Nakasone persuaded Mr. Miyazawa and Mr. Abe to accept Mr. Takeshita's leadership. An election would most probably have led to the same result. Mr. Takeshita seemed to have forged a firm alliance with at least two other factions and put in his bag the votes necessary for a win.

How Mr. Takeshita will fare after taking over the reins of Government in 1987 is not so certain. He will be Japan's first Prime Minister with a humble rural origin. A dichotomy in his nature shows through his record of teaching English in a junior high school and not trying to speak that language in public later. When he was the Minister of Finance, he gave the impression of an extremely cautious man with a reverence for consensus but challengingly titled a book on his ideas 'Going My Way'. Mr. Takeshita says that continuing Mr. Nakasone's programmes would be the basis of his policy. This is not saying enough. Japan faces two main issues, tax reforms and relations with United States. Mr. Nakasone's plan to impose an indirect tax ran into effective opposition, and the friction with the U.S. over trade continues. Mr. Takeshita cannot be facing an easy future as Japan's next leader and there is nothing to show yet that he will be drawing on secret reserves of dynamism.

142. The politician who had been Prime Minister for the longest period since the Second World War was
(a) Hirohito (b) Kakuei Tanaka (c) Nakasone (d) Eisaku Sato

143. When did Hirohito ascend the throne?
(a) 1946 (b) 1926 (c) In the early fifties (d) 1936

144. Mr. Tanaka ceased to be Prime Minister because
(a) he could not get a favourable legislative bill passed by Parliament.
(b) he had completed the prescribed two years term.
(c) he was involved in a bribe scandal.
(d) of horse-trading among his party members.

145. The politician who had just recently ceased to be Prime Minister is
(a) Eisaku Sato. (b) Yasuhiro Nakasone.
(c) Shintaro Abe. (d) Kiichi Miyazawa.

146. Mr. Takeshita's success in the Prime Ministerial quest is due to
(a) his financial wizardry. (b) his loyalty to his predecessor's policies.
(c) his skill in manipulating fractional politics. (d) his good knowledge of English.

147. The author's assessment of the potential of Mr. Takeshita to be a successful Prime Minister can be summarized as one of
(a) cautious optimism. (b) enthusiastic adulation.
(c) objective skepticism. (d) undisguised derision.

148. Factionalism in the Liberal Democratic Party is mainly due to
(a) the clash between urban and rural interests.
(b) the long reign of the Emperor.
(c) fears about one-man leadership.
(d) frequent changes in Prime Ministers.

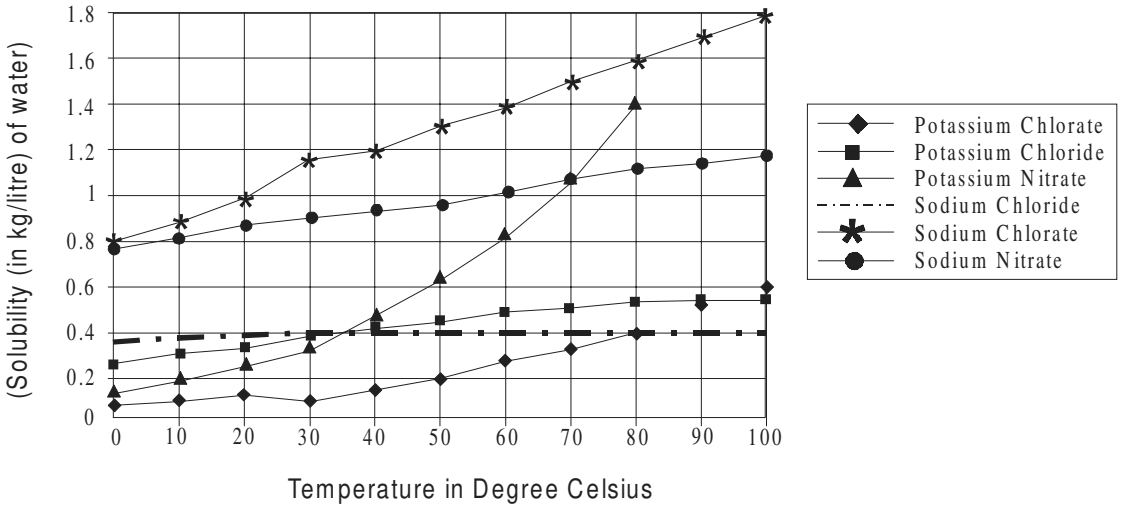
149. Most of the erstwhile Prime Ministers of Japan
(a) were English educated.
(b) were from rural areas.
(c) had urban backgrounds.
(d) have been former Finance Ministers.

150. The number of erstwhile Prime Ministers mentioned by name in the passage is
(a) 2. (b) 3. (c) 4. (d) 5.

Section – IV

Directions for questions 151 to 155: Answer the questions on the basis of the information given below.

Solubility-Temperature relationships for various salts.



151. Which of the following salts has greatest solubility?
(a) Potassium Chlorate at 80^0 C. (b) Potassium Chloride at 35^0 C.
(c) Potassium Nitrate at 39^0 C. (d) Sodium Chloride at 85^0 C.

152. Approximately, how many kg of Potassium Nitrate can be dissolved in 10 litres of water at 30^0C?
(a) 0.04 (b) 0.4 (c) 4 (d) 0.35

153. By what percentage is the solubility of Potassium Chlorate in water increased as the water is heated from 30^0C to 80^0C?.
(a) 100 (b) 200 (c) 250 (d) 300

154. If 1 mole of Potassium Chloride weighs 0.07456 kg, approximately. How many moles of Potassium Chloride can be dissolved in 100 litres of water at 36^0C?
(a) 700 (b) 650 (c) 480 (d) 540

155. Which of the salts has greater change in solubility in kg / litre of water between 15^0C and 25^0C?
(a) Potassium Chlorate (b) Potassium Nitrate
(c) Sodium Chlorate (d) Sodium Nitrate

Q156 – 159 : Study the information below and answer questions based on it.

A leading socialite decided to organize a dinner and invited a few of her friends. Only the host and the hostess were sitting at the opposite ends of a rectangular table, with three persons along each side. The pre-requisite for the seating arrangement was that each person must be seated such that atleast on one side it has a person of opposite sex. Maqbool is opposite Shobha, who is not the hostess. Ratan has a woman on his right and is sitting opposite a woman. Monisha is sitting to the hostess's right , next to Dhirubhai. One person is seated between Madhuri and Urmila who is not the hostess. The men were Maqbool, Ratan, Dhirubhai and Jackie, while the women were Madhuri, Urmila, Shobha and Monisha.

156. The eighth person present, Jackie, must be
I. the host
II. Seated to Shobha's right
III. Seated opposite Urmila

(a) I only (b) III only (c) I and II only (d) II and III only

157. Which of the following persons is definitely not seated next to a person of the same sex?
(a) Maqbool (b) Madhuri (c) Jackie (d) Shobha

158. If Ratan would have exchanged seats with a person four places to his left, which of the following would have been true after the exchange?
I. No one was seated between two persons of the opposite sex. (e.g. no man was seated between two women)
II. One side of the table consisted entirely of persons of the same sex.
III. Either the host or the hostess changed seats.

(a) I only (b) II only (c) I and II only (d) II and III only

159. If each person is placed directly opposite her spouse, which of the following pairs must be married?
(a) Ratan and Monisha (b) Madhuri and Dhirubhai
(c) Urmila and Jackie (d) Ratan and Madhuri

Q160 – 163 : are based on the following table and information given below:

In 1984 – 85 value of exports of manufactured articles exceeds over the value of exports of raw materials by 100%.
In 1985 – 86 the ratio of percentage of exports of raw material to that of exports of manufactured articles is 3 : 4.
Exports of food in 1985 – 86 exceeds the 1984 – 85 figures by Rs. 1006 crore.

Item	1984-85	1985-86
Food		23%
Manufactured Articles		
Raw Material		
Total Value of Exports in Crore of Rs.	22400	25800

160. In 1984 – 85 what percentage of total values of exports accounts for items related to food
(a) 23% (b) 29.2% (c) 32% (d) 22%

161. During 1984 – 85, how much more raw material than food was exported?
(a) Rs. 2580 crore (b) Rs. 896 crore (c) Rs. 1986 crore (d) Rs. 1852 crore

162. Value of exports of raw materials during 1984 – 85 was how much percent less than that for 1985 – 86?
(a) 39 (b) 46.18 (c) 7 (d) 31.6

163. The change in value of exports of manufactured articles from 1984 – 85 to 1985 – 86 is
(a) 296 crore (b) 629 crore (c) 2064 crore (d) 1792 crore

Q164 - 166: Study the information below and answer questions based on it.

Five of India's leading models are posing for a photograph promoting "y'know, world peace and understanding". But then, Rakesh Shreshtha the photographer is having a tough time getting them to stand in a straight line, because Aishwarya refuses to stand next to Sushmita because Sushmita had said something about her in a leading gossip magazine. Rachel and Anu want to stand together because they are "such good friends, y'know". Manpreet on the other hand cannot get along well with Rachel, because there is some talk about Rachel scheming to get a contract already awarded to Manpreet. Anu believes her friendly astrologer who has asked her to stand at the extreme right for all group photographs. Finally, Rakesh managed to pacify the girls and got a beautiful picture of five beautiful girls smiling beautifully in a beautiful straight line, promoting world peace.

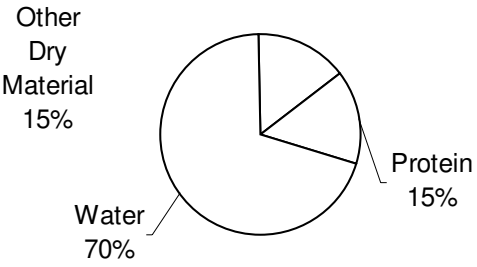
164. If Aishwarya is standing to the extreme left, which is the girl standing in the middle?
(a) Manpreet (b) Sushmita (c) Rachel (d) Cannot say

165. If Aishwarya stands to the extreme left, which is the girl who stands second from left?
(a) Cannot say (b) Sushmita (c) Rachel (d) Manpreet

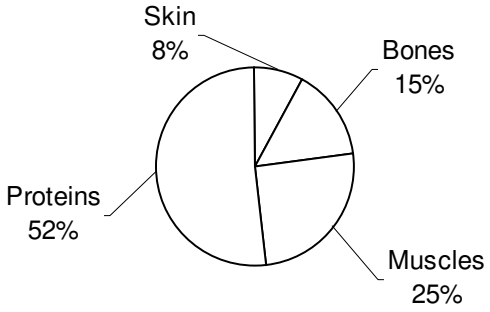
166. If Anu's astrologer tells her to stand second from left and Aishwarya decides to stand second from right, then who is the girl standing on the extreme right?
(a) Rachel (b) Sushmita (c) Cannot say (d) Manpreet

Q167 – 170: refer to the pie-chart given below:

Distribution of material in Ghosh Babu's body (as % of total body weight)



Occurance of Proteins in different organ's of Ghosh Babu's body



167. What fraction of Ghoshbabu's weight consists of muscular and skin protein?

(a) $\frac{1}{13}$ (b) $\frac{1}{30}$ (c) $\frac{1}{20}$ (d) Cannot be determined

168. Ratio of distribution of protein in muscle to the distribution of protein in skin is

(a) 3 : 1 (b) 3 : 10 (c) 1 : 3 (d) $3\frac{1}{2}:1$

169. What percent of Ghosh Babu's body weight is made up of skin
(a) 0.15 (b) 10 (c) 1.2 (d) Cannot be determined

170. In terms of total body weight, the portion of material other than water and protein is closest to

(a) $\frac{3}{20}$ (b) $\frac{1}{15}$ (c) $\frac{85}{100}$ (d) $\frac{1}{20}$

Q171 - 174: Study the information below and answer the questions based on it.

A, B, C, D, E, F and G are brothers. Two brothers had an argument and A said to B "You are as old as C was when I was twice as old as D, and will be as old as E was when he was as old as C is now". B said to A " You may be older than F but G is as old as I was when you were as old as G is, and D will be as old as F was when F will be as old as G is".

171. Who is the eldest brother?
(a) A (b) E (c) C (d) Cannot be determined

172. Who is the youngest brother?
(a) B (b) D (c) F (d) Cannot be determined

173. Which two are probably twins?
(a) D and G (b) E and C (c) A and B (d) Cannot be determined

174. Which of the following is false?
(a) G has 4 elder brothers.
(b) A is older than G but younger than E.
(c) B has three elder brothers.
(d) There is a pair of twins among the brothers.

Q175 – 178 : are based on the following information :

The following table gives the sales details for text books and reference books at Primary/Secondary/Higher Secondary/Graduate Levels.

Year	Primary	Secondary	Higher Secondary	Graduate Level
1975	42137	8820	65303	25343
1976	53568	10285	71602	27930
1977	58770	16437	73667	28687
1978	56872	15475	71668	30057
1979	66213	17500	78697	33682
1980	68718	20177	82175	36697

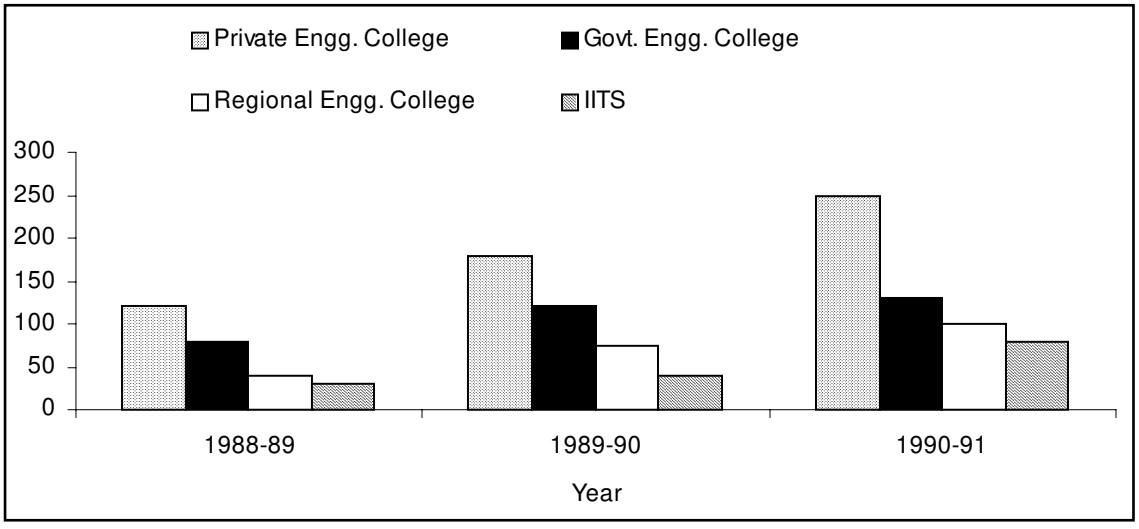
175. What is the growth rate of sales of books at primary school level from 1975 to 1980?
(a) 29% (b) 51% (c) 63% (d) 163%

176. Which of the categories shows the lowest growth rate from 1975 to 1980?
(a) Primary (b) Secondary (c) Higher secondary (d) Graduate Level

177. Which category had the highest growth rate in the period?
(a) Primary (b) Secondary (c) Higher secondary (d) Graduate Level

178. Which of the categories had either a consistent growth or a consistent decline in the period shown?
(a) Primary (b) Secondary (c) Higher secondary (d) Graduate Level

Q179 – 182 : are based on the graph given below:
Number of Engineering Students (in hundreds) at institutions of different kinds



179. What was the total number of engineering students in 1989 – 90?
(a) 28500 (b) 4400 (c) 4200 (d) 42000

180. The growth rate in students of Govt. Engg. Colleges compared to that of Private Engg. Colleges between 1988 – 89 and 1989 – 90 is

(a) more (b) less (c) equal (d) $\frac{3}{2}$

181. The total number of Engg. Students in 1991 – 92, assuming a 10% reduction in the number over the previous year, is
(a) 5700 (b) 57000 (c) 44800 (d) none of these

182. In 1990 – 91, what percent of Engg. Students were studying at IIT's?
(a) 16 (b) 15 (c) 14 (d) 12

Q183 - 186 : Study the information below and answer the questions based on it.

The primitive tribes – folk of the island of Lexicophobos have recently developed a language for themselves. Which has a very limited vocabulary. In fact, the words can be classified into only three types : the Bingoes, the Cingoes and the Dingoes.
The Bingoes type of words are : Grumbs, Harrumphs, Ihavitoo
The Cingoes type of words are : Ihavitoo, Jingongo, Koolodo
The Dingoes type of words are : Lovitoo, Metoo, Nana
They have also devised some rules of grammar:
Every sentence must have only five words.
Every sentence must have two Bingoes, one Cingo and two Dingoes.
If Grumbs is used in a sentence, Ihavitoo must also be used and vice versa.
Koolodo can be used in a sentence only if Lovitoo is used.

183. Which choice of words in a sentence is not possible, if no rules of grammar are to be violated?
(a) Grumbs and Harrumphs as the Bingoes and Ihavitoo as the Cingo.
(b) Harrumphs and Ihavitoo as the Bingoes.
(c) Grumbs and Ihavitoo as the Bingoes and Lovitoo and Nana as the Dingoes.
(d) Metoo and Nana as the Dingoes.

184. If Grumbs and Harrumphs are the Bingoes in a sentence, and no rule of grammar is violated, which of the following is / are true?
I. Ihavitoo is the Cingo.
II. Lovitoo is the Dingo.
III. Either Lovitoo or Metoo must be one of – or both – the Dingoes.

(a) I only (b) II only (c) III only (d) I & III only

185. Which of the following is a possible sentence if no grammar rule is violated?
(a) Grumbs harrumphs ihavitoo lovitoo metoo.
(b) Grumbs harrumphs ihavitoo jingongo lovitoo.
(c) Harrumphs ihavitoo jingongo lovitoo metoo.
(d) Grumbs ihavitoo koolodo metoo nana.

186. If in a sentence Grumps is the Bingo and no rule of grammar is violated, which of the following cannot be true?
(a) Harrumphs must be a Bingo.
(b) Ihavitoo must be a Bingo.
(c) Lovitoo may be used.
(d) All three Bingoes are used.

Q187 – 190 : are based on the table and information given below. Answer the questions based on it.

Bankatlal works x hours a day and rests y hours a day. This pattern continues for 1 week, with an exactly opposite pattern next week, and so on for four weeks. Every fifth week he has a different pattern. When he works longer than he rests, his wage per hour is twice what he earns per hour when he rests longer than he works.
The following are his daily working hours for the weeks numbered 1 to 13.

	1st week	5th week	9th week	13th week
Rest	2	3	4	-
Work	5	7	6	8

A week consists of six days and a month consists of 4 weeks.

187. If Bankatlal is paid Rs. 20 per working hour in the 1st week. What is his salary for the 1st month?
(a) Rs.1760 (b) Rs.1440 (c) Rs.1320 (d) Rs.1680

188. Referring to the data given in Q.187, Bankatlal's average monthly salary at the end of the first four months will be
(a) Rs.1780 (b) Rs.2040 (c) Rs.1830 (d) Rs.1680

189. The new manager Khushaldas stipulated that Rs.5 be deducted for every hour of rest and Rs. 25 be paid per hour starting 9th week, then what will be the change in Bankatlal's salary for the 3rd month? (Hourly deductions are constant for all weeks starting 9th week)
(a) Rs.540 (b) Rs.480 (c) Rs.240 (d) Rs.120

190. Using the data in the previous questions, what will be the total earning of Bankatlal at the end of sixteen weeks.
(a) Rs.7320 (b) Rs.7800 (c) Rs.8400 (d) Rs.9600