

*Directions : There are two passages in this section.*

*Read each one; read also the directions for answering questions under the passage before answering.*

### PASSAGE - I

The second day of ABC Business Equipment Ltd. 's annual conference in Guindy, Chennai threatened to end in uproar. The business equipment manufacturer's 28 salesmen had received Sales Manager Gundu Rao's Proposal to reassign them to new territories with angry condemnation

Explaining the reasons behind the drastic measures, Rao had reminded the salesmen that the company was suffering from declining sales and had a serious cash problem. This was mainly due to slow payments by customers. Accounts receivable were increasing at an alarming rate, he had told them.

Under Rao's plan, the company's salesmen were to be switched from the areas with high sales to areas that currently yielded low sales. He had explained that this would mean, that the more experienced salesman could concentrate on building up sales in the less productive regions. The less experienced salesman could easily handle the well developed territories.

Some of the firm's leading salesman immediately started to object. "I have spent years building up my territory". One of them protested. "I do not see why I should have to start all over again in new region".

Rao pointed out that he felt that the firm's best salesman were being wasted in these well-developed sales regions. "You are simply going well-established customers and taking orders". He argued.

An experienced salesman contested this view, observing that he had greatly increased sales in his territory the previous year by persuading existing customers to expand the amount of their orders in business stationery.

This supported view, retorted Rao, that the salesman in the well established territories were becoming stale and were failing to uncover new customers. This is only natural", he added. When I was promoted to the sales manager. I was amazed at how successful my successor was in getting new order in my only territory. The company badly needs your experience to develop the weaker regions"

Another experienced salesman asked whether the new plan would mean that salesman would get an extra bonus or higher commission rates for establishing new accounts. Rao began to explain why this was impracticable, when he was interrupted by one of the younger salesman, who had been sitting at the back of the room quietly fuming. He told Rao that he felt completely demotivated by the proposal to remove them from the undeveloped territories.

Rao tried to reassure the young salesman that the company did not regard them as failures. The changes were being made simply because the company was having difficulties, and needed to boost sales quickly, he pointed out.

Rao swallowed hard before announcing another new policy he knew was likely to upset the gathered salesman. The Management board has also decided that in future sales commissions will be paid quarterly and only on those orders for which payments have been received from the customers". He announced nervously. "As from today it will be your responsibility to raise the subject of slow payments with customers" Moreover no new orders

will be accepted from customers until all overdue payments are received".

This was too much for the salesmen to take and the meeting erupted in a noisy uproar. "Why couldn't we paid for orders we have succeeded in getting?". Demanded one salesman furiously. "It is not our jobs to collect debts", protested another. "This contravenes our employment contract", shouted yet another.

The salesmen were all talking agitatedly at once when Rao decided to close the proceedings for the day. He rushed to nearby hotel where group managing director Lakshmi Chinnaswamy was staying overnight. She was due to address the conference the following morning

"Our proposals have met with even more hostility than we expected". Rao told Chinnaswamy, relating how the meeting has broken up in disorder. "I am afraid you will have a hard time of it tomorrow convincing them that the proposals are in everybody's interest. But I don't think we can dodge the issue now. We have to tackle it while we have them all together".

Chinnaswamy nodded gravely. Her first inclination was to proceed with the proposals whether or not the salesman approved. On the other hand, she reflected, salesmen are the key to company's success. It might be unwise to impose a new system on them without their consent.

Chinnaswamy convinced Rao that his plan, presented during the day at the sales meeting, could not be implemented because of the unequivocal opposition of the salesmen. A compromise plan had to be worked out. Rao and Chinnaswamy worked long into the night putting together a plan which they believed would be acceptable to most of the salesmen and in harmony with the company's objectives.

Rao suggested assigning quotas to salesmen in existing territories rather than shifting successful salesmen from high-sales territories. "By assigning quotas, we measure individual performance and motivate salesmen towards a predetermined level of achievement. Annual quotas based on expected sales also help in planning, production, inventory and working capital needs. Shifting salesmen is easier

under a quota system, because quotas can be easily adjusted to reflect the area's potential. In a low yielding territory has low sales potential, the quota would be relatively lower than a high - yielding high - potential territory.

Chinnaswamy agreed that a quota system might be the solution to their sales problem. However, quotas had some disadvantages. "Companies sometimes set lower quotas for less able salesmen, but this can be demoralizing. Better salesmen will feel that they are being discriminated against. They will not give their best effort under such a plan. Rao insisted that a system would work. "We need to find a plan which will motivate our best as well as our younger, less experienced salesmen"

Chinnaswamy summarised the available options. The first option was straight commission plan. No matter how much sales a salesman produced over his quota he would earn the same commission rate. A second possibility was a combination of salary and commissions. "Salesmen drawing even nominal salaries tend to think as company men and they have less reason to resist sales plan changes that are justified in terms of goals". Chinnaswamy further pointed out that special incentives could be offered under such a plan, such as a new account bonus or higher commission rates for sales over 100% of quota. "By offering such incentives". Chinnaswamy added, "Salesmen in less productive regions would be motivated to spend more time in building new accounts".

Rao agreed that both options suggested by Chinnaswamy might be accepted by the salesmen. "But he asked, "are these options better for the company than the ones I proposed to-day?"

**Directions :** The questions that follow relate to the preceding passage. Evaluate, in terms of the passage, each of the item given. Then select your answer from one of the following classifications.

- (A) *A Major Objective in making the decision : one of the goals sought by the decision.*

(B) A Major Factor in making the decision : and aspect of the problem, specifically mentioned in the passage, that fundamentally affects and/or determines the decision.

(C) A Minor Factor in making the decision : a less important element bearing on/ or affecting a Major factor; rather than a Major objective directly.

(D) A Major Assumption in making decision : a projection or supposition arrived at by the decision maker before considering the factors and alternatives

(E) A Unimportant issue in making the decision: an item lacking significant impact on, or relationship to, the decision.

1. ABC Business Equipments Ltd's declining sales.
2. ABC Business Equipments Ltd's accounts receivable problems.
3. ABC Business Equipments Ltd's Indian location.
4. Improved cash flow.
5. Ease with which salesmen may be shifted under a quota system.
6. Development of new customers.
7. Late payments by customers.
8. Ability of top salesmen to succeed in any territory.
9. Assignment of quotas to salesmen.
10. Flexibility in setting quotas at high or low levels.
11. Measurement of salesmen's individual performances.
12. Likelihood that salesmen will accept Chinnaswamy's options.
13. Disadvantages of sales quotas.
14. Rao's experience in dealing with salesmen.

15. Number of salesmen working for ABC Business Equipments Ltd.
16. Motivation of ABC Business Equipments Ltd's salesmen.
17. Planning production, inventory and working capital.
18. Rejection of Rao's plan by salesmen.
19. Problem of shifting the factory site from Guindy.
20. Problem of terminating the services of less efficient salesmen.

## PASSAGE - II

In 1967 Mr. Easwar, a Chemical Engineer, began experimenting in his spare time with a new method for processing fresh orange juice. By 1970, he had perfected the process to such an extent that he was ready to begin production in a small way. His process enabled him to extract 18 percent more juice from oranges than was typically extracted by a pressure juicer of the type currently used in cafes. His process also removed some of the bitterness which got into the juice from the peelings when oranges were squeezed without peeling them.

Since many of the better quality restaurants preferred to serve fresh orange juice instead of canned or frozen juice, Mr. Easwaran believed he could find a ready market for his product. Another appeal of his product would be that he could maintain more consistent juice flavour than haphazard restaurant juicing usually produced.

Mr. Easwaran patented the process and then started production. Since his capital was limited, he began production in a small building which previously had been a woodworking shop. With the help of his brother, Mr. Easwaran marketed the juice through local restaurants. The juice was distributed in glass jugs, which proved to be rather expensive because of high breakages. The new product was favourably accepted by the public, however, and the business proved to be a success.

Mr. Easwaran began to receive larger and more frequent orders from his customers and their business associates. In 1972, he quit his regular job in order to devote full time to his juice business. He soon reached his capacity because of his inability to personally cover a larger area with his pickup truck. Advertising was on a small scale because of limited funds. Faced with the problems of glass jug breakage and limited advertising and distribution Mr. Easwaran approached a regional food distributor for a solution. Mr. Easwaran was offered a plan whereby the distributor would advertise and distribute the product on the basis of 25 percent gross sales. The distributor would assist Mr. Easwaran in securing a loan from the local bank to expand production.

Before he had an opportunity to contact the bank to borrow money Mr. Easwaran was introduced to Mr. Bala kumar, a plastics engineer, who produced plastic containers. Mr. Easwaran mentioned his own problems in the expansion of his business. Mr. Bala Kumar wanted to finance expanded juice production with the understanding that the plastic containers would be used for marketing the orange juice. He would lend the money interest free, but he was to receive 40 percent of the net profits for the next ten years. Distribution and advertising were to be done through a local broker for 25 percent of gross sales. The principal on Mr. Bala Kumar's invested money was to be repaid by Mr. Easwaran on a basis of 10 percent of his share of the profits. Mr. Bala Kumar was to retain an interest in the profits of the firm until the loan was repaid, or a least for ten years.

Mr. Easwaran's current sales were 10,000 gallons of juice a month. If distribution could be expanded, sales could be doubled, given the potential demand. Of the possible total sales of 20,000 gallons a month about 75 percent would be sold to large restaurants and the remainder to small cafeterias and luncheonettes. As soon as the juice was bottled in plastic containers, sales could also be made to household consumers. Mr. Easwaran was very optimistic that sales to the final consumer through retail shops would succeed. Some initial contracts were made with a local franchiser of drive-in-dairy shops. The franchiser was sure that he could sell 4,000 gallons a month through his outlets.

Mr. Easwaran also calculated his potential profit. His goal was to increase sales while at the same time earning a 10 percent rate of return on his prior capital investment in equipment and other assets. The present value of Mr. Easwaran's investment was Rs.2,50,000. Of this sum, machinery and equipment were valued at Rs. 1,00,000; real estate was worth Rs. 50,000 and his patent and knowhow were valued at Rs.1,00,000. On the basis of this evaluation, Mr. Easwaran desired a return of Rs.25,000 above salaries and other expenses after the first year of operations.

Both the regional distributor and Mr. Bala kumar believed that Mr. Easwaran's sales could be increased to 15,000 gallons of juice per month by the end of the first year of expanded operations. However, the extent to which production could be expended to meet demand depends on the availability of plastic containers (which would be supplied at factory cost under Mr. Bala Kumar's proposal), and additional machinery. Increased market coverage would be obtained under both the regional food distributor and Bala Kumar proposals. The critical deciding factor, as Easwaran understood, was which plan would maximize his return on investment beyond the minimum of 10 percent.

**Directions :** *The questions that follow relate to the proceeding passage. Evaluate in terms of the passage, each of the items given. Then select your answer from one of the following classifications and shade the corresponding oval on the answer sheet.*

- (A) **A Major Objective** in making the decision : *are of the goals sought by the decision maker.*
- (B) **A Major Factor** in making the decision, *an aspect of the problem, specifically mentioned in the passage, that fundamentally affects and/or determines the decision.*
- (C) **A Minor Factor** in making the decision : *a less important element bearing or affecting a Major factor, rather than a Major objective directly.*

- (D) *A Major Assumption in making the decision : a projection or supposition arrived at by the decision maker before considering the factors and alternatives.*
- (E) *An Unimportant Issue in making the decision an item lacking significant impact on, or relationship to the decision.*
21. Cost of securing a loan.
  22. High breakage rate of glass jugs.
  23. Expansion of the business
  24. Continued demand by the public for Easwaran's orange juice.
  25. Availability of interest - free loan.
  26. Possibility of doubling sales through expanded distribution.
  27. Current valuation of Carswell's real estate
  28. Previous use of Mr. Easwaran's building as a woodworking shop.
  29. Ten percent return no investment.
  30. Plausibility of monthly sales of 4,000 gallons in dairy shops.

## SECTION - II : READING COMPREHENSION

*Directions: This section contains two reading passages. You have to read each carefully. Each passage is followed by questions based on its content. After reading each passage, choose the best answer to each question. The questions are based on what is stated or implied in each passage.*

### **PASSAGE - I**

Whenever two or more unusual traits or situations are found in the same place, it is tempting to look for more than a coincidental relationship between them. The high Himalayas and the Tibetan Plateau certainly have extraordinary physical characteristics, and the cultures which are found there are also unusual, though not unique. However, there is no intention of adopting Montesquieu's view of climate and soil as cultural determinants. The ecology of a region merely pose some of the problems faced by the inhabitants of the region, and while the problems facing a culture are important to its development, they do not determine it.

The appearance of the Himalayas during the late Tertiary Period and the accompanying further raising of the previously established ranges had a marked effect on the climate of the region. Primarily of course, it blocked the Indian monsoon reaching

Central Asia at all. Secondly, air and moisture from other directions were also reduced.

Prior to the raising of the Himalayas, the land now forming the Tibetan uplands had a dry continental climate with vegetation and animal life similar to that of much of the rest of the region on the same parallel but some what different than that of the areas further north, which were already drier. With the coming of the Himalayas and the relatively sudden drying out of the region, there was a severe thinning out of the animal and plant populations. The ensuing incomplete Pleistocene glaciation had a further thinning effect. Thus after the end of the glaciation there were only a few varieties of life extant from the original continental species. Isolated by the Kunlun range from the Tarim basin and Turfan depression species which had already adopted to the dry steppe climate, and would otherwise have been expected to flourish in Tibet, the remaining native fauna and flora multiplied. Armand describes the Tibetan fauna as not having great variety, but being "striking" in the abundance of the particular species that are present. The plant life is similarly limited in variety, with some observers finding no more than seventy varieties of plants in even the relatively fertile Eastern Tibetan "tea" is a major staple, perhaps replacing the unavailable vegetables.



The difficulties of living in an environment at once dry and cold, and populated with species more usually found in more hospitable climates, are great. These difficulties may well have influenced the unusual polyandrous societies typical of the region. Lattimore sees the maintenance of multiple-husband households as being preserved from earlier forms by the harsh conditions of the Tibetan uplands. Which permitted no experimentation and "froze" the cultures which came there. Kawakita, on the other hand, sees the polyandry as a way of easily permitting the best householder to become the head husband regardless of age. His detailed studies of the Bhotia village of Tsumje do seem to support this idea of polyandry as a method of talent mobility in a situation where even the best talent is barely enough for survival.

In sum though arguments can be made that a preexisting polyandrous system has strengthened and preserved (insofar as it has been) by the rigors of the land, it would certainly be an overstatement to lay causative factors of any stronger nature to the ecological influences in this case.

31. What are the "unusual situations and traits" referred to in the first sentence?

- I. Pattern of animal and plant growth
- II. Food and food preparation patterns of the upland Tibetans
- III. Social and familial organisation of typical Tibetan society

- (a) I only
- (b) II only
- (c) III only
- (d) I and III only
- (e) I, II, and III

32. What was the significance of the fact that the Pleistocene glaciation did not wipe out life entirely in the area?

- (a) Without life, man could not flourish either
- (b) The drying out was too sudden for most plants to adapt to the climate

(c) If the region had devoid of life, some of the other species from nearby arid areas might possibly have taken over the area

- (d) The variety of Tibetan life was decreased
- (e) None of the above

33. Which of the following most likely best describes Tibetan "tea"?

- (a) a pale brown, clear, broth-like drink
- (b) a dark brown tea drink, carefully strained
- (c) a nutritious mixture of tea leaves and rancid yak butter
- (d) a high caffeine drink
- (e) a green - tinted drink similar to Chinese basket - fried green tea

34. The purpose of the passage is to

- (a) describe Tibetan fauna and flora
- (b) describe the social organisation of typical Tibetan villages
- (c) analyse the causes of Tibet's unusual animal and plant population
- (d) analyse the possible casual links between Tibetan ecology and society
- (e) Probe the mysteries of the sudden appearance of the Himalayas

35. The author's knowledge of Tibet is probably

- (a) based on firsthand experience
- (b) the result of lifelong study
- (c) derived only from books
- (d) derived from Chinese sources
- (e) limited to geological history

36. In which ways are the ideas of Lattimore and Kawakita totally opposed?

- (a) Lattimore forbids change and Kawakita requires it
- (b) Kawakita opposes change and Lattimore favors it

- (c) Lattimore sees polyandry as primitive and Kawakita views it as modern
- (d) Lattimore criticizes polyandry as inefficient, but Kawakita finds it highly efficient.
- (e) Their ideas are not totally opposed on any point
37. According to the passage, which of the following would probably be the most agreeable to Montesquieu?
- (a) All regions have different soils and thus, different cultures
- (b) Some regions with similar climates will have similar cultures.
- (c) Cultures in the same area sharing soil and climate will be essentially identical
- (d) European cultures are liberated to some degree from determinism
- (e) The plants of a country, by being the food of its people, cause the people to have similar views to one another
38. The species of fauna and flora remaining in Tibet after the Pleistocene glaciation can properly be called continental because they
- (a) are originally found in continental climates
- (b) are the only life forms in Tibet, which is as big as a continent
- (c) have been found in other parts of the Asian continent
- (d) are found in a land mass that used to be a separate continent
- (e) cannot be found on islands
39. According to the passage, the spread of animal and plant species from one area to another is
- (a) least common when the species involved are those adapted to cold and dry steppe climates
- (b) unlikely to be affected by the actions of human beings
- (c) correlated with the densities of other non-competing species in the originating area
- (d) strongly affected by the geological features of the area
- (e) independent of the weather conditions in the originating area
40. The best title for the passage is
- (a) Ecology and society
- (b) Tibetan society
- (c) Tibetan ecology and society
- (d) None of the above

## PASSAGE - II

Sophisticated screening targets and laboratories run by robots may help big companies discover drugs more efficiently. But tiny Shaman Pharmaceuticals Inc in San Carlos, Calif., has a different idea. It takes a less-travelled route to finding the specimens it tests as potential drugs. Shaman sends scientists to jungles. Primarily in Latin America to interview traditional healers about the potions they from rain - forest plants.

This approach to getting leads is called "ethnobotany", the study of how native cultures use plants. Shaman's researches comb scientific literature for references to plant extracts that have medicinal value. Then, they ask real Shamans how they would treat various ailments - even showing them photographs of patients with obvious symptoms. "The big investment we put into ethnobotany pays off", says Shaman's chief executive, Lisa A. Conte.

Through it is only four years old, the company has two drugs in clinical trials. Traditional healers use a plant from the rain - forests to treat maladies ranging from colds to wounds. When Shaman tested this still secret weed, it found that it is a virus fighter. Now extracts from the weed have become SP-303, a drug that is being tested on people as a treatment for RSV, a deadly respiratory disease that attacks children. The impressive progress helped Shaman raise \$ 41 million in an initial public offering in January, 1993.

Michael Balick, an ethnobotanist, reports that large drug makers are taking note of Shaman's

progress and turning to flora and fauna for leads. Yet the practice of relying on native healers may remain on the fringes of drug development for good reason. Real Shamans do best with diseases such as infections, fevers, or pain. They do not know much about complex genetic diseases or cancers.

If you cannot afford giant robotic systems and huge libraries of natural chemicals, however, Shaman's approach makes sense. It may also help relieve poverty and preserve rain forests, since Shaman has set up a foundation that will put money back into the indigenous cultures that supply the company's leads. Shaman also employs local people to harvest its plants. There is another new concept : politically correct drug research.

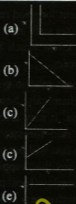
41. The approach based on "ethnobotany" makes sense to Shaman Pharmaceuticals Inc. because
- (a) It relieves people from poverty
  - (b) It gives gainful employment to local people of the rain -forests in Latin America
  - (c) It promotes and sustains native cultures
  - (d) It does not depend on what is called automated screening systems'
  - (e) It depends on 'automated screening systems'.
42. The term "ethnobotany" means
- (a) Growth of rain - forest plants
  - (b) Science of cultures of people who live in rain forests
  - (c) Usage of medicinal plants by native cultures
  - (d) An attempt to deal with diseases that prevail in rain - forests
  - (e) Treatment of various ailments
43. The limitation of what is known as the new drug search' is that
- (a) It is difficult to meet the real shamans
  - (b) It requires huge investment on the part of the company
  - (c) Real shamans are not aware of the complex genetic diseases
  - (d) Conversation with real shamans often creates problem
  - (e) It requires huge investment
44. Shamans has so far conducted clinical trials in the case of
- (a) four drugs
  - (b) two drugs
  - (c) six drugs
  - (d) three drugs
  - (e) five drugs
45. The success of this tiny pharmaceutical company relates to
- (a) the fact that this is the only company based on "ethnobotany"
  - (b) its investment to the extent of \$ 41 million
  - (c) its existence for four years.
  - (d) its search for specimens it tests as potential drug
  - (e) it sends scientists to jungles



### SECTION - III : PROBLEM SOLVING

*Directions : For each of the following questions, select the choice which best answers the question or completes the statement.*

46. The diameter of a circle is  $3\sqrt{2}$ . The side of a square inscribed in it is
- (a) 2  
(b) 3  
(c) 4  
(d) 6  
(e) 5
47. A train runs from station A to station B in 1.5 hours, covering a distance of 50 kms, then from station B to station C in 1.5 hours, covering a distance of 60 kms and then from station C to station D in 1.5 hours, covering a distance of 70 kms. What is the average speed of the train from A to D?
- (a) 65 km/hour  
(b) 50 km/hour  
(c) 40 km/hour  
(d) 35 km/hour  
(e) 60 km/hour
48. The average price of three items of furniture is Rs. 15,000, if their prices are in the ratio 3 : 5 : 7, the price of the cheapest item is
- (a) Rs. 3,000  
(b) Rs. 5,000  
(c) Rs. 7,000  
(d) Rs. 9,000  
(e) Rs. 15,000
49. If  $0^\circ\text{C}$  is given by  $40^\circ\text{X}$  and  $100^\circ\text{C}$  is given by  $240^\circ\text{X}$ , which of the following gives roughly the relationship between C and X?



50. All surfaces of a cube are coloured. If a number of smaller cubes are taken out from it, each side  $\frac{1}{4}$ th size of the original cube's side indicate the number of cubes with only one side painted
- (a) 16  
(b) 20  
(c) 32  
(d) 24  
(e) 40
51. Two persons start from the same point and walk at the same speed on a circular path but in opposite directions. They shall be diametrically opposite to each other when each has covered
- (a)  $\frac{1}{8}$ th of distance  
(b)  $\frac{1}{4}$ th of distance  
(c)  $\frac{1}{6}$ th of distance  
(d)  $\frac{1}{2}$ th of distance  
(e)  $\frac{1}{16}$ th of distance
52. A fancy articles shop gives a 10% discount on "UGADI" (New Year) on the purchase of any article. If paid for in cash immediately a further discount of 12% is given. If the original price of the item is Rs.250, what is the price of the article if a cash purchase is made?
- (a) Rs.200  
(b) Rs.195

(c) Rs. 189

(d) Rs. 190

(e) Rs. 198

53. A series is formed by adding the previous two terms to get the next term as in 1, 1, 2, 3, 5, ... What will be eighth term if the first four terms of the series are 3, 5, 8, 13, .....

(a) 55

(b) 34

(c) 43

(d) 89

(e) 21

54. After lunch a project review session starts at 1.00 p.m. and lasts upto 3.52 p.m. Meanwhile there are 4 periods. Further 4 minutes are allowed for every period for changing rooms. What is the exact time of a period?

(a) 42 minutes

(b) 41 minutes

(c) 40 minutes

(d) 39 minutes

(e) 38 minutes

55. 2 of the 52 playing cards taken out happen to be both "aces". Then two more cards are taken out at random. What is the probability of these two cards being both "aces"?

(a)  $\frac{2}{50} + \frac{1}{49}$

(b)  $\frac{1}{50} \times \frac{1}{49}$

(c)  $\frac{24}{52 \times 51 \times 50 \times 49}$

(d)  $\frac{2}{52} \times \frac{2}{51}$

(e)  $\frac{24}{52} + \frac{24}{51} + \frac{24}{50} + \frac{24}{49}$

56. Prasad gives half of his cash reserves to his wife, one half of the remaining to his son, and one third of the remaining to his daughter. If his

daughter's share is Rs.12,500, then total cash reserves with Prasad was

(a) Rs. 21,500

(b) Rs. 75,000

(c) Rs. 95,000

(d) Rs. 1,00,000

(e) Rs. 1,50,000

57. If  $x=10$  and  $y=0.1$  then which of the following expressions has the highest value?

(a)  $x^2 + y^2$

(b)  $x^2 - y^2$

(c)  $(x^2)(y^2)$

(d)  $x^2 / y^2$

(e)  $x / y$

58. A mat is woven in the following manner : 2 cm white and 2 cm violet alternatively in one direction and 2 cm white and 2 cm grey alternatively in the other direction. Which of the following patterns will emerge?

(a) Squares of two colours

(b) Squares of three colours

(c) Squares of four colours

(d) Stripes of three colours

(e) Stripes of four colours

59. If  $n$  is an integer between 20 and 80, then any of the following could be  $n+7$  except

(a) 47

(b) 58

(c) 64

(d) 48

(e) 88

60. A box contains 20 balls of which 8 are green, 7 are white and 5 are red. What is the minimum number of balls to be picked up without replacement to make sure that atleast one ball of each colour is drawn?

(a) 11

- (b) 13
- (c) 14
- (d) 16
- (e) 15

61. Squares of equal dimensions are drawn in a rectangular block of diagonal 5 metres. If they are arranged in 3 rows of 4 squares each, then area of each square will be

- (a) 12 sq.m.
- (b) 1 sq.m.
- (c) 2 sq.m.
- (d) 4sq.m.
- (e) 8 sq.m.

62. Three circles of radius 3, 4 and 5 cm are touching each other. The largest side of the triangle formed by joining the centres of the circles will measure

- (a) 8 cm
- (b) 10 cm
- (c) 7 cm
- (d) 9 cm
- (e) 6 cm

63. The area of the shaded region is



- (a)  $\pi x^2 - x^2$
- (b)  $\pi x^2 - 4x^2$
- (c)  $4x^2 - \pi x^2$
- (d)  $4x^2 - x^2$
- (e)  $4x^2 - \pi$

64. One meter of wire is made into a circle The area of the circle will be

- (a)  $\frac{1}{2\pi}$

- (b)  $\frac{1}{4\pi}$
- (c)  $\frac{\pi}{4}$
- (d)  $\frac{\pi}{2}$

(e)  $\pi$

65. An athlete claimed that his timing for a 100 metres dash should be corrected because the starting signal was given by a gun fired from a point 10 meters away from him and the time keeper was standing close to the gun. The error due to this could be (in seconds)

- (a) 0.7
- (b) 0.5
- (c) 0.1
- (d) 0.03
- (e) 0.05

66. A grocer bought 10 kg apples for Rs. 81 out of which one kilogram was found rotten. If he wishes to make a profit of 10% he should sell it at what cost per kilogram?

- (a) Rs. 900
- (b) Rs. 9.90
- (c) Rs. 10.10
- (d) Rs. 10.20
- (e) Rs. 10.30

67. The salaries of two brothers Ramu and Gopu are in the ratio of 4 : 3. They share equally in their monthly joint expenditure of Rs.2,800. If Ramu saves Rs. 600 per month what would Gopu be saving per month?

- (a) Rs. 600
- (b) Rs. 450
- (c) Rs. 100
- (d) Rs. 200
- (e) Rs. 300

68. The average height of students in a class of 20 is

- 105 cms. If ten students of average height of 120 cm are added to the class, the average height of the students in the class will become
- (a) 117.5 cm  
(b) 112 cm  
(c) 115 cm  
(d) 110 cm  
(e) 113 cm
69. Which number will replace the Question mark to complete the series?  
2, 7, 14, 23, ?, 47
- (a) 30
- (b) 34  
(c) 39  
(d) 44  
(e) 36
70. A man starts from a point and moves 3 km north., then turns west and goes 2 km. He turns north and walks 1 km and then moves 5 km towards east. How far is he from the starting point?
- (a) 11 km  
(b) 5 km  
(c) 10 km  
(d) 8 km

### SECTION - IV : DATA SUFFICIENCY

**Directions :** Each question below is followed by two statements labelled (a) and (b). You have to determine whether the data given in the statement are sufficient for answering the questions. Use the data given, plus your knowledge of mathematics and every day facts, to mark your answer as

- (A) if the statement (a) alone is sufficient to answer the question but statement (b) alone is not sufficient.
- (B) if the statement (b) alone is sufficient to answer the question but statement (a) alone is not sufficient
- (C) if both statements together are needed to answer the question, but either statement alone is not sufficient.
- (D) if either statement (a) or (b) itself is sufficient to answer the question asked
- (E) if not enough facts are given to answer the question
71. What are the values of X and Y?
- (a)  $X + Y = 7$                       (b)  $X^2 + 3X = -2$
72. What is the perimeter of the rectangle with an area of 60 sq.m.?
- (a) The ratio of the length to the breadth of the rectangle is 4 : 2  
(b) The length of the diagonal is 13 m
73. If X and Y are non - negative is  $X^3 - Y^3$  greater than 0?
- (a)  $X = Y$                       (b)  $XY > 0$
74. The line of length  $\sqrt{2}$  is drawn as follows :
- (a) The hypotenuse of the Pythagorean triangle with sides of unit length  
(b) Draw the line of length 1.414
75. What is the value of Z?
- (a)  $Z^2 = 4S$                       (b)  $S = 4Y$
76. Two runners, A and B running along a route connecting the places U, V, W and X in different order, will they meet at W if A runs 7 km per hour and B runs 8 km per hour.
- (a) If A starts at U and B starts at V  
(b) If A starts at V and B starts at U
77. A pack of 40 sweets is divided among three persons A, B, and C. How many sweets did B get?

- (a) C gets 30% of the sweets  
(b) A and C together get 25 sweets
78. The average temperature of a certain week was  $36^{\circ}\text{C}$ . What was the temperature on the fourth day?  
(a) The average temperature on the last four days was  $37.5^{\circ}\text{C}$   
(b) The average temperature on the first four days was  $35.5^{\circ}\text{C}$
79. If the area of the quadrilateral is 30 what is its perimeter?  
(a) One of its diagonals is given  
(b) Lengths of two sides are given
80. Is X real?  
(a)  $x^4 + e^{-x} = 0$  (b)  $\sin x + e^{-x} = 0$
81. N is an integer. Is N divisible by 9?  
(a) N is divisible by 3 (b) N is divisible by 12
82. What is the value of  $X^{16} - 1$ ?  
(a)  $X - 1 = 2$   
(b)  $X^{15} + X^{14} + X^{13} + \dots + 1 = 5$
83. If X and Y are integers, is  $X < Y$ ?  
(a)  $\sqrt{X} < \sqrt{2Y}$  (b)  $X + 2 < Y - 1$
84. Two different numbers are chosen from a set. What is the chance that the sum of two numbers is five?  
(a) The total sum of numbers in the set is 125  
(b) The sum of first four numbers in the set is 17
85. What are the values of A and B?  
(a)  $7A - 3B = 2$  (b)  $A + B = -5$

### SECTION - V : ENGLISH USAGE

*Directions : In each of the sentences below, four words or phrases have been underlined. Select the underlined part which contains an error in usage, grammar or punctuation. If there is no error, indicate 5 as the answer.*

86. There were many reasons that the whole  
1 2  
character of the twentieth century should be  
very different from that of the nineteenth.  
3 4
87. It is elemental that the greater the  
1 2  
development of man, greater the problems he  
has to concern him.  
3 4
88. Though Hindi has been given the status of the  
1  
national language still there are certain parts  
2
- of the country, where Hindi has yet to win its  
3  
rightful place in the hearts of the people.  
4
89. Not only he objected to his proposal, but  
1 2  
also he condemned it in the strongest terms.  
3 4
90. Disregard for odds and complete confidence in  
1  
one's self have produced many of our  
successes.  
2 3 4
91. When he started taking the attendance, he found  
1  
2  
that a number of boys had absented from the  
3 4  
class

92. Thirty copies of the book were bought so that  
1 2 3  
each student in the class may have one.

93. There comes a time when we feel we  
1 2  
must have made a protest.  
3 4

94. If, through carelessness, some one  
1  
damages your cycle, he is under a legal  
2 3  
obligation to pay the cost of repair.  
4

95. The world we live presents an endless  
1 2  
variety of fascinating problems which  
3  
excite our wonder and curiosity.  
4

96. I am working on this job since last Monday.

97. I have pleasure to certify that the bearer  
1 2 3 4  
has been known to me for the last five  
3 4  
years.

98. Your face is more beautiful than  
1 2 3  
your mother.  
4

99. No words can describe the happiness and  
1 2  
beautitude that the pursuit of knowledge  
3  
confers on its votaries.  
4

100. I thanked him for the great trouble he had  
1 2 3  
taken in organising that function.  
4