

ATMA – 2007

**Directions (Qs. 1 to 30):** Each question or set of question is based on a passage or a set of conditions. In answering some of the questions, it may be useful to draw a rough diagram. For each question, select the best answer choice given which are numbered [1], [2], [3] and [4]. Then darken the oval in the answer sheet.

1. Defense Department analysts worry that the ability of the Ministry of Defense, Government of India to wage a prolonged war would be seriously endangered if the machine tool manufacturing base shrinks further. Before the Defense Department publicly connected this security issue with the import quota issue, however, the machine tool industry raised the national security issue in its petition for import quotas. Which of the following, if true, contributes most of an explanation of the machine tool industry's raising the issue above regarding national security?
  - [1] A few weapons important for defense consists of parts that do not require extensive machining.
  - [2] The machine-tool industry encountered difficulty in obtaining governmental protection against import on grounds other than defense.
  - [3] The Defense Department is only marginally concerned with the effects of foreign competition on the machine tool industry.
  - [4] Several federal government programs have been designed which will enable domestic machine tool manufacturing firms to compete successfully with foreign tool makers.
  
2. In the past five years, the HRD ministry cut B-School funding and each time B-School authorities complained that cuts would force them to reduce expenditure for essential services. But each time, only expenditure for non-essential services actually reduced. So B-School authorities can implement further cuts without reducing any expenditure for essential services. Which of the following, if true, the most strongly supports the Ministry's conclusion?
  - [1] The B-School authorities rarely exaggerate the potential impact of threatened funding cuts.
  - [2] Few influential business-house supports the funding of costly nonessential services in the B-Schools.
  - [3] The B-Schools have always provided essential services as effectively as they have provided non-essential services.
  - [4] Sufficient funds are currently available to allow B-School to provide some non-essential services.
  
3. Meteorite explosions in Mexico about 65 million years ago as large as the once that accepted as the cause of destructions of dinosaurs, with approximately the force of a twenty-megaton nuclear blast, occur about once a century.

The response of highly automated systems controlled by complex computer programmes to unexpected circumstances is unpredictable.

Which of the following conclusions can most properly be drawn, if the statements above are true, about a highly automated nuclear-missile defense system controlled by a complex computer programme?

- [1] Whether the system would respond inappropriately to the explosion of a large meteorite would depend on the location of the blast.
- [2] The system will be destroyed if an explosion of large meteorite occurred in the Earth's atmosphere.
- [3] It would be impossible for to system to distinguish the explosion of a large meteorite from the explosion of a nuclear weapon.
- [4] It is not certain what the system's response to the explosion of a large meteorite would be, if its designers did not plan for such a contingency.

4. **Advertisement:** For sinus pain, three of four hospitals give their patients “Painquil”. So when you want the most effective painkiller for sinus pain, “Painquil” is the one to choose.

Which of the following, if true, most seriously **undermines** the advertisement’s argument?

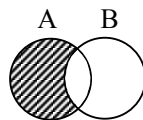
- [1] Many drug manufacturers increase sales of their products to hospitals (Government’s Central stores for hospitals) by selling these products to the hospitals at the lowest price the manufacturers can afford.
  - [2] In clinical trials “Painquil” has been found to be more effective than competing brands of painkillers that have been on the market longer than “Painquil”.
  - [3] Unlike some competing brands of painkillers, “Painquil” is available from drug stores over the counter without a doctor’s prescription.
  - [4] Some competing brands of painkiller are indented to reduce other kinds of pain in addition to sinus pain.
5. A report that many apples contain a cancer-causing preservatives called Alar apparently had little effect on consumers. Few consumers planned to change their apple-buying habits as a result of the report. Nonetheless, sales of apples in the fruit – stalls fell sharply in October, after the report was published widely in dailies.

Which of the following, if true, best explains the reason for the apparent discrepancy described above?

- [1] The report did not mention that any other fruit contains Alar although preservative is used on other fruits.
- [2] Because of a growing number of food safety warnings, consumers in October were indifferent to such warnings.
- [3] In October, many fruit-retail-stores removed apples from their stocks in order to demonstrate concern about their customer’s health to increase their credibility in customer-services.
- [4] The report was widely debated in regional languages on television.

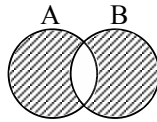
**Directions (Qs. 6 to 10):** Below you will find a few statements or a set of statements followed by 3 or 4 different figures – numbered [1], [2], [3] and [4]. Each figure is drawn as three overlapping circles (Venn diagram) describing the probable relationship among the three class of objects, things, groups, persons, etc., stated in the statement(s). Each circle represents one class of objects, things, groups, persons, etc., indicated by CAPITALIZED initials shown in the parenthesis in the statement(s). Venn diagrams (or a set of diagrams) here are the diagrammatic representation of sets or set operations. You may also find here the symbolic expressions / operations of sets such as union (or join, of two or more sets means – it contains all the elements (or members) of the sets (say A and B) avoiding duplication and is denoted as  $A \cup B$  i.e., “A union B”. The second basic operation i.e., Intersection (or meet) of two or more sets means all the elements / members that belongs to (i.e., common)both / all the sets, for instance,  $A \cap B$  is read as “ A intersection B”. The complement of a set denotes ( $A^c$ ) those elements / members which do not belongs to set A. In the figure, the unshaded part means that class or sub-class or sub-set is empty or there is no member in that class or sub-class, or sub-set, i.e., a null set ( $A = \{0\}$ ).

In particular, the following Venn diagrams and expressions illustrate the probable relationship between any two sets / class:



Indicates there is A which is B, or there is no member which belongs to both sets A and B; it also indicates that the set B is an empty set or

$A \cap B = A - B$  or  $A \cap B = \{0\}$  a null set.

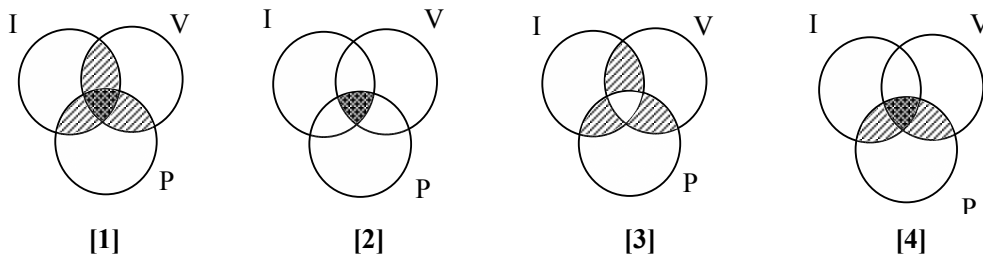


Indicates there is no common member between the sets A and B or  $A \cap B$  is an empty set.

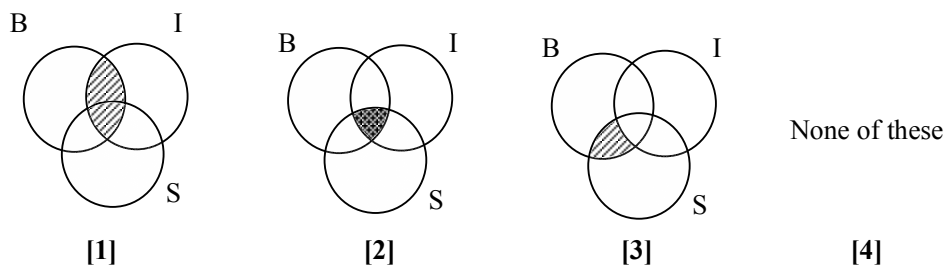
Indicates there is no empty set; the figure represents – (a) some A is not B, i.e.,  $A \cap B^c$ , (b) some A is B and vice-versa, i.e.,  $A \cap B \neq \{0\}$ ; and (c) some B is not, A i.e.  $A^c \cap B$ .

For each set of statement(s), 3 or figures (Venn diagrams/expressions) using set symbols as stated, above numbered [1], [2], [3] and [4] are given. Choose the diagram / set expressions) that describes the probable relationship among the class of objects, things, etc., indicated by CAPITALIZED initials in parenthesis as stated in the set of statement(s) and darken the corresponding oval in the answer sheet.

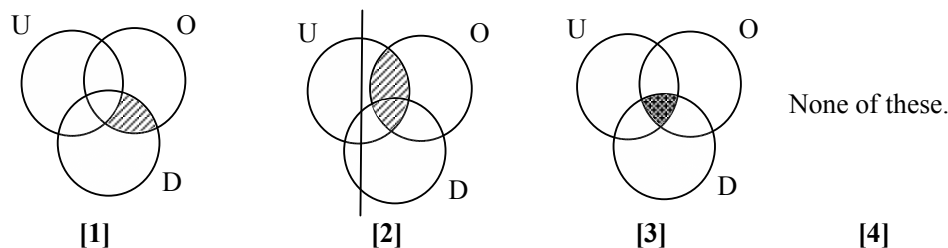
6. Some preachers are persons (P) of unfailing vigour (V). All Preachers are intellectuals (I). Some intellectuals, therefore, are persons unfailing vigour



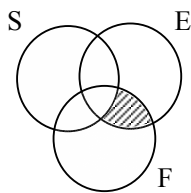
7. All bankrupt companies (B) are companies unable to pay interests (I) on their debts “Swarnagandha Pvt. Ltd.” is a company unable to pay interests on its debts (S). “Swargandha Pvt. Ltd.” is therefore, a bankrupt company.



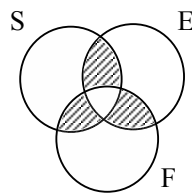
8. All useful things are objects no more than six feet long (O), since all difficult things to store (D) are useless things (U), and no objects over six feet long are easy thing to store.



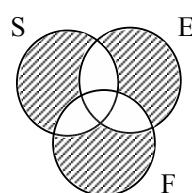
9. All explosives (E) are inflammable things (F). No inflammable things are safe (S). The no safe things are explosives.



[1]



[2]

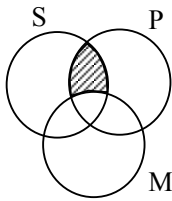


[3]

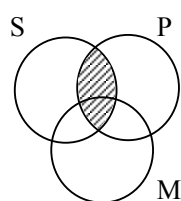
None of these

[4]

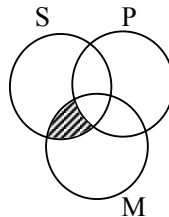
10. No politicians (P) are mathematicians (M). Some mathematicians are Scholars(S). Therefore some Scholars are not politicians.



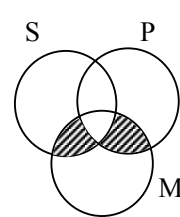
[1]



[2]



[3]



[4]

**Directions (Qs. 11 to 15):** For each question, two or more statements are given. These statements marked (A), (B), etc., are followed by two conclusions marked (I) and (II) that can be logically drawn from the statements as stated above. Even if the statements vary from well known facts assume them to be true. Choose the best alternative from the answer choices as given below and darken the corresponding in the answer sheet.

11. **Statements:**

(A) Everyone who saw the game was at the dance.  
(B) Not quite all the students were at the dance.

**Conclusion(s):**

(I) Therefore some students are persons who were at the dance.  
(II) Therefore some students are not persons who were at the dance.

[1] I only                      [2] II only                      [3] Both I and II                      [4] Neither I nor II

12. **Statements:**

(A) All automobiles designed for family use are vehicles intended to be driven at moderate speeds.  
(B) No sports cars are vehicles intended to be driven at moderate speeds.

**Conclusion(s):**

(I) Therefore cars intended to be driven at moderate speeds are not Sports cars.  
(II) Therefore no sports cars are automobiles designed for family use.

[1] I only                      [2] II only                      [3] Both I and II                      [4] Neither I nor II

13. **Statements:**

(A) All places where a fox has passed a places where the hounds bay.  
(B) This place is not a place where the hounds bay,

**Conclusion(s):**

(I) Therefore the fox must have taken another path.  
(II) Therefore this place is not a place where a fox has passed.

[1] I only                      [2] II only                      [3] Both I and II                      [4] Neither I nor II

14. **Statements:**

- (A) Yond and Cassius has a lean and hungry look.  
(B) Such men are dangerous.  
(W. Shakespeare, Julius Caesar, Act 1, Sc.2)

**Conclusion(s):**

- (I) Yond Cassius was dangerous man.  
(II) Therefore all dangerous men have a lean and hungry look.  
[1] I only                      [2] II only                      [3] Both I and II                      [4] Neither I nor II

15. **Statements:**

- (A) Soiled paper plate are scattered only where careless people have picnicked.  
(B) There are soiled paper plates scattered about here.

**Conclusion(s):**

- (I) Therefore this place is a place where careless people have picnicked.  
(II) Therefore picnicked places were soiled paper plates are scattered.  
[1] I only                      [2] II only                      [3] Both I and II                      [4] Neither I nor II

**Directions (Qs.16 to 18):** For each question. Select the best answer/from the choices given. Darken the corresponding oval in the answer sheet.

16. Toughened hiring standards have not been the primary cause of the present staffing shortage of engineers in public sector organizations. The shortage of engineers is primarily caused by the fact that in recent years engineers have not experienced any improvements in working conditions and their salaries have not kept pace with salaries in the private sectors.

Which of the following, if true, would most support the claims above?

- [1] Some engineers have cited higher standards for recruitment as a reason for the current staffing shortage of engineers in the public sector.  
[2] Today more engineers are entering the profession with higher educational level than in the past.  
[3] Many engineers have cited low pay and lack of professional freedom as reasons for their leaving the public sector organizations.  
[4] Many prospective candidates have cited the new admission standards as a reason for not entering engineering institutes.

17. A proposed ordinance requires the installation in new flats in high-rise buildings in New Delhi of sprinklers automatically triggered by the presence a fire. However, a promoter argued that because more than 90 percent of residential fires are extinguished by a household member, residential sprinklers would only marginally decrease damage caused by residential fires.

Which of the following, if true, would most seriously **WEAKENS** the promoter's argument?

- [1] In New Delhi where the ordinance was proposed, the average time required by the fire brigade to respond to a fire was less than national average.  
[2] Since new flats are only a tiny percentage of available flats in the city, the new ordinance would be extremely narrow in scope.  
[3] The largest proportion of property damage that result from residential fires is caused by fires that start when no household member is present.  
[4] It is usually reported that jupri (slums) fires are more damaging and devastating than fires in new flats modern high-rise buildings.

18. During World War II about 3,75,000 civilians died in the US and about 4,08,000 members of the US armed forces died overseas (as reported). On the basis of those figures, it can be concluded that it was not much more dangerous to be over seas in the armed forces during World War II than it was to stay at home as a civilian.

Which of the following would reveal most clearly the **absurdity** of the conclusion drawn above?

- [1] Comparing deaths caused by accidents in the US to deaths caused by combat in the armed forces.
- [2] Expressing the difference between the numbers of deaths among civilians and members of the armed forces as a percentage of the total number of deaths.
- [3] Comparing death rates per thousand members of each group rather than comparing total number of deaths.
- [4] Separating deaths caused by accidents during service in the armed forces from deaths caused by combat injuries.

**Directions (Qs. 19 & 20):** If there is an oil–supply disruption resulting in higher international oil prices, domestic oil prices in India’s partially globalised economy will rise a well, whether India imports all or none of its oil.

19. If the statement above concerning oil– supply disruptions is true, which of the following policies in a partially globalised market nation like India is most likely to reduce the long term economic impact on India of sharp increases in international oil prices?
- [1] Reducing the sale of passenger cars in the domestic market.
  - [2] Increasing the number of oil tankers in its fleet.
  - [3] Hastening oil exploration efforts in new on–shore and off–shore areas to new and probable source of oil and natural gas.
  - [4] Decreasing oil consumption through conservation.
20. Which of the following conclusions is best supported by statement above?
- [1] If international oil prices rise, domestic oil companies, both public and private sectors, will begin to import more oil.
  - [2] International oil –supply disruptions have little, if any, effect on the price of domestic oil as long as an openmarket country like India has domestic supplies capable of meeting domestic demands.
  - [3] Open–market countries, like India, that export little ore none of their oil can maintain stable domestic oil prices even when international oil prices rise sharply.
  - [4] The oil market in an open–market country, like India, is actually part of the international oil market, even if most of that country’s domestic oil is usually sold to consumers within its own country.

**Directions (Qs. 21 to 24):** Five girls – C, D, E, F and G – have gathered to play game called “forest and trees”. Four girls play in each round, with one girl sitting out. Rounds are played by two competing teams of two girls each. The players have agreed on the following rules of participation.

- No two players can play as a team in two consecutive rounds of the game.
- After a round is concluded, one girl from the losing team in that round must sit out the next round of game.
- After a round is concluded, the player who has sat out that round and a player from the winning team in that round join to form the team that is known as the “forest” for the next round.
- After a round is concluded, one player from the losing team in that round and one player from the winning team in that round join to form the team that is known as the “trees” for the next round.
- No round in a game can end in a tie.
- Because E and G are perceived as having the greatest individual strengths as players, E and G can never play in the same team.

21. If C and F are the winning team in the first round, each of the following could be a member of “the forest” during the second round **EXCEPT**  
 [1] G [2] F [3] C [4] 0
22. If, in the first round of a game, C and G are the winning team and E sits out, which of the following must be a team in the second round of that game?  
 [1] C and E [2] D and E [3] E and F [4] F and G
23. If F sits out in the first round, each of the following could be a team in the first round **EXCEPT**  
 [1] C and G [2] C and E [3] C and D [4] D and G
24. If in the first round of a game, D and E are the winning team and C sits out, which of the following could be a team in the second round of that game?  
 [1] E and G [2] D and G [3] C and G [4] D and E

**Directions (Qs. 25 to 28):** Seven persons – J, K, L, M, N, O, and R – are all the persons present in a party, All of them join distinct conversational groups that form during the party and that consist of two, three, or four persons at a time. At any time, during the party, each of the persons present is considered to be a member of exactly one of the conversational groups. During the party the following conditions are satisfied.

- J can never be in the same conversational group as M.
  - N must be a conversational group that includes either M or R, but N cannot be a conversational group with both M and R.
  - R must be in a conversational group that consists of exactly three persons.
25. Which of the following lists three conversational groups that can exist at the same time during the party?  
 [1] J, O and R; K and M; L and N  
 [2] J and O; L and M; K, N and R  
 [3] J and R; M and O; K, L and N  
 [4] J and M; K, N, and R; L and O
26. If at a certain point during the party, L, N, and R members of three distinct conversational groups, M must be at that point be in a conversational group that includes –  
 [1] R [2] K [3] L [4] N
27. If, at a certain point during the party a group of three persons and a group of four persons have formed and R is in the same conversational group as O, which of the following must at that point be in the group with O and R?  
 [1] N [2] M [3] J [4] L
28. If, at a certain point during the party, one of the conversational groups consists only of K, L, and R, at that point J must be part of  
 [1] four persons, whose other members include O.  
 [2] two persons, whose other member is O.  
 [3] four persons, whose other members include N.  
 [4] two persons, whose other member is N.

29. People often recall having felt chilled before the onset of a cough and cold. This supports the hypothesis that cough and cold are, at least sometimes, caused by becoming chilled; it is the chill that allows a rhinovirus, if present, to infect a person.

Which of the following, if true, most seriously **weakens** the force of the evidence cited above?

- [1] After a rhinovirus has incubated in a person for several days, the first symptom it causes is a feeling of chilliness.
  - [2] Rhino viruses are not always present in the environment, and so a person could become chilled without catching a cold.
  - [3] Some people who catch colds are not sure what it was that allowed them to catch cold.
  - [4] Some people who catch colds often in winter season do not take proper protection against weather.
30. Ironically, people who use aspartame as a sweetener to reduce their caloric intake could wind up defeating their purpose, since studies show that high levels of aspartame may trigger a craving for carbohydrates by depleting the brain of a chemical that registers carbohydrate satiety.

Which of the following conclusions can most properly be drawn if the statements above are true?

- [1] People who do not use aspartame are not likely to develop a craving for carbohydrates.
- [2] Food products that contain a aspartame ate typically low in carbohydrates.
- [3] Aspartame can be more hazardous than carbohydrates to people's health.
- [4] The caloric content of foods that are high in carbohydrates is significant.

## SECTION II

### VERBAL SKILLS

**Directions (Qs. 31 to 55):** Passage I, II and III are followed by questions based on its contents. After reading the passages, choose the best answer to each question then darken the corresponding oval in the answer sheet. Base your answer information that is either stated or implied in the passage.

#### PASSAGE I

Although the number of animals in a given region may fluctuate from year to year, the fluctuations are often temporary and, over long periods, trivial. Scientists have advanced three theories of population control to account for this relative constancy.

The first theory attributes a relatively constant population to periodic climatic catastrophes that decimate populations with such frequency as to prevent them exceeding some particular limit. In the case of small organisms with short life cycles, climatic changes need not be catastrophic: normal seasonal changes in photoperiod (daily amount of sunlight), for example, can govern population growth. The theory—the density-independent view—asserts that climatic factors exert the same regulatory effect on population regardless of the number of individuals in a region.

A second theory argues that population growth is primarily density-dependent—that is the rate of growth of a population in a region decreases as the number of animals increases. The mechanisms that manage regulation may vary. For example, as numbers increase, the food supply would probably diminish, which would lower mortality. In addition, as Lotka and Volterra have shown, predators can find prey more easily in high-density populations. Other regulators include physiological control mechanisms. For example, Christian and Davis have demonstrated how the crowding that results from a rise in numbers about hormonal changes in the pituitary and adrenal glands that in turn may regulate population by sexual activity and inhibiting sexual maturation. There is evidence that these effects may persist for

three-generations in the absence of the original provocation. One challenge for density-dependent theorist is to develop models that would allow the precise prediction of the effects of crowding.

A third theory proposed by Wynne-Edwards and termed “epideictic” argues that organisms have evolved a “code” in the form of social or epideictic behavior displays, such as winter-roosting aggregations or group vocalizing; such codes provide organisms with information on population size in a region so that they can, if necessary, exercise reproductive restraint. However, Wynne-Edwards theory, linking animal social behavior and population control, has been challenged, with some justification, by several studies.

31. The primary purpose of the passage is to
- [1] Provide examples of some of the ways in which animals exercise reproductive restraint to control their own numbers.
  - [2] Suggest that theories of population control that concentrate on the social behavior of animals are more open to debate than the theories that do not.
  - [3] Summarize a number of scientific theories that attempt to explain why animal populations do not exceed certain limits.
  - [4] Compare and contrast the density-dependent and epideictic theories of population control.
32. The challenge posed to the Wynne-Edwards theory by several studies is regarded by the author with
- |                             |                            |
|-----------------------------|----------------------------|
| [1] skeptical amusement.    | [2] qualified acceptance.  |
| [3] perplexed astonishment. | [4] complete indifference. |
33. It can be inferred from the passage that proponents of the density-dependant theory of population control have not yet been able to:
- [1] reproduce the results of the study Christian and Davis.
  - [2] demonstrate how predator populations are themselves regulated.
  - [3] make sufficiently accurate predictions about the effects of crowding.
  - [4] explain adequately why the numbers of a population can increase as the population’s rate of growth decreases.
34. Which of the following, if true, would best support the density-dependent theory of population control as it is described in the passage?
- [1] As the number of elephants in Kaziranga (Assam) decreases, the growth rate of this population of elephants begins to increase.
  - [2] As the number of Asiatic lions in Forest (Gujarat) increases, the growth rate of this population of Asiatic Lions also begins to increase.
  - [3] As the number of white-backed Indian vultures in Delhi decreases, the growth rate of this population of white-backed Indian vultures also begins to decrease.
  - [4] After the number of cheetals (spotted deer’s ) in Kanha National Park decreases, the number of predators of these Cheetals begins to increase.
35. Which of the following statements would provide the most logical continuation of the final paragraph of the passage?
- [1] Because the Wynne-Edward theory is able to explain more kinds of animal behavior than the density-dependant theory, epideictic explanations of population regulation are now widely accepted.
  - [2] Some of these studies have, in fact, worked out a systematic and complex code of social behavior that can regulate population size.
  - [3] Thus Wynne-Edward’s theory raises serious questions about the constancy of animal population in a region.
  - [4] The result of one study, for instance, have suggested that group vocalizing is more often used to defend territory than to provide information about population density.

36. According to Wynne –Edwards theory as it is described in the passage, epideictic behavior displays serve the function of
- [1] attracting predators.
  - [2] regulations of sexual activity
  - [3] locating food.
  - [4] triggering hormonal changes.

### PASSAGE II

The transplantation of organs from one individual to another normally involves two major problems:

- [1] Organ rejection is less likely unless the transplantation antigens of both individuals are nearly identical, and
- [2] The introduction of any unmatched transplantation antigens induces the development by the recipient of donor-specific lymphocytes that will produce violent rejection of further transplantations from that donor.

However, we have found that among many strains of rats these “normal” rules of transplantation are not obeyed by liver transplants. Not only are liver transplants never rejected, but they even induce a state of donor-specific unresponsiveness in which subsequent transplants of other organs, such as skin, from that donor are accepted permanently. Our hypothesis is that :

- Many strains of rats simply cannot mount a sufficiently vigorous destructive immune-response (using lymphocytes) to outstrip the liver’s relatively great capacity to protect itself from immune-response damage and that
- The systematic unresponsiveness observed is due to concentration of the recipient’s donor-specific lymphocytes at the site of the liver transplant.

**Directions (Qs. 37 to 40):** are based on Passage II above.

37. The primary purpose of the passage is to treat the accepted generalizations about organ transplantation’ in which of the following ways?
- [1] Criticize the major evidence used to support them.
  - [2] Suggest an alternative to them.
  - [3] Examine their virtues and limitations.
  - [4] Present findings that qualify them.
38. According to the hypothesis of the author, after a successful liver transplant, the reason that rats do not reject further transplants of other organs from the same donor is that the –
- [1] recipient is unable to manufacture the lymphocytes necessary for the immune-response reaction.
  - [2] subsequently transplanted organ is able to repair the damage caused by the recipient’s immune-response reaction.
  - [3] transplantation antigens of the donor and the recipient become matched.
  - [4] transplanted liver continues to be the primary locus for the recipient’s immune-response reaction.
39. Which of the following new findings about strains of rats that does not normally reject liver transplants, if true, would support the author’s hypothesis?
- I. Stomach transplants are accepted by the recipients in all cases.
  - II. Increasing the strength of the recipient’s immune-response reaction can induce liver-transplant rejection.
  - III. Organs from any other donor can be transplanted without rejection after liver transplantation.
  - IV. Preventing lymphocytes from being concentrated at the liver transplant produces acceptance of skin transplants.
- [1] I only                      [2] II, III and IV only      [3] II only                      [4] IV only

40. It can be inferred from the passage that the author believes that an important difference among the strains of rats is the –
- [1] strength of their immune–response reactions
  - [2] adaptability of their lymphocytes.
  - [3] sensitivity of their antigen.
  - [4] size of their livers.

### PASSAGE III

Corporate earnings growth has begun to slow down, although overall the last quarter’s results may not have disappointed too much. But then expectations had been **tempered** by the sharp strengthening of the rupee and continued rise in prices of commodities. An analysis of results of about 1400 companies, excluding those in the financial services sector, show that more than half of them reported slower growth of PAT (Profit After–tax) in the September quarter (’07–’08) compared to the previous three months. And it is not just the smaller companies that experienced a deceleration in earnings growth.

Several medium–to–large–sized companies across sectors such as information technology pharmaceuticals, cement, tyres and metals too experienced a slower quarter. Overall, the top line growth Has been showing a slowing trend, with quarterly sales growth (year–on–year) for the sample at a little over 10% compared with almost 30% in the same quarter last financial year(’06–’07). However, there has been no trend in PAT growth over the last four quarters. The bottoming of the sample rose by 20% in the quarter to September 2007, compared with about 52% in the corresponding quarter last year. However in the last four quarters the bottom line growth has tended to fluctuate randomly. The days of heady growth rates, though are clearly over the corporate sector is unlikely to see 30% growth in sales with 50–60% growth in PAT any time soon.

It is encouraging to note that the order books are still very strong and there is revival in demand in–sectors such as automobile. More heartening is the finding of as October ’07 survey of purchasing managers conducted for ABN Amro Bank by UK based NTC research. The survey reports that the purchasing managers index has risen to its highest reading since April 2005, indicating a recovery and improvement in overall business conditions. Much of this may be triggered by the onset of the festival season in the country some of the optimism may and by early next year. That apart the global conditions are not very encouraging; a slowdown in the US can hurt the Indian economy and the earnings of the corporate sector. The corporate sector and investors need to be mindful of the developments in the global and domestic economy to protect themselves from shocks.

(Source: A lead article published in a national financial daily in November 2007)

**Directions (Qs. 41 to 45):** are based on Passage III above.

41. According to the passage which of the following statement(s) is/are true?
- I. Despite the fact that a slowdown in US can hurt the Indian economy, considering the global conditions, the earning of the corporate sector is not discouraging.
  - II. Despite the fact that the topline growth has been showing a slowing trend, there has been no trend in PAT growth over the last four quarters.
  - III. An analysis of results of about 1400 companies across almost all sectors, shows that more than half of them reported slower growth of PAT in the September quarter (’07–’08) compared to the pervious three months.
- [1] I only                      [2] II only                      [3] III only                      [4] II and III only
42. Some of the optimism may “wane” by early next year:  
The underlined word “wane” here means
- [1] decline    [2] decrease in importance
  - [3] shrink    [4] fall off

43. The underlined word “**tempered**” in the second sentence of the passage means  
[1] peevishness                      [2] modulated                      [3] sang-froid                      [4] equanimity
44. It can be inferred from the passage that each of the following is a consideration in determining whether the corporate earnings growth in his fiscal and in next year has begun to slow down **EXCEPT** the –  
[1] Smaller companies as well as several medium-to-large-sized companies across sectors like IT, pharma, etc., experience a deceleration in earnings growth.  
[2] Corporate sector is unlikely to see 50% growth in sales with 50–60% growth in PAT any time soon.  
[3] A survey report by a UK based NTC research for ABN–Amro Bank indicates a recovery and improvement in overall business conditions.  
[4] In an analysis of results of about 1400 companies, the bottomline of the sample rose by 20% in the quarter September 2007, compared with about 52% in the corresponding quarter last year.
45. The primary purpose of the passage is to –  
[1] Provide critical appreciation of the growth of Indian economy in the next fiscal year.  
[2] Review the corporate earnings growth in this fiscal year and compare the earnings of the last during the corresponding period.  
[3] Provide analytical reason for the rise of BSE sensx in Indian market recently.  
[4] Provide the survey data in support of the principal concern of the author that a recovery and improvement in overall business conditions in this fiscal which the survey indicated.

**Directions (Qs. 46 to 50):** Each of the questions below consists of a word in CAPITAL LETTERS followed by four words or phrases numbered [1], [2], [3], and [4]. Choose the numbered word or phrase that is nearly OPPOSITE in meaning to the word in capital letters, then darken the corresponding oval in the answer sheet.

Since some of the questions require you to distinguish fine shades of meaning, be sure to consider all the choices before deciding which one is best.

46. OBDURATE  
[1] similar                      [2] uncommunicative                      [3] transitory                      [4] complaisant
47. AVER  
[1] condemn unjustly                      [2] resign indignantly                      [3] deny                      [4] resent
48. PITH  
[1] superficial element                      [2] routine treatment  
[3] insufficient attention                      [4] rigid formulation
49. EFFRONTERY  
[1] stupidity                      [2] simplicity                      [3] deceitfulness                      [4] deference
50. SCURVY  
[1] above reproach                      [2] valiant                      [3] completely                      [4] carefree

**Directions (Qs. 51 to 55):** Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are four words or sets of words numbered [1], [2], [3] and [4]. Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole. Then darken the corresponding oval in the answer sheet.

51. Although Shakespeare received little formal education, scholarship, has in recent years \_\_\_\_\_ the view that he was \_\_\_\_\_ the work of classical authors.  
[1] raised doubts about .... fully aware of                      [2] supported ..... scurrilous  
[3] rejected .... well conversed with                              [4] undermined..... unfamiliar with
52. Their air of cheerful self-sacrifice and endless complaisance won them undeserved praise, for their seeming gallantry was wholly motivated by a \_\_\_\_\_ wish to avoid conflict of any sorts.  
[1] putative                      [2] laudable                      [3] craven                      [4] poignant
53. Darwin's method did not really \_\_\_\_\_ the idea of race as an important conceptual category; even the much more central idea of species was little more than a theoretical \_\_\_\_\_.  
[1] examined..... abstraction                                      [2] require..... convenience  
[3] used ..... speculation    [4] subsume..... validation
54. Employees had become so \_\_\_\_\_ to the caprices of top management's personnel policies that they greeted the announcement of a company-wide dress code with \_\_\_\_\_.  
[1] inured..... impassivity    [2] pleased.....impassivity  
[3] inured....excitement    [4] disdainful....violence
55. The distinction between past, present, and future is only \_\_\_\_\_ however, \_\_\_\_\_ (Albert Einstein 1879-1955)  
[1] man-made.....artificial    [2] false....continuous  
[3] illusion.....persistent    [4] continuous ..... discreet

### SECTION III

#### QUANTITATIVE SKILLS

**Directions for (Qs. 56 to 85):**

**Numbers** : All numbers used are real numbers.

**Figures** : Position of points, angles, regions, etc., can be assumed to be in the order shown, and angle measures can be assumed to be positive.

Lines shown as straight line can be assumed to be straight.

Figures can be assumed to lie in a plane unless otherwise indicated.

Figures that accompany questions are intended to provide information useful in answering the questions. However, unless a note states that a figure is drawn to scale, you should solve these problems NOT by estimating sizes by sight or by measurement, but by using your knowledge of mathematics.

**Directions (Qs. 56 to 65):** Each of the question 56 to 55 has four answer choices number [1], [2], [3] and [4]. For each of these questions, select the best of the answer choice given, then darken the corresponding oval in the answer sheet.

56. If you have exactly 3 times as many oranges as apples in your fruit-bowl, which of the following CANNOT be the number of oranges and apples in your fruit bowl?  
[1] 68                                      [2] 72                                      [3] 54                                      [4] 44

57. If  $x$  is the number on the number line between 5 and 15 that is twice as far from 5 as from 15, then  $x$  is \_\_\_\_\_  
 [1]  $13\frac{1}{2}$                       [2]  $8\frac{1}{3}$                       [3]  $11\frac{2}{3}$                       [4] 12
58. The probability is  $\frac{1}{2}$  that a certain unbiased coin will turn up head on any given toss. If the coin is to be tossed three times, what is the probability that at least one of the tosses the coin will turn up tails?  
 [1]  $\frac{1}{8}$                       [2]  $\frac{3}{4}$                       [3]  $\frac{15}{16}$                       [4]  $\frac{7}{8}$
59. Which of the following describes all values of  $x$  for which  $1 - x^2 \geq 0$   
 [1]  $0 \leq x \leq 1$                       [2]  $x \geq 1$                       [3]  $0 \leq -1$  or  $x \geq 1$                       [4]  $-1 \leq x \leq 1$
60. The present ratio of students to faculty at a certain B-School is 30 to 1. If the students enrollment were to increase by 50 students, the number of faculty were to increase by 5, the ratio of students to faculty would then be 25 to 1. What is the present number of faculty?  
 [1] 15                      [2] 6                      [3] 40                      [4] 8
61. What is the units digit of  $(13)^4 (17)^2 (29)^3$ ?  
 [1] 1                      [2] 2                      [3] 3                      [4] 4
62. What is the smallest integer  $n$  for which  $25^n > 5^{12}$ ?  
 [1] 7                      [2] 6                      [3] 8                      [4] 9
63. A certain company retirement plan has a "rule of 70" provision that allows an employee to retire when the employee's age plus years of employment with the company total at least 70. In what year could a female employee hired in 1986 on her 30th birthday first be eligible to retire under this provision?  
 [1] 2026                      [2] 2006                      [3] 2016                      [4] 2020
64. For all integers  $n > 1$ , the sum of  $\frac{1}{n+1} + \frac{1}{n+2} + \frac{1}{n+3} + \dots + \frac{1}{2n} >$   
 [1]  $\frac{13}{14}$                       [2]  $\frac{15}{24}$                       [3]  $\frac{17}{27}$                       [4]  $\frac{19}{24}$
65. For every positive integer  $n$ ,  $2^{2n} - 1$  is divisible by \_\_\_\_\_  
 [1] 2                      [2] 4                      [3] 3                      [4] 6

**Directions (Qs. 66 to 70):** In each of the problems, a question is followed by two statements marked (A) and (B) containing certain data pertaining to the problem. You need to determine whether the data provided by the statements are sufficient to answer the question from the four answer choices numbered [1], [2], [3], and [4]. Choose the correct answer for each question based upon the statement data, then darken the corresponding oval in the answer sheet.

**Choose 1 :** If the question can be answered by one of the Statements (A) or (B) ALONE but not by the other statement.

**Choose 2 :** If the question can be answered by EITHER statement ALONE.

**Choose 3 :** If the question can be answered by using both the statement TOGETHER, but cannot be answered by using either statement alone.

**Choose 4 :** If the question CANNOT BE answered even by using both statements together.

66. Is  $11^{n+2} + 12^{2n-1}$  divisible by 133? (n is an integer) –  
 (A)  $n > 0$   
 (B)  $n < 0$   
 [1] (A) or (B) alone, but not by other statement [2] Either statement  
 [3] Both Statements together [4] Cannot be answered
67. If  $xy \neq 0$ , is  $\frac{x}{y} < 0$   
 (A)  $-x = -(-y)$   
 (B) Either statement  
 [1] (A) or (B) alone but not by other statement [2] Either statement  
 [3] Both statement together [4] Cannot be answered
68. In terms of m, y is what percent of x?  
 (A)  $m > 0$   
 (B) x is m percent of y  
 [1] (A) or (B) alone, but not by other statement [2] Either statement  
 [3] Both statements together [4] Cannot be answered
69. What is the tenth digit in the decimal representation of a certain number?  
 (A) The number is less than  $\frac{1}{3}$   
 (B) The number is greater than  $\frac{1}{4}$   
 [1] (A) or (B) alone, but not by other statement [2] Either statement  
 [3] Both statements together [4] Cannot be answered
70. In an election between two candidates, the winning candidate won by 1000 more over the other candidate. What is the number of votes the defeated candidate got in the same election?  
 (A) The winning candidate got 55% of the valid votes.  
 (B) The defeated candidate got 45% of the valid votes  
 [1] (A) or (B) alone, but not by other statement [2] Either statement  
 [3] Both statements together [4] Cannot be answered

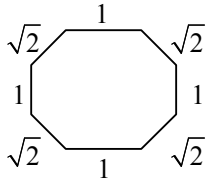
**Directions (Qs. 71 to 85):** Each of the questions 71 to 85 has four answer choices. For each of these question, select the best of the answer choices given, then darken the corresponding oval in the answer sheet.

71. The odds in favour of Team India winning of a Test in 3–series Test – Cricket are 7 : 4 against the Australian team. If three games are to be played in the 3–series Test – Cricket, what are the odds in favour of the Team India’s winning at least one game?  
 [1] 21 : 12 [2] 1267.64 [3] 1 : 3 [4] 64 : 131
72. If  $n = 4p$ , where p is a prime number greater than 2, how many different positive even divisions does n have, including n?  
 [1] 2 [2] 3 [3] 4 [4] 6
73. The number of diagonals of a regular decagon will be \_\_\_\_\_  
 [1] 10 [2] 120 [3] 45 [4] 35
74. If x is equal to the sum of the even integers from 40 to 60 inclusive, and y is the number of even integers from 40 to 60 inclusive, what is the value of  $x + y$ ?  
 [1] 572 [2] 561 [3] 560 [4] 551

75. In a group of 120 members, one fifth are adult men, one-fourth are adult women and the rest are children. The average age of women is five-sixth of the average age of men. The average age of children is one-fourth of the average age of men. If the average age of men is 60 years, then the average of 120 members is \_\_\_\_\_

[1] 32.50 years      [2] 32.75 years      [3] 32.85 years      [4] 32.95 years

76. The figure below shows the lengths of the sides of an equiangular polygon. What is the area of the polygon?



[1]  $14\sqrt{2}$       [2] 3      [3] 9      [4] 7

77. If  $x\sqrt{2} = 1 + \sqrt{-1}$  then the value of  $x^6 + x^4 + x^2 + 2$  is –

[1]  $> 1$       [2]  $< 1$       [3] 1      [4]  $-1$

78. If a fruit-seller purchase 11 oranges for Rs.10 from a whole-sale market and sells 10 oranges for Rs.11 in a retail market, how much profit or loss (%) does the fruit-seller make?

[1] 22% profit      [2] 22% loss      [3] 21% loss      [4] 21% profit

79. The price of a commodity is increased by 20% and its consumption is decreased by 10%. Then the net % change in expenditure of a person will be \_\_\_\_\_

[1] 10% increase      [2] 8% increase  
[3] 10% decrease      [4] Cannot be solved on the basis of data given

80. The inequality  $3n^2 - 18n - 24 > 0$  gets satisfied for which of the following value(s) of n?

[1]  $n > 2$       [2]  $n < 0$       [3]  $2 < n < 4$       [4]  $n < 2$  and  $n > 4$

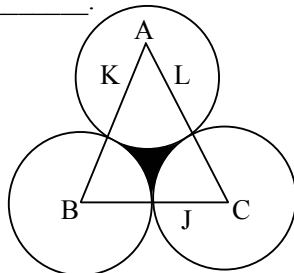
81. A certain junior class has 1000 students and a certain senior class has 800 students. Among these students, there are 60 sibling pairs, each consisting of 1 junior and 1 senior. If 1 student is to be selected at random from each class, what is the probability that the 2 students selected will be a sibling pair?

[1]  $\frac{1}{30}$       [2]  $\frac{1}{60}$       [3]  $\frac{3}{40,000}$       [4]  $\frac{1}{15}$

82. In a certain B-School, of 110 students only 30 students have enrolled in Computer Science; 35 students have enrolled in Marketing, and only 20 students have enrolled in the courses in the first term. How many students of 110, have not enrolled in any of these two courses?

[1] 45      [2] 65      [3] 15      [4] 25

83. In the figure below, ABC is an equilateral triangle having each side 4 cm. ABC is formed by joining the centers A, B and C of the three circles where the radius of each circle is 2 cm. The area of the shaded portion is \_\_\_\_\_.



[1]  $2(2\sqrt{3} - \pi)$       [2]  $4\sqrt{3} - \pi$       [3]  $\frac{2}{3}\pi$       [4]  $2\pi$



processed agricultural products, handicrafts, sports goods, chemicals, engineering items and marine goods.

The survey, conducted by a senior ministry bureaucrat, pointed out that 70 per cent of India's export are denominated in US dollars and since many export industries operate in buyers' markets that are "elastic" in other words, demand falls when prices rise even a little - exporters have not been able to change their invoicing patterns to rupees, leave alone euros. In a country where employment is not easy to come by, such job losses can hardly be justified even if one argues that the Indian economy as a whole has gained on account of a strong rupee.

The complaints of high-profile export of computer software and Information Technology (IT) enabled services or firms engaged in business process outsourcing need not be taken as seriously as the loss of jobs of-unorganized workers in Tirupur (T.N.) or Moradabad in Uttar Pradesh (well-known for its brass handicrafts). The IT sector has been a beneficiary of generous tax concessions. Today its profit margins have been squeezed. But the industry knows it will have to live with progressively stronger rupee especially since it believes Indians are no longer mere "cyber coolies" but have graduated to become "knowledge workers".

Many Indian exporters have been pampered in the past, which is unusual since the country had to live for decades with acute shortages of hard currency and the government believed in export-promotion and import-substitution. The situation has undergone a sea change since. At over US\$ 260 billion, India's current forex reserves are an embarrassment of riches. We have a real problem of plenty on our hands. Unlike China the Indian economy is not export-driven. International trade (exports and imports) accounts less than one third of the country's national income against over three-fourths in China. Hence, China's weak yuan policy is predictable. Not so India's policy encouraging a strong rupee.

The other side of the story is that the growing clout of the rupee has cushioned the country from the impact of the sharp rise in world prices of crude oil: up from US\$ 53 a barrel in January (2007) and US\$ 65 a barrel in May (2007) to kissing the US\$ 100 barrel mark in December (2007) before coming down a bit. The gains from new exchange rate are substantial since India imports three-fourths of its total requirements of crude. At the same time, the benefits of diesel prices not going up sharply are not that easily visible or quantifiable. An unintended result of the appreciation of the rupee is that India has become the 12th country in the world with a one-trillion dollar economy and, of course, the third largest economy in the world in terms of purchasing power parity after the US and China (by overtaking Japan).

Indians are bringing back their dollar stashes in foreign banks. That makes common sense. Indian companies are being told not to borrow abroad; The Government is beginning to discourage non-resident Indians from parking their funds here and encouraging individuals here to buy more dollars - a situation that would have been unthinkable for the first four and a half decades after the country become politically independent. The stock exchanges are booming thanks to unprecedented inflows from foreign institution investors who are sold on India's "growth store. Flows of foreign direct investments are at record levels.

Meanwhile the American currency continues to decline against most other currencies. The depreciation of US dollars is sending shock waves across the planet. The rest of the world saves so that American citizens can borrow beyond their means - to the tune over US\$ 2 billion each day. The US has invested in China and India less than half of what these two countries (accounting 40 per cent of the globe's population) have invested in the world's largest economy. The US accounts for 5 per cent of the world's population and a quarter of its wealth. Economist Joseph Stiglitz has calculated that by investing in American treasury bonds developing countries end up losing over US\$ 300 billion a year - four times the total amount international assistance to all so-called Third World countries. For decades, US governments were able to pressurize Asian countries not to appreciate their currencies. But that is all history.

Should we then feel proud and patriotic about our strong currency because resurgent, muscle-flexing, macho India is no longer being derided as a land of snake-charmers? Not reality. Poverty, illiteracy,

unemployment, inequality and regional economic imbalances have not disappeared –and will, not disappear - in a tearing hurry despite a lot of tall talk “inclusive” growth.

So who is afraid of a strong rupee? Not the new Indian who prefers Bangkok to Bangalore. But do spare a it for the families of those who have lost their Live-for no fault of theirs.

(Source: an authored article published in a national daily, December 2007)

**Directions (Qs. 86 to 90):** are based on Passage I

86. Which of the following statements(s), according to the passage, is /are true Except
- I. The fact that the Indian economy, a one-trillion economy, is the third largest economy in the world in terms of purchasing parity after the US and China, and also the fact that the Indian economy is not export-driven unlike China, the hardening of rupee against US dollar will ultimately benefit the domestic market and the Indian economy as a whole
  - II. The IT industry prepares itself with a progressively stronger rupee since it believes Indians are no longer mere “cyber coolies” but have graduated to become “knowledge workers”
  - III. For decades with acute shortages of hard currency, the Government believed in export-promotion and import-substitution, so many Indian exporters have been pampered in the past to earn in hard currency
- [1] I only                      [2] II only                      [3] III only                      [4] I and III only
87. Which of the following title could be most suitable for the passage?
- [1] Hardening of Indian rupee: a boon from heaven for Indian economy
  - [2] Sabse Bada Rupaiya Vs American greenback: India is ahead in the race
  - [3] A double-edged sword: A strong rupee does not spell good news all around
  - [4] Emerging a new India: Who is afraid of a strong rupee?
88. Which of the following statement(s), if true WEAKENS he claim that a strong rupee would cost million of jobs by making exports more expensive?
- I. Export growth in April-September (2007) was 26.9% in dollar terms, and provisional data digest 35.6% growth in October (2007)
  - II. The Reserve Bank of India as an official policy so far intervened to mop up dollars to maintain an artificially low rupee-dollar exchange rate to contain inflation with in manageable limit. Since March (2007), RBI stopped intervening in the foreign exchange markets.
  - III. A comparative analysis shows that much stronger rises have been registered by China (10.9%) South; Korea (11.1%) Malaysia (12.6%), Thailand (20.2%), and Brazil (25.4%) and so in no way can the rupee's appreciation be called steep or extra ordinary. So far these countries have not reported declines in their exports
- [1] I only                      [2] II only                      [3] III only                      [4] I and III only
89. Which of the following is the main idea according to the author of the passage?
- [1] To discuss the decline of the US dollar against the major currency in the world economy and specially consequent negative fall-outs in Third world countries including India
  - [2] To discuss post-liberalization fluctuations of Indian currency “Sabse bada rupaiya” and its overall effects on imports -exports business in India
  - [3] To conclude after a persuasive discussion that despite the US governments attempts to pressurize Asian countries not to appreciate their currencies for decades, China’s and India’s economy grew substantially and are ranked the second and third economy of the world by passing Japan.
  - [4] To focus on the issue that a strong rupee does not spell good news all around and it results in macro-gain and micro-pain which are not easy to ascertain.

90. Which of the following statement(s) is /are true according to the passage?
- I. The rupee appreciated against the US dollar between March and October (2007) because the RBI stopped intervening in the foreign exchange markets by mopping up dollars
  - II. The US has invested in India and China less than half of what these two countries invested in the US economy.
  - III. Although exports as a whole were growing, there was a net decline in exports in certain specific sectors like textile, processed agricultural products, feather, etc., leading to job losses
- [1] I only                      [2] II only                      [3] III only                      [4] I, II, III

### PASSAGE-II

All the cells in a particular plant start with the same complement of genes. How then can these cells differentiate and form structures as different as roots, stems, leaves, and fruits? The answer is that only a small subset of the genes in a particular kind of cell are expressed, or turned on, at a given time. This is accomplished by a complex system of chemical messengers that in plants include hormones and other regulatory molecules. Five major hormones have been identified: auxin, abscisic acid, cytokinin, ethylene and gibberellin. Studies of plants have identified a new class of regulatory molecules called oligosaccharins.

Unlike the oligosaccharins the five well-known plant hormones are pleiotropic rather than specific; that is, each has more than one effect on the growth and development of plants. The five have so many simultaneous effects that they are not very useful in artificially controlling the growth of crops. Auxin, for instance, stimulates the rate of cell elongation, causes shoots to grow up and roots to go down, and inhibits that growth of lateral shoots. Auxin also causes the plant to develop a vascular system, to form lateral roots, and to produce ethylene.

The pleiotropy of the five well-studied plant hormones is somewhat analogous to that of certain hormones in animals. For example, hormones from the hypothalamus in the brain stimulate the anterior lobe of the pituitary gland to synthesize and release many different hormones one of which stimulates the release of hormones from the adrenal cortex. These hormones have specific effects on target organs all over the body. One hormone stimulates the thyroid gland, for example, another the ovarian follicle cells, and so forth. In other words there is a hierarchy of hormones.

Such a hierarchy may also exist in plants. Oligosaccharins are fragments of the cell wall released by enzymes: different enzymes release different oligosaccharins. There are indications that pleiotropic plant hormones may actually function by activating the enzymes that release these others, more specific chemical messengers from the cell wall.

**Directions (Qs. 91 to 96):** refer to Passage II

91. The passage suggests that the place of hypothalamic hormones in the hormonal hierarchies of animals is similar to the place of which of the following in plants?
- [1] The oligosaccharins
  - [2] Plant cell walls
  - [3] The five major hormones
  - [4] The complement of genes in each plant cell
92. The author mentions specific effects that auxin has on plant development in order to illustrate -
- [1] hierarchical nature of the functioning of plant hormones
  - [2] point that some of the effects of plant hormones can be harmful
  - [3] concept of pleiotropy as it is exhibited by plant hormones
  - [4] way in which hormones are produced by plants

93. The passage suggests which of the following is a function likely to be performed by an oligosaccharin?  
[1] To stimulate the walls of a particular cell to produce other oligosaccharins  
[2] To stimulate a particular plant cell to become part of a plants root system  
[3] To produce multiple effects on a particular subsystem of plant cells  
[4] To activate enzymes that release specific chemical messengers from plant cell walls.
94. According to the passage, the five well-known plant hormones are not useful in controlling the growth of crops because  
[1] each hormone has various effects on plants  
[2] each hormone has different effects on different kinds of plants  
[3] each hormone works on only a small set of a cell's genes at any particular time  
[4] It is not known exactly what functions the hormones perform
95. According to the passage, which of the following best describes a function performed by ligosaccharin?  
[1] Releasing specific chemical messengers from a plants cell walls  
[2] Influencing the development of a plant's cells by controlling the expression of the cell's genes  
[3] Interacting with one another to produce different chemicals  
[4] Producing the hormones that cause plant cells to differentiate to perform different functions.
96. The passage suggests that, unlike the pleiotropic hormones, oligosacchrins could be used effectively to-  
[1] alter the complement of genes in the cells of plants  
[2] artificially control specific aspects of the development of crops  
[3] alter the effects of the five major hormones on plant development  
[4] pinpoint functions of other plant hormones

### PASSAGE III

According to a study by the Indian council for Research on International Economic Relations (ICRIER), consumers can't get enough of big retail chains. ICRIER was appointed by the Government to study the impact of organized retail on small trader.

While the study indicates that organized retail will impact small traders adversely and has indeed already hit sales and profits, the consumer side of he findings indicates that more Indians - as many as 53 percent want to see western style supermarket across the country. Any fallout from the introduction of these chains is also likely to be short-term.

Small retailers and Kirana stores are astute businessmen. None of them will shut down. They have survived the on-slaught of time and will continue to thrive because of the sheer convenience they provide. They have a special personal rapport with their customers and offer benefits like credit facilities, door delivery and even phone services. India is a huge market. With minor structural benefits, small retailers will be able to coexist with the big ones. If anything will change, it will only be for the better.

Organized retailers will push the mom-and- pop stores and small retailers up the value chain to innovate in their offerings. In spite of organized retail growing swiftly in recent years, the unorganized sector accounts for nearly 97 per cent of the total retail in India. According to estimates, the share organized retail in the \$300 billion spent on food and consumer this year (2007) in India, would be just \$12 billion.

Growth of organized retail will benefit everyone across the value chain. It will create huge number of jobs in the country. Farmers will benefit as they will have consistent incomes and Id also be able to hedge themselves against crop failure. Consumer will directly profit with retailers passing on cost benefits, accrued through high volume procurements, to them.

(Source: an article in the edit page of a national daily, December 2007)

**Directions (Qs. 97 to 100):** refer to Passage III

97. According to the passage, which of the following can be inferred as the main thrust of the author's argument(s)?
- The organized retail stores would in the long run, have a large adverse effect on large sections of small retail trade.
  - The organized retail stores would help develop a broad base domestic economy, affordable food prices, farm: sector development and inclusive growth; in short, the organized retail stores would improve a wide sections of stakeholders concerned in the society - customers, farmers and employment opportunities.
  - The share of organized retail would be insignificant only 4% (approx) of the amount spent on food and consumer products.
- [1] I only                      [2] II only                      [3] III only                      [4] II and III only
98. Which of the following statement(s), if true, WEAKENS the arguments in favour of the organized retail stores presented in the passage?
- The organized retail stores with deep pockets can withstand losses for a short-term in order to gain and control the market.
  - In absence of a social security net to help small traders and workers who could lose jobs when and if that happens to tide over the crisis, a public policy that puts a large number of people who are likely to be affected by the organized retail stores, can have disastrous social and economic implications in the long run.
  - The organized retail stores will target rich and wannabes as customers in urban centers with a large disposable income.
- [1] I only                      [2] II only                      [3] III only                      [4] II and III only
99. Which of the following statement(s), according to the passage, is/are true as per to the author?
- Across the value chain in retail markets, growth of organized retail will benefit almost all stakeholders.
  - The fear among small retailers and traders that they stand to lose their livelihood if mega retail chains enter the market in a big way is more or less unreal – according to the ICRIER survey
  - The foreign retail chains like Wal-Mart without any protective clause in an open and free market economy as in India today will kill indigenous entrepreneurship.
  - Organized retailers will push the mom-and-pop stores and small retailers up in the value chain which they can't sustain in the long run.
100. Which of the following statement(s), if true, will strengthen the argument(s) in favour of the organized retail stores?
- The organized retail stores – (modern trade) – offer smaller regional brands more shelf-space, better; displays and ambience compare to Kirana stores.
  - Regional brands are benefitted by pushing their brands through the organized retail stores with bargains and value deals that are often better and bigger players.
  - The organized retail stores, controlled and invested by big business, Indian and foreign - for example, Reliance, Wal-Mart, and others, offer variety of products at affordable price-tags and better quality.
- [1] I and II only                      [2] II and III only                      [3] I and III only                      [4] I, II, III

**Directions (Qs. 101 to 104):** Each sentence or a short passage below has one, two or three blanks, each blank indicating that something has been omitted. Beneath the sentence /passage are four numbered words or set of words. Choose the word or set of words for each blank that best fits the meaning of the sentence/passage as a whole, then darken the corresponding oval in the answer sheet.

101. Aspartame, a new artificial sugar substitute, is only \_\_\_\_\_ replacement for saccharin because, unlike saccharin, it breaks down and loses its sweetening characteristics at high temperatures making it \_\_\_\_\_ for baking.  
[1] a medically approved \_\_\_\_\_ unsuitable [2] a significant \_\_\_\_\_ problematic  
[3] a partial \_\_\_\_\_ unsuitable [4] a chemical \_\_\_\_\_ harmful
102. Arguably the most important document ever to be auctioned goes on sale on Tuesday, 18 December 07, when the Magna Carta, an 800-year-old English royal manuscript goes under the hammer at Sotheby's in New York. The royal charter, dated 1297 and bearing the wax seal of King Edward I \_\_\_\_\_ the rights of man into English law and is considered the \_\_\_\_\_ of such \_\_\_\_\_ historical documents as the US Declaration of Independence.  
[1] recorded \_\_\_\_\_ dawn \_\_\_\_\_ important  
[2] evidenced \_\_\_\_\_ early attempt \_\_\_\_\_ valued  
[3] enshrined \_\_\_\_\_ primordial \_\_\_\_\_ benchmarked  
[4] enshrined \_\_\_\_\_ precursor \_\_\_\_\_ landmark
103. The manuscript, most likely made of sheepskin, was enshrined at a time of \_\_\_\_\_ between King John' and the English barons. It was first issued in 1215 and confirmed as English law in 1297.  
[1] skirmishes [2] closeness [3] bonhomie [4] disagreements
104. The document, which required the king to \_\_\_\_\_ that he was bound by law in the same way as his subjects is described as the first \_\_\_\_\_ on the ladder to freedom and a \_\_\_\_\_ of liberty.  
[1] accept \_\_\_\_\_ rung \_\_\_\_\_ talisman [2] reject \_\_\_\_\_ step \_\_\_\_\_ early stage  
[3] accept \_\_\_\_\_ structure \_\_\_\_\_ support [4] accept \_\_\_\_\_ gap \_\_\_\_\_ death knell

**Directions (Qs. 105 to 107):** Each question presents a sentence, part or all of which is underlined. Beneath the sentence, you will find four answer choices numbered [1], [2], [3] and [4]; the first answer choice repeats the original; the other three are different ways of phrasing the underlined part. If you think the original phrasing is best, choose the first answer; otherwise choose one of three others; darken the corresponding oval in the answer sheet.

This type of question tests your ability to recognize the correctness and effectiveness of expression in standard written English. In choosing your answer, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, and sentence construction. Choose the answer that produces the most effective sentence; this answer should be clear and exact, without awkwardness, ambiguity, redundancy, or grammatical error.

105. Like the idolization accorded the Brontes and Brownings, James Joyce and Virginia Woolf are often subjected to the kind of veneration that blurs the distinction between the artist and the human being.  
[1] Like the idolization accorded the Brontes and Brownings  
[2] Like that accorded to the Brontes and Brownings  
[3] Like the Brontes and Brownings  
[4] As it is of the Brontes and Brownings
106. Carnivorous mammals can endure what would otherwise be lethal levels of body heat because they have a heat-exchange network which kept the brain from getting too hot.  
[1] which kept [2] which has kept  
[3] that has been keeping [4] that keeps



111. If Flight 106 is scheduled to depart at 2.00 p.m. Flight 105 must be scheduled to depart at –  
[1] 10.00 a.m.                      [2] 11.00 a.m.                      [3] 12 noon                      [4] 1.00 p.m.
112. If Flights 103 and 104 are scheduled to depart at 11.00. a.m. and 12 noon. respectively. Flight 102 must be scheduled to depart at \_\_\_\_\_ .  
[1] 9.00 a.m                      [2] 10.00 a.m.                      [3] 1.00 p.m.                      [4] 2.00 p.m.
113. What is the latest hour at which Flight 102 can be scheduled to depart?  
[1] 10.00 a.m.                      [2] 11.00 a.m.                      [3] 12 noon                      [4] 1.00 p.m.
114. A successful defense against attack by ballistic missiles would have to be controlled by a large-scale computer system. A defense against attack by ballistic missiles, to be successful, would have to work on first use, and a full preliminary test would be impossible. Despite careful planning, every large-scale computer system has on use proved to have flaws that in some situations would cause serious failure. If the statements above are true, which of the following conclusions is best supported by them?  
[1] A defense against ballistic missile attack will not work successfully when it is first called on.  
[2] Some means of control other than a large- scale computer system will have to be found for a system for defense against ballistic missiles.  
[3] Methods for reducing errors in constructing large-scale computer systems will not be found  
[4] A defense against attack by ballistic missile cannot be assured of success the first time it is used.
115. To be mentally healthy, people must have self-respect. People can maintain self-respect only by continually earning the respect of others they esteem. They can earn this respect only by treating these others morally.

Which of the following conclusions can be properly drawn from the statements above?

- [1] People who are mentally healthy will /be treated morally by others  
[2] People can expect to be treated morally by others only if they esteem these others  
[3] People who are mentally healthy must have self-respect in order to be treated morally by others;  
[4] People who are mentally healthy will be treated morally by others.

**Directions (Qs. 116 to 122):** These questions are based on a proposition or a sentence or a passage. Each proposition sentence passage represents an argument which consists of several parts such as an assumption, a conclusion an inference, or a premise, etc. These terms are defined as follows:

**Argument:** An argument in any group of propositions of which one is claimed to follow from others, which are regarded as providing support or grounds for the truth of that one.

**Assumption:** An assumption is an unstated and/or implied premise(s) that support(s) the conclusion:

**Conclusion:** The conclusion of an argument is the proposition that is affirmed on the basis of other propositions of the argument. These other propositions which are affirmed (or assumed); as providing support on reasons for accepting the conclusion, are the premises of that argument. Conclusion and inference are often used synonymously in an argument. In an argument passage; there could be, one or more minor conclusion(s). which serve(s) as the premise(s) for the major or main conclusion of the argument passage.

**Premise:** A premise is a stated reason or a piece of evidence, facts, examples, observation(s) that support(s) the conclusion or inference.

In this part an argument, passage, an excerpt or a passage, is followed by questions which are statements either concerned with or related to the passage or reproduced from the argument passage, These questions

are concerned with the parts of an argument as defined above i.e., an assumption, a conclusion, inference, a premise etc.

Identify if the statement(s) given in the question is an assumption, a conclusion /an inference, a premise, or none of these (i.e. not an argument). Choose the following number as indicated below:

- Choose 1– if the statement is an assumption
  - Choose 2 – if the statement is conclusion
  - Choose 3 – if the statement is a premise
  - Choose 4 – if the statement is not an argument
- Darken the corresponding oval in the answer sheet.

**Directions (Qs. 116 to 122):** are based on the following passage:

It's no news that mobile phone use raises the risks of brain cancer and impotency. Now add mouth cancer to the list.

A team of international researchers has carried out a study and found that too much use of cell phones increases the chance of developing malignant mouth tumour, British news-paper & Daily Mail reported today (Dec. 15 '07).

In fact, the researchers came to the conclusion after analysing the effect of mobile phone use on a group of people in Israel. The team compared the lifestyles of 402 people with benign mouth tumours and 56 having malignant ones with a control group of 1,266 people. Those who used mobiles the most were more likely than normal to develop parotid gland tumours.

In fact five years of frequent use increased the chances of developing a tumour by around 50 percent compared with people who had never used one, the researchers found.

Long time users of mobiles tended to develop tumours on the same side of the head as the phone was normally held. People who used mobile phones in rural areas, where the phone has to work harder to make contact with the nearest base station were found to be at greater risk.

(Source: reproduced in a national daily Dec. 2007)

- 116. People who used mobile phones in rural areas where the phone has to work harder to make contact with the nearest base station, were found to be at greater risk.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument
- 117. It's no news that mobile phone use raises the risk of brain cancer and impotency.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument
- 118. Those who used mobiles the most-were more likely than normal to develop parotid gland tumour.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument
- 119. Long term users of mobiles tended to develop tumours on the same side of the head as the phone was normally held.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument
- 120. The team compared the lifestyles 402 people with benign mouth tumours and 56 having malignant ones with a control group of 1,266 people.  
[1] an assumption      [2] a conclusion      [3] ad premise      [4] not an argument

121. In fact, the researchers came to the conclusion after analyzing the effects of mobile phone use on a group of people in Israel.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument
122. The electronic micro-waves generated by mobile phones when on use close to the ear of the user sent vibrations to the parotid gland are primary sources of cancer-causing effect.  
[1] an assumption      [2] a conclusion      [3] a premise      [4] not an argument

**Directions (Qs. 123 to 140):** For these questions, select the best of the answer choices given.

123. In a recent study on the conclusion between brain abnormalities and violent behaviour, the researcher examined more than three hundred people who had engaged in usually violent behaviour towards friends, and family members. In most of the people studied, the researcher found clues of brain abnormalities including evidence of past brain injury and physical abnormality. The researcher concluded that evidence of brain abnormalities could be used to predict violent behaviour.

Which of the following, if true, would most seriously weaken the researcher's conclusion?

- [1] The incidence of brain abnormalities in the general population is as high as that in the group examined.  
[2] The study did not show the nature of brain abnormalities corresponding to the nature of violent behaviour.  
[3] A wide variety of violent actions were exhibited by those studies  
[4] The study did not show the relationship, if any, between violent behaviours and socio-economic backgrounds of the group examined.
124. Why can human beings outlast many faster four-legged animals when running long distances? Perhaps because early humans evolved as hunters on the hot African savannas. Humans developed the ability to release heat by sweating, but most mammals must pant, a function hard to regulate while running. Also, four-legged animals must adopt a pace that lets them breathe once in mid-stride; otherwise, the impact of the front legs hitting the ground will prevent deep inhalation. Humans can vary number of breaths per stride, set a pace unsuited to the prey, and so eventually exhaust it.  
The author's explanation of why human beings have evolved as superior distance runners would be most weakened if it were shown that -  
[1] early humans hunted mainly in groups by sneaking up on prey and trapping it within a circle  
[2] early humans typically hunted animals that were less adapted than humans for long-distance running  
[3] early humans were only one of a number of species that hunted prey on the African savannas  
[4] human beings of today have retained the ability to run long distances but no longer hunt by chasing prey.

125. Researchers compared 42 average-weight and 47 obese infants, aged 7 to 9 months, with respect to current daily nutrient, intake, ratio of formula or breast milk to solids in the diet, and maternal reliance on external feeding cues, such as time of day. Mothers completed a three-day food record at home before answering questions on current feeding practices. The researchers concluded from all of these data that, contrary to popular belief, the feeding practices of mothers of obese babies do not contribute significantly to their babies' obesity.

Which of the following could be an assumption/on which the researchers relied in drawing their conclusion?

- [1] Obesity is more genetically than environmentally determined.  
[2] Breast-fed babies are more likely to be obese than are formula-fed babies

- [3] Babies gain weight at a slower rate between the ages of 7 and 9 months than they do between the ages of 4 and 6 months.
- [4] In the months before the study, the feeding practices of the mothers in the study did not differ significantly from their feeding practices at the time of the study.
126. The Government officials of a nation share its citizens' understandings regarding the rules that governments are obligated to honour in their actions. Thus, when a nation deliberately ignores international law, the attitudes of even its government officials will become less favourable toward their Government.

The argument above **assumes** which of the following?

- [1] The citizens of a nation will respond favourably to the nation's attempts to extend its international power by legal means.
- [2] Some officials of totalitarian government are insensitive to the rules embodied in international law.
- [3] Each nation's citizens believe that international laws are among the rules by which governments ought to operate.
- [4] People's understandings of government obligations change from time to time.
127. Researchers have proved that eating lots of fish greatly decreases the risk of developing heart disease. The key factor providing protection has been identified as omega-3 fatty acids, a family of fatty acids found in fish oils. Therefore, if people take dietary supplements of omega-3s in capsule form, they will decrease their risk of developing heart disease.

Which of the following, if true, would most seriously weaken the conclusion drawn before?

- [1] Omega-3s occur in extremely low quantities in some kind of fish
- [2] The majority of people who eat fish say that they do so because they like the taste of fish
- [3] Omega-3s are effective only because they interact with other substances found mainly in fish.
- [4] Some dietary supplements have been shown to have harmful side effects.

**Directions (Qs. 128 to 132):** Two maps are being designed. One will show subway lines; the other will show bus routes. There are three subway lines and four bus routes, and each line or route must be represented on the maps by a colour used to represent it only. The colours available to the designer of the maps are blue, green, orange, purple, red, tan, and yellow. Any assignment of colours to lines and routes is acceptable provided the following conditions are met:

- Blue cannot be used on the same map as purple
  - Orange cannot be used on the same map as red, nor on the same map as yellow.
128. If red and blue are used on the bus map, which of the following could be the other two colours used on that map?
- |                       |                      |
|-----------------------|----------------------|
| [1] purple and yellow | [2] green and purple |
| [3] orange and tan    | [4] green and yellow |
129. If yellow and purple are used on the subway map, the third colour used on the map must be \_\_\_\_\_
- |            |         |          |           |
|------------|---------|----------|-----------|
| [1] orange | [2] red | [3] blue | [4] green |
|------------|---------|----------|-----------|
130. If green is not used on the same map as blue, nor on the same map as yellow, which of the following must be true?
- |  |  |
|--|--|
| [1] purple is used on the same map as orange | [2] blue is used on the subway map     |
| [3] green is used on the same map as red     | [4] tan is used on the same map as red |

131. Whenever Rahul is outdoors and the sun is shining, Rahul wears his sunglasses. Whenever Rahul is outdoors and the sun is not shining, Rahul carries his sunglasses in his briefcase. Sometimes the sun is shining when Rahul is not outdoor. If the statements above are true and Rahul is not wearing his sunglasses, which of the following statements must also be true?
- [1] Rahul is not outdoors
  - [2] Rahul is outdoors and/or the sun is not shining
  - [3] Rahul is not outdoors and the sun is not shining
  - [4] Rahul is not outdoors and/or the sun is not shining
132. There will be only one acceptable assignment of colours to each of the two maps if which of the following conditions is added to original ones?
- [1] green cannot be used on the same map as yellow
  - [2] blue cannot be used on the same map as green
  - [3] purple and tan must be used on the subway map
  - [4] green and purple must be used on the bus map

**Directions (Qs. 133 to 135):** Seven offices in an office building are to be painted. The offices, which are on one side of a hallway, are numbered consecutively. One to seven, from the front of the building to the back. Each office is to be painted one colour only according to the following conditions:

- two offices must be painted white; two offices must be painted blue two offices must be painted green; and one office must be painted yellow'
  - Two offices painted green must be next to each other
  - Two offices painted blue cannot be next to each other
  - The office painted yellow cannot be next to an office painted white
  - Office 3 must be painted white
133. If office 4 is painted white and an office that is painted green is next to an office that is painted white, which of the following must be true?
- [1] Office 7 must be painted blue
  - [2] Office 6 must be painted white
  - [3] Office 6 must be painted blue
  - [4] Office 1 must be painted yellow
134. If office 5 is painted white, which of the following could be true?
- [1] Office 6 is painted blue
  - [2] Office 2 is painted yellow
  - [3] Office 4 is painted yellow
  - [4] Office 1 is painted blue
135. Which of the following conditions, when combined with the original conditions, has the consequence of completely determining the colour that each office is painted?
- [1] Office 6 must be painted blue
  - [2] Office 6 must be painted white
  - [3] Office 1 must be painted green
  - [4] Office 4 must be painted green
136. Some insects are able to feed on leaves of milkweed, a wild toxic plant found in North-East States – the insects are able to feed on leaves by first cutting draining the vein that secretes the toxin. This method of detoxification guarantees that some insects will always be able to eat milkweed, because the plant could never evolve to produce a toxin that is lethal in the trace amounts left after the vein is cut.
- The conclusion drawn in the passage above depends on which of the following assumptions?
- [1] The toxin-carrying veins of the milkweed plant can never evolve in such a way that insects cannot cut through
  - [2] The insects that successfully detoxify milkweed are not able to undergo the evolutionary changes necessary to allow them to detoxify other plants
  - [3] Unlike milkweed, other kinds of toxic plants would be able to overcome their vulnerabilities to predators through evolutionary changes.
  - [4] The method of detoxification used by insect predators of milkweed would not successfully detoxify other kinds of toxic plants.

137. Cable-television operator: Subscriptions to cable television are a bargain in comparison to “free” television. Remember that “free” television is not really free. It is consumers, in the end, who pay for the costly advertising that supports “free” television.  
Which of the following, if true, is most damaging to the position of the cable-television operator?
- [1] Subscriptions to cable television include access to some public-television channels, which accept only a few advertisement.
  - [2] Cable-television subscribers can choose which channel they wish to receive, and the fees.
  - [3] For locations with poor television reception, cable television provides picture quality superior to that provided by free television.
  - [4] There is as much advertising on many cable television channels as there is on “free” television channels.
138. Male Baya Weaver birds construct elaborately a swinging retort shaped nest with a long vertical entrance tube. Basing their judgment on the fact that different local populations of weaverbirds of the same species build nests that exhibit different building styles, re-searchers have concluded that weaverbirds nest-building styles are culturally a quired, rather than a genetically transmitted trait. Which of the following, if true, would most strengthen the conclusion drawn by the researchers?
- [1] Young male Baya Weaverbirds are inept at nest building and apparently spend years watching their elders before becoming accomplished she in the local nest styles.
  - [2] There are more common characteristics than there are differences among the nest-building styles of the local weaverbird population that has studied most extensively
  - [3] The nests of one species of weaverbird lack the ornamentation characteristic of the nests of most other species of weaverbirds.
  - [4] It is well known that the song dialects of songbirds like bulbuls are learned rather than transmitted genetically.
139. When the Dean (academic) of a B-School translates education research into a standardized teaching programme and mandates its use by faculty members, students learn less and learn less well than they did before, even though the faculty members are the same. The translation by the Dean (academic) of the theory into prescribed practice must there fore be flawed.  
The argument above is based on which of the following assumptions?
- [1] Researchers should be ones to translate their own research into teaching programme
  - [2] The educational research on which the standardized teaching programmes are based is sound
  - [3] The ways in which faculty members choose to implement the programmes are ineffective.
  - [4] Faculty members differ in their ability to teach in accordance with standardized programmes.
140. Many breakfast cereals are fortified with vitamin supplements. Some of these cereals provide 100 per cent of the recommended daily requirement of vitamins. Nevertheless a well balanced breakfast, including a variety of foods, is a better source of those vitamins than are such fortified - breakfast cereals alone.  
Which of the following, if true, would most strongly support the position above?
- [1] Foods often must be fortified with vitamin supplements because naturally occurring vitamins are removed during processing.
  - [2] Cereals containing vitamin supplements are no harder to digest than similar cereals without added vitamins.
  - [3] In many foods, the natural combination of vitamins with other nutrients makes those vitamins more useable by the body than are. vitamins added in vitamin supplements.
  - [4] Unprocessed cereals are naturally high in several of the vitamins that are usually added to fortified breakfast cereals.

SECTION VI

QUANTITATIVE SKILLS

**Numbers** : All numbers used are real numbers.

**Figures** : Position of points, angles, regions, etc can be assumed to be in the order shown; and angle measures can be assumed to be positive.  
 Lines shown as straight line can be assumed to be straight.  
 Figures can be assumed to lie in a plane unless otherwise indicated.  
 Figures that accompany questions are intended to provide information useful in answering the questions. However, unless a note states that a figure is drawn to scale, you should solve these problems NOT by estimating sizes by sight or by measurement, but by using your knowledge of mathematics.

**Directions (Qs. 141 to 150):** Each of the questions 141-150 has four answer choices numbered [1], [2], [3] and [4]. For each of these questions, select the best of the answer choices given, then darken the corresponding oval in the answer sheet.

141. What is the highest power of 5 that divides 50?  
 [1] 12                                      [2] 10                                      [3] 2                                      [4] 1
142. What is the value of x that would satisfy  $x^y = y^x$ , and  $x^2 = y^3$  where  $x, y > 0$ ,  $-1$  and  $y \neq 1$ -----  
 [1]  $\frac{9}{4}$                                       [2] 1                                      [3]  $\frac{3}{2}$                                       [4]  $\frac{27}{8}$
143. If the first term of an Arithmetic progression is 5 and the fourth term is 17, then the tenth term is—  
 [1] 22                                      [2] 37                                      [3] 41                                      [4] 45
144. If  $x^6 - 19x^5 + 69x^4 - 151x^3 + 229x^2 + 166x - 100$  is divided by  $x - 15$ , the remainder is —  
 [1] 0                                      [2] -2                                      [3] -85                                      [4] +85
145. If  $m = a^x$ ,  $n = a^y$ , and  $a^2 = (m^y \cdot n^x)^z$ , then the value of  $xyz$  will be (where  $a \neq 0, 1$ )  
 [1] 0                                      [2] 1                                      [3] -1                                      [4] 2

**Directions (Qs. 146 to 150):** In each of the problems, a question is followed by two statements marked (A) and (B) containing certain data pertaining to the problem. You need to determine whether the data provided by statements are sufficient to answer the question from four answer choices numbered [1], [2], [3], and [4]. Choose the correct answer for each question based on the statement data and darken the corresponding oval in the answer sheet.

Choose [1] If Statement (A) ALONE is sufficient, but Statement (B) alone is not sufficient.  
 Choose [2] If Statement (B) ALONE is sufficient, but Statement (A) alone is not sufficient.  
 Choose [3] If BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.  
 Choose [4] Statements (A) and (B) TOGETHER are NOT sufficient to answer.

146. What is the value of  $b + c$ ?  
 (A)  $ab + cd + ac + bd = 6$                                       (B)  $a + d = 4$   
 [1] (A) alone, but not (B) alone                                      [2] (B) alone, but not (A) alone  
 [3] Both statements together                                      [4] Cannot be answered

147. A box contains red chips, white chips, and blue chips. If a chip is randomly selected from the box what is probability that the chip will be either white or blue?  
 (A) The probability that the chip will be blue is  $x$  (B) The probability that the chip will be red is  $y$   
 [1] alone, but not (B) alone [2] alone, but not (A) alone  
 [3] Both statements together [4] Cannot be answered
148. Is  $\left(x - \frac{1}{x}\right)^3 + 3\left(x - \frac{1}{x}\right) + 2 = 0$   
 (A)  $x = (\sqrt{2} - 1)^{\frac{1}{2}}$  (B)  $x = (\sqrt{2} + 1)^{\frac{1}{2}}$   
 [1] (A) alone but not (B) alone [2] (B) alone, but not (A) alone  
 [3] Both statements alone are sufficient [4] Cannot be answered
149. Is  $rst = 1$ ?  
 (A)  $rs = 1$  (B)  $st = 1$   
 [1] (A) alone, but not (B) alone [2] (B) alone, but not (A) alone  
 [3] Both statements together [4] Cannot be answered
150. If  $a, b$  and  $c$  are integers, is  $a - b + c$  greater than  $a + b - c$ ?  
 (a)  $a - b + c$  (b)  $a + b - c$   
 [1] (A) alone, but not (B) alone [2] (B) alone, but not (A) alone  
 [3] Both statements together [4] Cannot be answered

**Directions (Qs. 151 to 170) :** Each of these questions 151-170 has four answer choices. For each of these questions, select the best of the answer choices given, then darken the corresponding oval in the answer sheet.

151.  $\frac{1}{3}^{\text{rd}}$  of the contents of a container evaporated on 1st day.  $\frac{3}{4}^{\text{th}}$  of the remaining evaporated on the second day. What part of the contents of the container is left at the end of the second day?  
 [1]  $\frac{1}{4}$  [2]  $\frac{1}{2}$  [3]  $\frac{1}{18}$  [4]  $\frac{1}{6}$
152. The jogging track in a sports complex is 726 metres in circumference. Suresh and his wife start from the same point and walk in opposite directions at 4.5 km/h and 3.75 km/h respectively. They will meet for the first time in.  
 [1] 5.5 min. [2] 6.0 min. [3] 5.28 min. [4] 4.9 min.
153. A man received a cheque in which the rupees were transposed for paise and vice versa. After spending 5 rupees 42 paise, he discovered that he now had exactly six times the value of the correct cheque amount. What amount should he have received?  
 [1] Rs 6.44 [2] Rs.3.22 [3] Rs.18.25 [4] Rs.8.36
154. Mohan ate half a pizza on Monday. He ate half of what was left on Tuesday and so on. He followed this pattern for one week. How much of the pizza would he have eaten during the week?  
 [1] 99.22% [2] 95% [3] 98.22% [4] 100%
155. All the students of a batch opted Psychology, Business, or both. 73% of the students opted Psychology and 62% opted Business. If there are 220 students, how many of them opted for both Psychology and Business?  
 [1] 60 [2] 100 [3] 77 [4] 35
156. A horse is placed for grazing inside a rectangular field of 70 m by 52 m and is tethered to one corner by a rope 21 m long. On how much area can it graze?  
 [1]  $386.5 \text{ m}^2$  [2]  $325.5 \text{ m}^2$  [3]  $346.5 \text{ m}^2$  [4]  $246.5 \text{ m}^2$

157. What is the remainder left after dividing  $1! + 2! + 3! + \dots + 100!$  by 7?  
 [1] 0 [2] 5 [3] 21 [4] 14
158. Silu and Meenu were walking on the road. Silu said "I weigh 51 kg. How much do you weigh?" Meenu replied that she wouldn't reveal her weight directly as she was overweight. But she said, weigh 29 kg plus half of my weight. How much does Meenu weigh?  
 [1] 52 kg [2] 58 kg [3] 63 kg [4] 57 kg
159. How many squares are there in a 5 inch by 5 inch square grid, if the grid is made up of one inch by one inch squares?  
 [1] 50 [2] 1.50 [3] 55 [4] 25
160. My friend collects antique stamps. She purchased two, but found that she needed the raise money urgently. So she sold them for Rs.8000 each. On one she made 20% and on the other she lost 20%. How much did she gain or lose in the entire transaction?  
 [1] No Loss/Profit [2] Rs.667 Loss [3] Rs.667 Profit [4] None of these
161. If  $a$  and  $b$  are the roots of the quadratic equation  $ax^2 + bx + c = 0$ , then the value of  $a^2/b + b^2/a$  is:  
 [1]  $(3bc - a)/b^2c$  [2]  $(3abc - b^3)/a^2c$  [3]  $(3abc - b^2)/a^3c$  [4]  $(ab - b^2c)/2b^2c$
162. 3 chairs and 2 tables cost Rs.700, while 5 chairs and 3 tables cost Rs.1100. What is the cost of 2 chairs and 2 tables?  
 [1] Rs.300 [2] Rs.350 [3] Rs.450 [4] Rs.600
163. If  $a, b$  are the two roots of a quadratic equation such that  $a + b = 24$  and  $a - b = 8$ , then the quadratic equation having  $a$  and  $b$  as its roots is  
 [1]  $x^2 + 2x + 8 = 0$  [2]  $x^2 - 4x + 8 = 0$  [3]  $x^2 - 24x + 128 = 0$  [4]  $2x^2 + 8x + 9 = 0$
164. The area of a rhombus is 2016 sq cm and its side is 65 cm. The lengths of the diagonals (in cm) respectively are  
 [1] 125, 35 [2] 126, 32 [3] 132, 26 [4] 135, 25
165. A cylindrical bucket of height 36 cm and radius 21 cm is filled with sand. The bucket is emptied on the ground and a conical heap of sand is formed. The height of the conical heap is 12 cm. The radius of the heap at the base is  
 [1] 63 cm [2] 53 cm [3] 56 cm [4] 66 cm
166. How can the relationship between  $x$  and  $y$  be best defined, if the value of  $x$  and  $y$  are as follows?  

|     |   |   |   |    |    |
|-----|---|---|---|----|----|
| $x$ | 2 | 3 | 4 | 5  | 16 |
| $y$ | 0 | 2 | 6 | 12 | 20 |

 [1]  $y = x^2 - 3x + 2$  [2]  $y = 2x - 4$  [3]  $y = x^2 - 4x$  [4]  $y = x^2 - 4$
167. A can do a work in 9 days. If B is 50% more efficient than A, then in how many days can B do the same work?  
 [1] 13.5 [2] 4.5 [3] 6 [4] 3
168. If  $(a + 1/a)^2 = 3$ , then what is the value of  $a^3 + 1/a^3$ ?  
 [1]  $10\sqrt{3}/3$  [2] 0 [3]  $3\sqrt{3}$  [4]  $6\sqrt{3}$
169. If the radius of a circle is increased by 100%, then the area of the circle increased by  
 [1] 100% [2] 200% [3] 300% [4] 400%
170. What is the quotient if  $x^{-1} - 1$  is divided by  $x - 1$ ?  
 [1]  $1/(x - 1)$  [2]  $x$  [3]  $-1/(x - 1)$  [4]  $-1/x$

