**DIRECTIONS** *for questions 1 and 2*: Select the correct alternative from the given choices.

1. In the figure given below MN and NL are adjacent sides of a square and the arc MPL is drawn with N as centre and MN as radius. P is a point on the arc and PQRS is a square such that, RS, if extended, passes through L while RQ, if extended, passes through M. What is the ratio of the area of a square of side MN and the square PQRS?
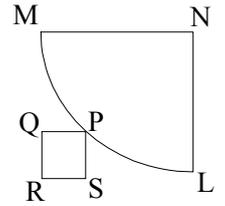
   (1) $1 : \left(3 - 2\sqrt{2}\right)$ (2) $2 : \left(3 - 2\sqrt{2}\right)$
   (3) $3 : \left(3 - 2\sqrt{2}\right)$ (4) $4 : \left(3 - 2\sqrt{2}\right)$

2. Arihant purchased two triangular plots, each of which had exactly two sides of length 100 m. Find the maximum possible difference of the perimeters of the two plots, if it is known that neither of the two plots is less than 4800 sq.m in area.
   (1) 20 m   (2) 40 m   (3) 60 m   (4) None of these

DIRECTIONS *for questions 3 and 4:* These questions are based on the data given below.
The following operations are defined for any two real numbers a and b.
mi(a, b) = min(a, b)
ma(a, b) = max(a, b)
mo(a) = $|a|$

3. If a = −1, b = 6, find the value of mi(mo(a), ma(b, mi(a, mo(b)))).
   (1) 1   (2) 2   (3) 6   (4) None of these

4. Let a = 2, b = −4, c = −6, find the value of mo(mi(a, ma(mo(b), mi(a, c)))).
   (1) 1   (2) 2   (3) 4   (4) 6

DIRECTIONS *for questions 5 to 9*: Select the correct alternative from the given choices.

5. The question paper of an examination comprises three sections of 7, 6 and 5 questions respectively. A total of 15 questions are to be answered, with a minimum of three questions to be answered in each section. Also the number of questions answered from the second section shall be more than those answered from each of the remaining two sections. In how many different ways can a candidate choose to answer the required total of 15 questions from among the three sections?
   (1) 420   (2) 140   (3) 210   (4) 175

6. In the following figures, PQRS is a square of side 1 cm containing the two quadrants centered at P and Q as shown.
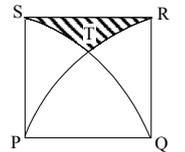
   Find the area (in cm²) of the shaded region.
   (1) $1 - \pi/6 - \sqrt{3}/4$ (2) $1 - \pi/6 + \sqrt{3}/2$ (3) $1 - \pi/6 + 4/3$ (4) $1 - \pi/6 + \sqrt{2}/3$

7. In the above question, find the combined area (in cm²) of the closed regions PST and QRT.
   (1) $\pi/2 - \sqrt{3}$ (2) $\sqrt{3} - \pi/2$ (3) $\sqrt{3}/2 - \pi/6$ (4) $\sqrt{3}/4 + \pi/6$

8. The three sides of a right-angled triangle have integral lengths and also form an arithmetic progression. A possible length of one of the sides is
   (1) 22   (2) 91   (3) 82   (4) 56

9. If the sum of the roots of the equation $x^2 + px + q = 0$ is equal to the product of the roots, then which of the following statements is/are always true of the equation $x^2 + mx + n = 0$, the roots of which are p and q?(Assume that x is real.)
   I. m = 0   II. n ≤ 0   III. m ≥ 0   IV. n = 0
   (1) I and IV only   (2) III and IV only   (3) I and II only   (4) None of these

DIRECTIONS *for questions 10 and 11:* Each of these questions is based on an implicit function of x and y. Mark your answer choice as

   (1) if f(x, y) = f(y, x)   (2) if f(x, y) = f(x, −y)   (3) if f(x, y) = f(−x, y)   (4) None of these hold.

10. f(x, y) = $x^2 + 2x - y^2$

11. f(x, y) = $x^3 - 3x^2 + 7\,|\,x\,| + 6y + 8$

DIRECTIONS *for questions 12 and 13:* These questions are based on the data given below.

Ritu was asked to multiply a two-digit number P by a three-digit number Q. But she mistakenly multiplied P by the number formed by writing the digits of Q in the reverse order, thereby getting an answer which is 22770 more than the correct answer.

12. If Ritu had reversed the digits of both the numbers P and Q, she would have got an answer 12816 more than her earlier answer. Find the correct product of P and Q.
   (1) 9982   (2) 13284   (3) 32752   (4) 45568

13. What is the minimum possible sum of the digits of Q?
   (1) 8   (2) 7   (3) 6   (4) 5

DIRECTIONS *for questions 14 to* 20: Select the correct alternative from the given choices.

14. If y = min {(x + 1), |5 − 3x|}, what is the range of x for which the value of y decreases continuously as x increases?
   (1) −1 ≤ x ≤ 5/3   (2) 1 ≤ x ≤ 5/3   (3) −5/3 ≤ x ≤ 1   (4) −5/3 ≤ x ≤ −1

15. A and B run a 10 km race. In the first heat, A gives B a head start of 500 mts and beats him by 50 seconds. In the second heat, A gives B a head start of 80 seconds and is beaten by 1000 mts. What is the ratio of the speeds of A and B?
   (1) 24 : 36   (2) 35 : 24   (3) 35 : 26   (4) 34 : 22

16. A can complete a piece of work P in 6 days while B can complete twice that work in half the time taken by A. C can complete half of work P in thrice the amount of time taken by B for double the work. If A and C start the work together and B joins them after exactly 1.5 days, in how many days will the total work be complete?
   (1) 2   (2) 2.25   (3) 2.5   (4) 2.75

17. A square of 36 cm x 36 cm is completely divided into a grid of cells of size 3 cm x 2 cm each, where 3cm is the vertical dimension of each cell and 2 cm is the horizontal dimension. What is the total number of squares that can be located in the grid?
   (1) 216   (2) 323   (3) 411   (4) 512

18. In a town, 55% of the families read newspaper A and 60% of the families read newspaper B. If 5% of the families read neither of them, what percentage of the families in the town read both the newspapers?
   (1) 15%   (2) 10%   (3) 20%   (4) 5%

19. Two stations A and B are 660 km apart. A train T_1, which stops for 7 minutes at every town-station and for 3 minutes at every village-station, started from A with a speed of 40 km/hr towards B and at the same time a train T_2 with a speed of 60 km/hr, which does not stop at any intermediate station, started from B towards A. They cross each other at C which is 420 km away from B. If the number of town-stations between A and C is less than the number of village-stations, then at least how many stations - town or village - are there between A and C? Assume that T_1 stops only at town or village-stations.
   (1) 10   (2) 16   (3) 20   (4) 13

20. The sum of the squares of three negative numbers p, q and r equals the sum of the products of all possible pairs out of the three numbers. Which of the following equals p^3qr^2?
   (1) $(p^2 + q^2 + r^2)^3$ (2) $(pq + qr + rp)^3$ (3) $q^2(p^3r + rp^3)/2$ (4) None of these

DIRECTIONS *for questions 21 to 23:* These questions are based on the data given below.

An Australian florist imports a consignment of rare South American flowers. There are three different types of flowers. There were 14 dozens of Lylis, 16 dozens of Lacils and $18^2/_3$ dozens of Laisys. Anticipating a huge demand, the florist decides to pack these flowers into packets. Each packet has a different number of flowers of the 3 types but the packets have the same number of flowers of each type. The florist also decides to charge per flower in such a way that the total proceeds from the sale of each type of flower is the same. There is no extra charge for the packaging, i.e. the cost of each packet of flowers is equal to the sum of the costs of the flowers in it.

21. If the cost of each flower is a whole number of dollar,find the minimum possible price (in dollars) of each packet of flowers.
   (1) 354   (2) 276   (3) 504   (4) 576

22. By what percent is the price per Laisy less than the price per Lyli?
   (1) $33^1/_3$%   (2) 25%   (3) 40%   (4)   Cannot be determined.

23. If in the last minute the florist decides to hike the prices from the minimum possible prices and still maintain all the conditions mentioned earlier, then what is his new minimum possible total revenue (in dollars) from the sale of all the flowers?
   (1) 5376   (2) 6720   (3) 8064   (4) 4032

DIRECTIONS *for Questions 24 to 26:* These questions are based on the following tables which show the statistics of 'Madras Textile Co.'

Production (in meters) of 'Madras Textiles' over the

Year	Type 1	Type 2	Type 3	Total
1998	34,56,700	2,34,900	1,40,000	38,31,600
1999	45,98,700	7,65,740	19,000	53,83,440
2000	34,45,660	4,56,700	28,000	39,30,360
2001	65,78,900	3,45,780	35,900	69,60,580
2002	67,54,300	9,87,400	27,000	77,68,700

Profit per meter (in rupees) produced for each type

Year	Type 1	Type 2	Type 3
1998	0.1	0.3	0.75
1999	0.05	0.5	0.25
2000	0.15	0.9	0.5
2001	0.1	0.5	1
2002	0.2	1	1.5

24. In which year over the past 5 years did Madras Textiles experience the highest total profit?
   (1) 1998   (2) 2002   (3) 2001   (4) 1999

25. In how many years was the profit from Type 1 greater than that from Type 2 and also greater than that from Type 3?
   (1) 3   (2) 2   (3) 1   (4) None of the above

26. What is the percentage increase in the total profit from the year 2001 to the year 2002?
   (1) 174.5 %   (2) 125 %   (3) 85 %   (4) 40%

DIRECTIONS *for Questions 27 to 29:* These questions are based on the following table.

Investment - Earnings Ratio And Sectorwise Investment In Several Countries

Name of the Country	Overall Investment Earnings Ratio 2002	Overall Investment Earnings Ratio 2003	Ratio of Investments in the three sectors for the year 2002 Manufacturing : Services : Agriculture	Sectorwise investment to earnings ratio in 2002		
				Manufacturing	Services	Agriculture
Brazil	10	8	3 : 5 : 2	15	12.5	
Indonesia	12	9	2 : 1 : 3	10		30
India	5	10	1 : 2 : 2	13 1/3	10	
S. Korea	8	5	4 : 1 : 3		10	6
Mexico	20	12	3 : 4 : 3	20	50	
Malaysia	7	15	2 : 3 : 2		6	5
Chile	15	16	1 : 3 : 1	20	20	
Taiwan	12.5	18	2 : 2 : 1	10		10
Philippines	25	20	3 : 1 : 1	30		20
Thailand	9	12	1 : 1 : 1	10	12	
Hungary	6	8	1 : 2 : 3	5	5	
Polan	16	20	3 : 2 : 3		40	20

*Investment – Earnings ratio is the ratio of the Investment and Earnings.

Note: There are only three sectors to be considered.

27. If the earnings per unit investment is indicative of the performance of the country, how many of the above mentioned countries performed better in the year 2003 when compared to the year 2002?
   (1) 4   (2) 5   (3) 7   (4) 3

28. What is the ratio of investment to earnings for the agricultural sector in India during the year 2002?
   (1) 4   (2) 5   (3) 6   (4) 8

29. In the year 2002, in how many of the given countries were the earnings as a percentage of investment for atleast one of the three sectors more than the overall earnings as a percentage of the overall investment in that country?
   (1) 12   (2) 10   (3) 8   (4) Cannot be determined

DIRECTIONS *for Questions 30 to 32:* These questions are based on the tables given below which show the transportation requirements and the costs involved of M/s. Kata Steels. The steel available at the warehouses is dispatched to the C & F Yards.

Warehouse	Quantity Available
WH1	400 units
WH2	500 units
WH3	700 units

C & F Yard	Quantity Required
X	600 units
Y	300 units
Z	400 units

Transportation Cost Per Unit (in Rs.)

C & F Yard / Warehouse	X	Y	Z
WH1	14	10	18
WH2	10	6	14
WH3	16	12	20

No C & F Yard receives more steel than its stipulated requirement.

30. The minimum cost at which WH3 can dispatch away all the quantity available with it is
(1) Rs.8,400   (2) Rs.10,000   (3) Rs.11,600   (4) None of these

31. What is the minimum cost incurred to meet the requirement for all the C & F Yards from the quantity available at all the warehouses, if each warehouse can supply to only one C & F Yard?
(1) Rs.16,900   (2) Rs.18,200   (3) Rs.19,400   (4) None of these

32. Following table gives the details of the quantities shipped from the warehouses to the C & F Yards on a certain day, find the total cost incurred on transportation on that day.

Warehouse	Quantity Shipped to each C & F Yard		
	X	Y	Z
WH1	100	0	140
WH2	40	160	0
WH3	200	0	100

(1) Rs.6,930   (2) Rs.8,860   (3) Rs.9,260   (4) Rs.10,480

DIRECTIONS *for questions 33 to 36:* These questions are based on the table and the graph given below.

33. If a two-wheeler uses this road, then what are its savings on fuel on account of using this road?
(1) Rs.63   (2) Rs.126   (3) Rs.150   (4) Rs.90

34. Which of the following categories has the highest net cost saving by using this road?
(Net Cost Saving = Cost Saving – Toll Paid)
(1) Car   (2) 2 Wheeler   (3) HCV   (4) Bus

The Central Road Research Institute carries out cost studies for users on a periodic basis. The following tables represent the survey results of 2001 which studied the cost savings of moving from a 'two-lane bad road' to a 'four-lane good road' in Mehrauli, Uttar Pradesh.

Total Cost Savings on Account of four-lane good roads over two-lane bad roads (in Paise per km)
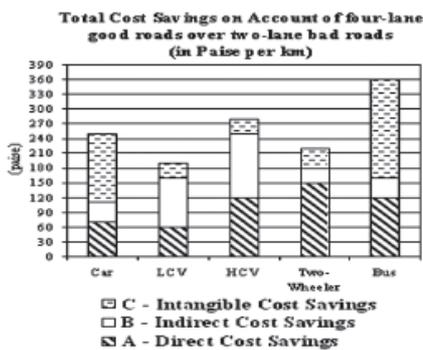
Types of Savings	A - Direct Cost Savings	B - Indirect Cost Savings	C - Intangible Cost Savings
Cost Heads	Fuel - 60%	Spares - 50%	Time - 60%
	Tyres - 15%	Maintenance - 50%	Commodity - 40%
	Oil - 25%	-	-

Toll As A Percentage Of

Category	%
Car	50
LCV	80
HCV	90
2 - Wheeler	30
Bus	45

Toll → Tax is collected from road users at the entry to the road by the road owner at toll-gates. Tolls are charged according to the category of vehicle.

This four-lane good road is 100 km long and has no other routes connecting into it. In other words a person entering into this road can only exit at the end of this road (i.e., after 100 km). Toll-gates are located at either ends of this road.

35. What is the difference in the sum of the Indirect and Intangible cost savings of a HCV and that of a Bus that use this road?

(1) 60 paise per km   (2)   75 paise per km

(3) 80 paise per km   (4)   None of these

36. If the toll-gate tax is the same irrespective of the category of the vehicle, then which of the following categories has the least net cost saving? (Net Cost Saving = Cost Saving – Toll Paid)

(1) LCV   (2) HCV   (3) 2 Wheeler   (4) Cannot be determined

DIRECTIONS *for questions 37 to 40*: Each question is followed by two statements, I and II. Answer each question using the following instructions.

Choose 1 if the question can be answered by one of the statements alone but not by the other.

Choose 2 if the question can be answered by using either statement alone.

Choose 3 if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Choose 4 if the question cannot be answered even by using both the statements together.

37. Only if Shyam eats no more than three sweets, then Ram will eat no more than three sweets, and Seeta will have at least three sweets. How many sweets did Shyam and Seeta together have, given that everyone had a different number of sweets and all of them had at least one sweet?

I.   Seeta had three sweets and Ram had two sweets.

II.   Ram had one sweet and Seeta had four sweets.

38. Is the 5-digit number N, a perfect square?

I.   N ends with 46.

II. N^{99} is a perfect cube but not a perfect square.

39. Find the time taken by a train to cross a stationary pole.

I.   The train takes 30 seconds to cross a train twice its length and having a speed thrice of its own.

II.   The train takes 40 seconds to cross a 200 m platform if its speed was 5 m/sec more.

40. Find the average weight of A, B, C and D if C and D have an average weight of 40 kg.

I.   The weight of A equals the average weight of the others.

II.   The weight of B equals the average weight of the others.

DIRECTIONS *for Questions 41 and 42:* These questions are based on the data given below.

The letters N, O, P, Q, R, S and T are coded by taking seven consecutive integers between 1 and 10. Also, the following information is known:

(i)   Q is three less than N.

(ii)   The number whose difference with the first number is same as that with the last number is O.

(iii) S is as much less than O as P is greater than Q.

(iv) T is greater than S.

41. Which letter is such that the difference of its integer-code with the integer-code of T is the same as that between the integer-codes of N and S?

(1) N   (2) O   (3) P   (4) Q

42. If N = 7, then the sum of R and T is

(1) 8   (2) 10   (3) 12   (4) 14

DIRECTIONS *for Questions 43 to 45:* These questions consists of six statements followed by four sets of three statements each. Select as your answer the set in which the statements are logically related.

43. (A) Some spades are not clubs.   (B)   No diamond is a spade.

(C) Some diamonds are spades.   (D)   Some clubs are not diamonds.

(E) All spades are clubs.   (F)   Some clubs are diamonds.

(1) AFC   (2) DBE   (3) BAF   (4) DEA

44. (A) All batsmen are bowlers. (B) No bowler is a keeper.

(C) Some bowlers are batsmen.   (D)   Some keepers are bowlers.

(E) All keepers are batsmen. (F) Some batsmen are not keepers.

(1) AEC   (2) BFD   (3) ADF   (4) FCB

45. (A) All numerals are numericals. (B)   All numerators are numerals.
(C) All numericals are numerators.   (D) All numericals are numerals.
(E) All numerators are numericals(F)   All numerals are numerators.
(1) BCA   (2) DFA   (3) BEF   (4) BDC

DIRECTIONS *for Questions 46 to 48:* These questions are based on the data given below.
Eight persons – A, B, C, D, E, F, G and H – are sitting in eight chairs all of which are facing the same direction. The eight chairs are arranged in two rows and four columns.
Also, the following information is known,
(i) A and F sit at either ends but in different rows and different columns.
(ii) G and C sit at either ends but in different rows.
(iii) E and B sit in different rows and in different columns.
(iv) D sits in the same row as F, but to the right of G.
(v) A sits ahead of G.

46. Of the following statements which statement/groups of statements will be sufficient to obtain a definite seating arrangement?
    I.   A and E are sitting in the same row.
    II.   There is one person sitting between B and G.
    III. B and H sit in the same column.
    (1) Only II   (2) Only I   (3) Only I and III   (4) Both (1) and (3)

47. If E sits adjacent to A, then which of the following statements must be true?
    (1) B sits adjacent to G.   (2)   H sits adjacent to B.
    (3) B sits exactly between F and D.   (4) E sits exactly between H and C.

48. If H and E sit in the same column then who sits in the same column as D?
    (1) A   (2) B   (3) C   (4) Cannot be determined

DIRECTIONS *for questions 49 to 53:* Each question below has a paragraph given with one sentence missing in between. From among the answer choices given select the sentence that can fill the blank to form a coherent paragraph.

49. With the outbreak of hostilities in the Gulf, it has become all the more imperative to improve the efficiency of PSUs. (_____). The budget deficit is likely to remain uncomfortable apart from the precarious balance of payments position. Transport will be affected and the economy may move into stagnation if there is no early end to the Gulf war.
    (1) Iraq is unlikely to be able to supply oil for quite some time to come.
    (2) India's oil import bill has already become burdensome.
    (3) PSUs have been proving to be white elephants for the economy.
    (4) India has been caught in the cross-fire of the Gulf war.

50. What should be the focus of R & D effort for the electronics industry? The Central Research Laboratory (CRL) of BEL in Bangalore and the Electronics Research and Development Centre (ERDC) in Trivandrum appear to vary in perception. (_____). It does not engage itself in project development, but only works on "enabling technologies".
    (1) The BEL laboratory's focus is basically on communications technology and it is working at the front-end of this.
    (2) Nobody seems to be quite clear about what the focus of BEL's R & D should be.
    (3) The ERDC seems to be duplicating some of the R & D work already done by BEL.
    (4) The BEL engages itself in needless "back-biting" of the work done by the ERDC.

51. Resources are in severe crunch, first and foremost. With its capital structure consisting of equity and loans from the Government and public sector undertakings in the ratio of 54 to 46, the plant is naturally expected to service a large debt component, an uphill task. (_____). Its cost overruns are such that the cost estimate with 1990 first quarter as base is Rs.7,850 crores. The expenditure since its inception is Rs.6,442 crores.
    (1) The management seems to be unable to reconcile itself to the task of taking the necessary steps towards overcoming such a stiff proposition.
    (2) In steel plants abroad, the debt component during the set-up stage is closer to a more manageable 25 per cent.
    (3) The management has been asking for a restructuring of its capital base with an increase in the equity component to 70 or 80 percent so that its debt burden will be lightened in its formative years.
    (4) It is certainly not too much to expect that the management should have taken this into consideration at the time of setting up the project.

52. The economy of the road transport industry is in a bad shape as operational costs have been increasing. Any price control on tyres will affect the viability of tyre companies, compelling them to reduce production. (_____). The demand for tyres shows no indication of picking up though the vehicle manufacturing industry, especially the heavy vehicle segment, does not have much of a problem in turning out vehicles, but this could only be a pre-budget phenomenon.
    (1) There is a boom period in the offing for the tyre industry.
    (2) This is a far cry from the days when the domestic tyre industry was accused of cartelisation and price fixing.
    (3) A reduction in production would only further worsen the situation as heavier over head absorption would be required.
    (4) This would, in turn, seriously affect the road transport industry.

53. In the initial stages, the floor tiles were of two categories, glazed and unglazed. The glazed ones were of different colours. There were plain colours and cloudy effects and self design tiles. (_____). Screen printing involves an elaborate technique of preparing a design and transferring it to screens by photographic process. Special screen printing machines are installed along the glaze line to print tiles.
- (1) At the outset there was a fairly heavy demand for such tiles.
- (2) To follow was the introduction of screen printed tiles with a variety of designs.
- (3) Self design tiles were targeted at individuals who wished to create a designer look by using such tiles imaginatively.
- (4) Cloudy effect tiles never really caught on in a big way.

DIRECTIONS *for questions 54 to 58:* For each of the words below a context is provided. From the alternatives given pick the word that is closest in meaning in the given context.

54. Abridgement: An upsurge in terrorism in various liberal democracies may lead to severe <u>abridgement</u> of civil liberties.
- (1) summary
- (2) curtailment
- (3) erosion
- (4) contradiction

55. Rendezvous: The cosmopolitan composition of the Columbia team represented several journeys from different origin to the fateful <u>rendezvous</u>.
- (1) end
- (2) disaster
- (3) venue
- (4) accident

56. Surrogate: By allowing the judiciary to appropriate the space that belongs to civic social institutions, the courts are becoming <u>surrogates</u> for the failures of civil society and the executive.
- (1) guardians
- (2) substitutes
- (3) authorities
- (4) surveyors

57. Morass: Is the country heading for a political <u>morass</u>?
- (1) quagmire
- (2) progress
- (3) corruption
- (4) subversion

58. Construe: Sharing of views should never be <u>construed</u> as meek submission.
- (1) articulated
- (2) discerned
- (3) interpreted
- (4) erected

DIRECTIONS *for Questions 59 to 63:* The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.

59.
- A. Moreover, as software is often built on the achievements of others, writing code could become a legal hurdle race.
- B. Critics claim that such intellectual monopolies hinder innovation, because software giants can use them to attack fledgling competitors.
- C. By analogy, if Haydn had patented the symphony form, Mozart would have been in trouble.
- D. The of patents for software and business methods has been causing a stir in America ever since the Patents and Trademark Office started issuing patents on internet methods in 1998, most famously that for one-click shopping.
- E. Proponents argue that these patents provide the necessary incentive to innovate at a time when more inventions are computer-related.
- (1) DBCAE
- (2) DEBAC
- (3) DECBA
- (4) DBEAC

60.
- A. Now she has started a hunger strike, according to the American government, which slapped strict sanctions on Myanmar, in protest at such repression.
- B. For military-ruled Myanmar, it is either the best of times or the worst of times, depending on whom you believe.
- C. They even have a 'map' to take the country there, but they have not yet made clear whether they will allow Miss Suu Kyi along for the ride, nor how long the trip will take.
- D. The generals, however, say that Miss Suu Kyi is fine, and that Myanmar will soon be on the road to democracy.
- E. The State Peace and Development Council (SPDC), as the country's junta styles itself, has detained Aung San Suu Kyi, the country's most prominent dissident and a winner of the Nobel peace prize, at a secret location for over three months.
- (1) EDACB
- (2) BEDCA
- (3) EBACD
- (4) BEADC

61.
- A. America spends more on defence than the next dozen countries combined.
- B. The country is exceptional in more profound ways – it is more strongly individualistic than Europe, more patriotic, more religious and culturally more conservative.
- C. Military might is only a symptom of what makes America itself unusual.
- D. The best indication of American exceptionalism is military power.
- E. The National Security Strategy of 2002 says America must ensure that its current military dominance – often described as the greatest since Rome's – is not even
challenged, let alone surpassed.
- (1) DAECB
- (2) ACBED
- (3) EADCB
- (4) CAEDB

62. A. At the moment, 9% of the world's maize crop is lost to insect pests which costs $ 5.7 billion, while a further $ 550 million is spent on insecticide.
   B. Gains in countries where Bt. maize is already planted commercially, range from 5% to 10%.
   C. Finicky consumers in the rich world may be rejecting genetically modified crops, but a report suggests many poor countries are embracing them enthusiastically.
   D. The widespread deployment at Bt. Maize could halve the figures.
   E. The report examines the take-up of maize that has had the gene for a natural insecticide produced by a bacterium, called Bacillus Thuringiensis, or Bt. engineered into it.
   (1) ADCBE   (2) CADBE   (3) CEADB   (4) EBADC

63. A. The fashionable source of anxiety in both Europe and Asia is whether America is becoming so different from other nations that it is becoming a problem for the world, not a solution.
   B. On this view, the U.S. is now inherently assertive and unilateralist, and so can no longer be trusted to lead the world; instead it should be feared.
   C. Now, few pundits anguish about whether their countries have to become more like America.
   D. It is not just a reckless Bush administration leading America astray, in other words.
   E. Until a little over two years ago, the fashionable topic for debate in conferences, opinion pages and even bars around the world was whether globalisation was really Americanisation, and whether that was a good or a bad thing.
   (1) ABDEC   (2) ECADB   (3) DBAEC   (4) ECDBA

Directions *for questions 64 to 68:* In each of the following questions, a part of the sentence is underlined and is followed by four different ways of phrasing it. Choose the best among the four given choices.

64. If I won a crore in 'Kaun Banega Crorepati' I would have probably bought a yacht.
   (1) would have probably bought   (2) would buy probably
   (3) would probably buy   (4) will probably buy

65. There was command and authority also in his voice though he was making an apology.
   (1) command as well as authority   (2) command and authority also
   (3) command and also authority   (4) command also and authority

66. The garish suite was to be overlooked the fake fairyland grounds in the rear of the hotel.
   (1) was to be overlooked the fake fairyland grounds
   (2) overlooked the fake fairyland grounds
   (3) had to be overlooking the fake fairyland grounds
   (4) was overlooking the fake fairyland grounds

67. It was pitch dark and without a moon but Mason fetched us over the grasslands until a dark mass loomed up in front of us.
   (1) fetched us over the grasslands until a dark mass loomed up
   (2) fetched us over the grasslands until a dark mass appeared up
   (3) led us over the grasslands until a dark mass arrived up
   (4) led us over the grasslands until a dark mass loomed up

68. I prodded for an hour in the garret in my house which is stuffed with books.
   (1) plunged for an hour in the garret in my house
   (2) prodded for an hour in the garret in my house
   (3) rummaged for an hour in the garret of my house
   (4) searched an hour in the garret of my house

Directions *for questions 69 to 78:* Read the passages given below and answer the questions that follow.

Passage - 1

The meteorologist classifies clouds mainly by their appearance, according to an international system similar to one proposed in 1803. But because the dimensions, shape, structure, and texture of clouds are influenced by the kind of air movements that result in their formation and growth, and by the properties of the cloud particles, much of what was originally a purely visual classification can now be justified on physical grounds.

The first International Cloud Atlas was published in 1896. Developments in aviation during the First World War stimulated interest in cloud formations and in their importance as an aid in shortrange weather forecasting. This led to the publication of a more extensive atlas, the International Atlas of Clouds and States of Sky, in 1932, and to a revised edition in 1939. After World War II, the World Meteorological Organization published a new International Cloud Atlas (1956), in two volumes. It contained 224 plates, describing 10 main cloud genera (families) subdivided into 14 species based on cloud shape and structure. Nine general varieties, based on transparency and geometrical arrangement, also are described. The genera, listed according to their height, are as follows.

1. High : mean heights from 5 to 13 kilometres (16,500 to 45,000 feet)
    a. Cirrus   b. Cirrocumulus   c. Cirrostratus

2. Middle : mean heights 2 to 7 kilometres (6,500 to 23,000 feet)

a. Altocumulus   b. Altostratus   c. Nimbostratus

3. Low : mean heights 0 to 2 kilometres (0 to 6,500 feet)
 a. Stratocumulus   b. Stratus   c. Cumulus   d. Cumulonimbus

Heights given are appropriate averages for temperature latitudes. Clouds of each genus are generally lower in the polar regions and higher in the tropics. Four principal classes are recognized when clouds are classified according to the kind of air motions that produce them: (1) layer clouds formed by the wide-spread regular ascent of air: (2) layer clouds formed by widespread irregular stirring or turbulence: (3) cumuliform clouds formed by penetrative convection: (4) orographic clouds formed by ascent of air over hills and mountains.

The widespread layer clouds associated with cyclonic depressions near fronts and other bad-weather systems, frequently are composed of several layers that may extend up to nine kilometres (30,000 feet) or more, separated by clear zones that become filled in as rain or snow develops. These clouds are formed by the slow, prolonged ascent of a deep layer of air, in which a rise of only a few centimetres per second is maintained for several hours. In the neighbourhood of fronts, vertical velocities become more pronounced and may reach about 10 centimetres (four inches) per second.

Most of the high cirrus clouds visible from the ground lie on the fringes of cyclonic cloud systems, and, though, due primarily to regular ascent, their pattern is often determined by local wave disturb-ances that finally trigger their formation after the air has been brought near its saturation point by the largescale lifting.

On a cloudless night, the ground cools by radiating heat into space without heating the air adjacent to the ground. If the air were quite still, only a very thin layer would be chilled by contact with the ground. More usually, however, the lower layers of the air are stirred by motion over the rough ground, so that the cooling is distributed through a much greater depth. Consequently, when the air is damp or the cooling is great, a fog a few hundred metres deep may form, rather than a dew produced by condensation on the ground.

In moderate or strong winds the irregular stirring near the surface distributes the cooling upward, and the fog may lift from the surface to become a stratus cloud, which is not often more than 600 metres (2,000 feet) thick.

Radiational cooling from the upper surfaces of fogs and stratus clouds promotes and irregular convection within the cloud layer and causes the surface to have a waved or humped appearance. When the cloud layer is shallow, billows and clear spaces may develop so that it is described as stratocumulus instead of stratus.

Usually cumuliform clouds appearing over land are formed by the rise of discrete masses of air from near the sunwarmed surface. These rising lumps of air, or thermal, may vary in diameter from a few tens to hundreds of metres as they ascend and mix with the cooler, drier air above them. Above the level of the cloud base the release of latent heat of condensation tends to increase the buoyancy of the rising masses, which tower upward and emerge at the top of the cloud with rounded upper surfaces.

At any moment a large cloud may contain a number of active thermal, and the residues of earlier ones. A new thermal rising into a residual cloud will be partially protected from having to mix with the cool, dry environment and therefore may rise farther than its predecessor. Once a thermal emerges as a cloud turret at the summit or the flanks of the cloud, rapid evaporation of the droplets chills the cloud borders, destroys the buoyancy, and produces sinking. A cumulus, therefore, has a characteristic pyramidal shape and viewed from a distance appears to have an unfolding motion, with fresh cloud masses continually emerging from the interior to form the summit and then sinking aside and evaporating.

In settled weather, cumulus clouds are well scattered and small; horizontal and vertical dimensions are only a kilometre or two. In disturbed weather they cover a large part of the sky, and individual clouds may tower as high as 10 kilometres (32,800 feet) or more, often ceasing their growth only upon reaching the very stable stratosphere. These are the clouds that produce heavy showers, hail, and thunderstorms.

At the level of the cloud base the speed of the rising air masses is usually about one metre (3.3 feet) per second, but may reach five metres (roughly 16 feet) per second, and similar values are measured inside the smaller clouds. The upcurrents in thunderclouds, however, often exceed five metres per second and may reach 30 metres (98 feet) per second or more.

The rather special orographic clouds are produced by the ascent of air over hills and mountains. The air stream is set into oscillation when it is forced over the hill and the clouds form in the crests of the (almost) stationary waves. There may therefore be a succession of such clouds stretching downwind of the mountain, which remain stationary relative to the ground despite strong winds that may be blowing through the clouds. The clouds have very smooth outlines and are called lenticular (lens shaped) or wave clouds. Thin wave clouds may form at great heights (up to 10 kilometres, even over hills only a few hundred metres high) and occasionally are observed in the strato-sphere (at 20 to 30 kilometres [65,6000 to 98,400 feet]) over the mountains of Norway, Scotland, Iceland, and Alaska. These atmospheric wave clouds are known as nacreous or "motherofpearl" clouds because of their brilliant iridescent colours.

69. As per the passage,
 (1) the classification of clouds proposed in 1803 was given up later because it was only a visual classification.
 (2) the classification of clouds proposed in 1803 based on visual aspects is still valid even on physical grounds.
 (3) the classification of clouds proposed in 1803 has later been modified by taking the properties of clouds into account.

(4) the classification of clouds proposed in 1803 is not correct because it was not based on the properties of the cloud particles or on the kind of air movements that result in the formation and growth of the clouds.

70. "On a cloudless night, the ground cools by radiating heat into the space....". This sentence is used in the passage to explain the formation of
(1) layer clouds due to regular ascent of air.
(2) orographic clouds due to ascent of air.
(3) cumuliform clouds.
(4) layer clouds due to widespread irregular disturbance.

71. What is the major difference between Stratus and Stratocumulus clouds?
(1) In Stratus, stirring near the surface distributes the cooling upward, where as in Stratocumulus it is downwards.
(2) The stirring near the surface distributes the cooling downwards in Stratus, whereas it is upwards in Stratocumulus.
(3) The convection is regular in Stratus, whereas it is irregular in Stratocumulus.
(4) A shallow Stratus with spaces developed inside the cloud structure is called a Stratocumulus.

72. Which of the following statements are true?
I. The upcurrents in thunder clouds always have a speed greater than five metres per second.
II. Orographic clouds are mostly formed over hills.
III. Orographic clouds sometimes have brilliant colours.
(1) Only I and II   (2) Only I and III   (3) Only II and III   (4) All three statements

73. We may conclude from the passage that the height of Stratosphere from earth's surface is
(1) some times less than 10 kms and some times more than 10 kms.
(2) more than 20 kms but less than 30 kms.
(3) less than 10 kms   (4) not mentioned in the passage.

Passage - II

Companies whose main business is not investment, do invest in assets other than machines and real estate. The assets are mostly in the form of financial instruments. These are shown under a separate heading called "investments" on the assets side of the balance sheet. What is shown here is the position as on the data of the Balance sheet. These investments however, do not tell the full story of corporate forays into the realm of money and finance.

The world of company investments will not generate so much excitement if it was to be restricted only to the yearend view. What happens between the two consecutive balance sheet dates is the real stuff behind much of the investment game. It is more interesting, innovative and sometimes, even open to misuse. The securities scam has brought out several juicy details of the misuse aspect. Yet, for the genuine corporate finance professional, these between the-year investments have not lost their charm.

It would therefore be instructive to see how and why companies whose main business is not investment get into these transactions. Every business, more so in manufacturing, has to deal with two flows. One is the flow of physical goods and services, materials, equipment and finished items. Second is the flow of cash. Often, there are mismatches in the manner in which these flows get generated and deployed in a business. These mismatches create cash surpluses for some companies and cash deficits for some other. Financial markets and players in them arrange for the surpluses to flow into the defi-cits. Hence the need for both parking and accepting funds, on a short term basis.

In simple terms, the mismatch means the following. Although the yearend balance sheet may show that a company has generated cash of say Rs. 5 crores, it is quite possible that it generated Rs. 8 crores up to the month of November and depleted parts of it as it went along to close the year in March. A soft drinks company will show this kind of a cash generation pattern. Or consider a company which sells the finished goods in cash basis but manages to buy its raw materials on credit. This company will most likely, have surplus cash most of the time, since it can pay its suppliers later but has received the cash for the products sold immediately. On the other hand, a fabricator of machinery receives about 70 per cent of its value only after he has borne all the costs, delivered the machine and it has been proved that the equipment performs.

The above instances are such that a given cash flow is almost built into the operating structure of a company's business. There are, however, times when a company is in need of cash, or has surplus of it, on a onetime basis. A company needs to spend a lot of money for a product launch. Another one has just received money from a public issue, the utilisation of which is going to be phased out over the next six months. The first player is a borrower in the market and the second one, a lender.

In short, there can be numerous instances where the need for the lending and borrowing on a short term basis arises. The game is to search the right instrument, choose a proper timing and of course an intermediary to make things happen. The short term funds market has plenty of instruments to help both these players. What instrument the cash surplus company uses, depends on various parame-ters. These are discussed below.

It is not that all the companies lending in the short term market are trying to maximize return. There are at least three other identifiable issues that bear upon an investment decision. The most important being the liquidity. A company has surplus liquidity now but it is sure to need it three months down the road. It will therefore make sure that the liquidity comes back when needed, even if that means accepting half a percentage point less return. Equally important is the risk perception and preferences of the management. Lastly, the tax angle, the manner in which the income earned out of that inves-tment is going to be treated for tax purposes. All of us know that

investment in units even on a shortterm basis, was once upon a time resorted to by some companies because of the favourable tax treatment given to the dividends earned on them. It is thus seen that return, liquidity, risk perception and tax planning are the four pillars on which a short term investment decision rests.

Company law requires a company to obtain share-holders' approval for investing funds which form 30 per cent or more of the paid up capital and reserves. The Janakiraman reports have found out instances where this requirement may have been violated by some companies. Presently, some confusion prevails regarding whether or not funds invested under the Portfolio Management Scheme (PMS) are also subject to this restriction. Considering the guidelines issued for the PMS funds are, by their very nature, supposed to be long term in nature. In any case, it is hard to imagine that a company can have such a huge pool of surplus funds which are not required for the business oper-ations and hence need to be invested in money or capital market instruments. One needs to be critical of a company which has surplus funds of that magnitude and is also not investing them in machines and infrastructure but is deploying them in markets instead.

Assuming that a company is investing within the legal limits, what kind of instruments could it use to part funds? The most popular is intercorporate deposits (ICDs). These are generally unsecured but a company in need of funds may offer some security, say units, against which an ICD could be obtained. The popularity of this instrument is understandable. Firstly, the rates of return are pretty attractive. ICDs requires very little paper work. These can be used with companies who anyway are dealing with you on a regular basis says a supplier of material or dealer of finished goods. Lastly, the markets is very active so that there are fewer structural impediments.

Initially the call money market was the exclusive domain of the commercial banks and financial insti-tutions. Effective October 1990, the guidelines pertaining to call money participation have been liberalised and it is possible that some companies could be operating in this market. However, the rates in this market are subject to wide fluctuations. It is also likely that the timing of surplus generation and the hardening of the call money rate may not match. This instrument is thus more suitable for those companies who are perennially cash surplus the types who sell cash and buy credit.

Commercial paper, certificates of deposits, mutual fund units are other instruments. At present, these could be thinly traded but over a period of time, are bound to become quite popular. Dis-counting of bill is one more instrument that can serve multiple needs. Since bills are dated and can be made to accompany proper security backing, the aspect of risk, timing and liquidity can be taken care of. However, documentation and expertise required in executing bills discounting deals can be quite rigorous. This option is not for the newcomer.

To sum up then, short term investments, if seen as arising purely out of the structural necessities of a business, can have lot of challenges for the finance manager. As one time requirement, it has a definite place in the company's financial management exercise. If however, these are treated as major source of making profits for the company, which is not the way a manufacturing business should be run, possibilities of misuse arise. The challenge for the regulator is formidable–how to make a liberalised financial market observe rules where misuse is more regular rather than exceptional.

74. The passage deals mainly with
    (1) details of various financial instruments available to corporates in need of funds.
    (2) advice to companies regarding management of their cash flow.
    (3) short term investments by companies scope for misuse.
    (4) between the year investments.

75. Which of the following can be inferred from the passage regarding investments in financial instruments by companies?
    (1) Every company has to borrow the money to balance their fund requirements.
    (2) The investments on the asset side of a company's balance sheet are mostly in the form of financial instruments.
    (3) What is shown in the balance sheet does not give a correct picture of a company's investments in machinery and real estate.
    (4) Companies indulge in investments in financial instruments of which the full picture is not reflected in balance sheets.

76. Which of the following statements are true as per the passage?
    I.   Units is not preferred for shortterm investments since tax benefits are offered only for long term investments.
    II. Maximising return is the only consideration for companies investing in short term money market.
    III. Bills discounting schemes, unlike intercorporate, deposits require a lot of documentation.
    (1) only I   (2) only II
    (3) only III   (4) All three statements

77. Which of the following instruments/methods is more suited to companies that take credit from suppliers but do not give credit to buyers?
    (1) Commercial paper   (2) Portfolio management scheme
    (3) Discounting of bills   (4) Call money participation

78. Which of the following summarises the author's views expressed in the passage?
    (1) Bills discounting scheme option is not advisable for a new player in the moneymarket.
    (2) Manufacturing companies should not treat short term investments as a regular business line for making profits.
    (3) PMS funds should subjected to the restriction imposed by Janakiraman Committee.
    (4) Genuine corporate financial professional is a very rare commodity today.