

SEM eCAT 01

INSTRUCTIONS

1. This test is divided into three sections, Section 1 and 2 has 25 questions each. Section 3 has 40 questions. You will be given two and half hours to complete the test. **Each section carries 100 marks. All questions carry four marks. Each wrong answer will attract a penalty of one mark.**
3. For each question, five suggested answers are given of which only one is correct. Shade the circle next to the appropriate answer option.
4. Multiple answers will be treated as incorrect.
5. Confine all rough work to whatever blank space is available in this test booklet. No additional paper may be used.
6. All answers must be marked using a HB pencil only. Use of calculators, scales and other measuring instruments is not permitted.
7. You will be required to demonstrate adequate competence on every section.
8. Wrong answers carry negative marks. Desist from guessing wildly.

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SECTION 1

This section contains 25 questions

1. 5 men or 6 women or 8 children complete a work in 120 days. Consider 3 men (working at 80% their efficiency) along with 4 women (working at 60% their efficiency) and 10 children (working at 50% efficiency) start the work. If the men stop working after two days, in how many days will the rest of them finish the work?

j 80 days **k** 30 days **l** 40 days **m** 45 days **n** 60 days

2. There are two teams working on a project. Team A comprises members P_1, P_2, P_3, P_4 . The team leader is p_1 . Team B comprises members P_5, P_6, P_7, P_8 . The leader of this team is p_5 . The project comprises 8 parts. Each of the eight members knows only one part of the entire project. Team leaders are allowed to share information about the part each did, between them. Members of a team are allowed to share information with the members of their own team but not with members of the other team. A particular exchange comprises information about only one part of the project. In how many exchanges does each one know about the entire project, if in one exchange one person communicates only one part at a time. An exchange happens only between 2 individuals.

What is the minimum number of exchanges required for all the eight members to know all the eight parts of the project?

j 56 **k** 50 **l** 60 **m** 62 **n** 64

3. What is the probability of getting a 3 digit number whose digits are in arithmetic progression with common difference > 1 from all three digit numbers whose digits are in ascending order?

j $3/7$ **k** $4/21$ **l** $2/23$ **m** $3/14$ **n** $4/15$

4. What is the remainder when $21! + 22! + 23!$ is divided by 32040?

j 0 **k** 121 **l** 15 **m** 23 **n** None of these

5. A rod of length x cms is cut into 3 parts. What is the probability of getting 3 parts to form a triangle?

j $1/6$ **k** $1/4$ **l** $1/2$ **m** $1/8$ **n** $1/10$

6. What is the remainder obtained when 333.....33 (up to 79 digits) is divided by 259?

- j** 0 **k** 8 **l** 4 **m** 1 **n** 3

7. Find the value of

$$1 \times 2 + 1 \times 3 + 1 \times 4 + \dots + 1 \times 100 + 2 \times 1 + 2 \times 2 + 2 \times 3 + \dots + 2 \times 100 + 3 \times 1 + 3 \times 2 + 3 \times 3 + \dots + 3 \times 100 + \dots + 100 \times 1 + 100 \times 2 + \dots + 100 \times 100$$

- j** 25164150 **k** 25614150 **l** 25164150 **m** 456789 **n** 647355

8. A person bought 20 chocolates for his 3 daughters. In how many ways can the 3 daughter share the chocolates(each daughter takes on one complete chocolate)?

- j** 231 **k** 200 **l** 192 **m** 165 **n** 178

9. Find the sum of all five digit number which can be formed by digits 1,3,5,7,9.

- j** 6666600 **k** 666660 **l** 6666000 **m** 600000 **n** 66666000

10. What is the tens digit of 47^{89}

- j** 87 **k** 47 **l** 67 **m** 01 **n** 61

11. Area of an equilateral triangle is $\frac{9\sqrt{3}}{4}$ sq cms. From the three vertices 3 circles are drawn which just touches each other. What is the perimeter of the triangle which circumscribes the 3 circles and the inner most triangle?

- j** $9+9\sqrt{3}$ **k** $18+8\sqrt{3}$ **l** $9\sqrt{3}$ **m** $10\sqrt{3}+5$ **n** $6\sqrt{3}$

12. What is the volume of the largest equilateral prism which can be formed by rotating the largest equilateral Δ in a regular Hexagon of side 3cm, about its width?

j $\frac{81\sqrt{3}}{8}$ **k** $\frac{70\sqrt{3}}{4}$ **l** $\frac{56\sqrt{6}}{3}$ **m** $\frac{20\sqrt{3}}{4}$ **n** $\frac{64\sqrt{3}}{5}$

13. If a, b, c, d are positive unequal integers such that $a+b+c+d = 17$. What is the maximum value of

$$\frac{a+b}{c-a} \cdot \frac{a-b}{c+d}$$

j 17 **k** 33 **l** 24 **m** 35 **n** 63

14. ABCD is a rectangle with $AB = 5\sqrt{3}$ cms and $AD = 5$ cms. X is a pt on AB such that $AX = 1$, $XB = 5\sqrt{3} - 1$ and Y is a pt on AD such that $AY = 1$, $YD = 4$. If XY makes 60° with AB (anticlockwise) then what

is $\frac{\text{Area of } \triangle AOB}{\text{Area of rectangle ABCD}}$

j 1/8 **k** 1/2 **l** 1/3 **m** 1/100 **n** 1/20

15. When 4 divides $\left(\left((7^{12})^{13}\right)^{14}\right)$ the remainder is:

j 1 **k** 2 **l** 4 **m** 6 **n** 7

16. How many values of n are possible such that $2^8 + 2^{11} + 2^n$ is a perfect square?

j 2 **k** 1 **l** 4 **m** 6 **n** 7

17. In the reality show 'who wants to be a millionaire' Mr. Sandeep was asked the number of zeroes at the end of the product of $1^1 \times 2^2 \times 3^3 \times \dots \times 25^{25}$. Mr. Sandeep's answer was?

j 80 **k** 90 **l** 100 **m** 120 **n** 150

18. Find the number of zeros at the end in $(3!)^{3!} + (6!)^{6!} + (9!)^{9!} + (12!)^{12!} + \dots + (96!)^{96!} + (99!)^{99!}$

j 99 **k** 120 **l** 50 **m** 54 **n** None of these

19. What will be the 10th digit from the left of $(4007)^3$?

j 5 **k** 6 **l** 4 **m** 7 **n** 9

20. What is the area of biggest 9 sided figure which can be inscribed within figure ABCD such that B and

C are centers of two bigger circles with radii 8 cms?

j 44.44 **k** 45.65 **l** 43.23 **m** 48.21 **n** 40.34

21. In how many ways can 3003 be expressed as a product of 3 factors?

j 120 **k** 122 **l** 130 **m** 140 **n** 142

Questions 22 and 23 are based on the following data

Rohan is making an adaptive test. He has 150 questions which can be categorized in 5 levels (level 1- easy to level 5- most difficult) evenly. The software presents a question to the test taker based on the correctness of the answer to the previous question. If the candidate answered the previous question correctly, a higher difficulty level question was presented next. If the candidate answered the previous question incorrectly, a lower difficulty level question was presented next. There are 5 questions in the test. All test takers were first presented with question of medium difficulty (level 3). If a test taker gets a level 1 question wrong, the next question presented to him is from level 1. If a test taker gets a level 5 question correct, the next question presented to him is from level 5.

22. How many different question sequences can be achieved in Rohan's adaptive test?

j 11 **k** 16 **l** 18 **m** 20 **n** 25

23. If no question gets repeated for anybody, what is the minimum number of test takers who can take this test using the same database?

j 15 **k** 10 **l** 20 **m** 30 **n** 25

Directions for questions 24 and 25

Each question is followed by statement A and B.

Mark **j** if the question can be answered from A alone not from B alone

Mark **k** if the question can be answered from B alone not from A alone

Mark **l** if the question can be answered from A and B together

Mark **m** if the question can be answered from A and B independently

Mark **n** if the question cannot be answered even from A and B together

24. What is the value of x?

A. $\frac{1}{x} + \frac{1}{y} = \frac{3}{5}$

B. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{40}{256}$

j

k

l

m

n

25. If $A = \frac{1+a+a^2}{1+a+a^2+a^3}$

$B = \frac{1+b+b^2}{1+b+b^2+b^3}$

Is $a > b$?

A. $A > B$

B. $B > A$

j

k

l

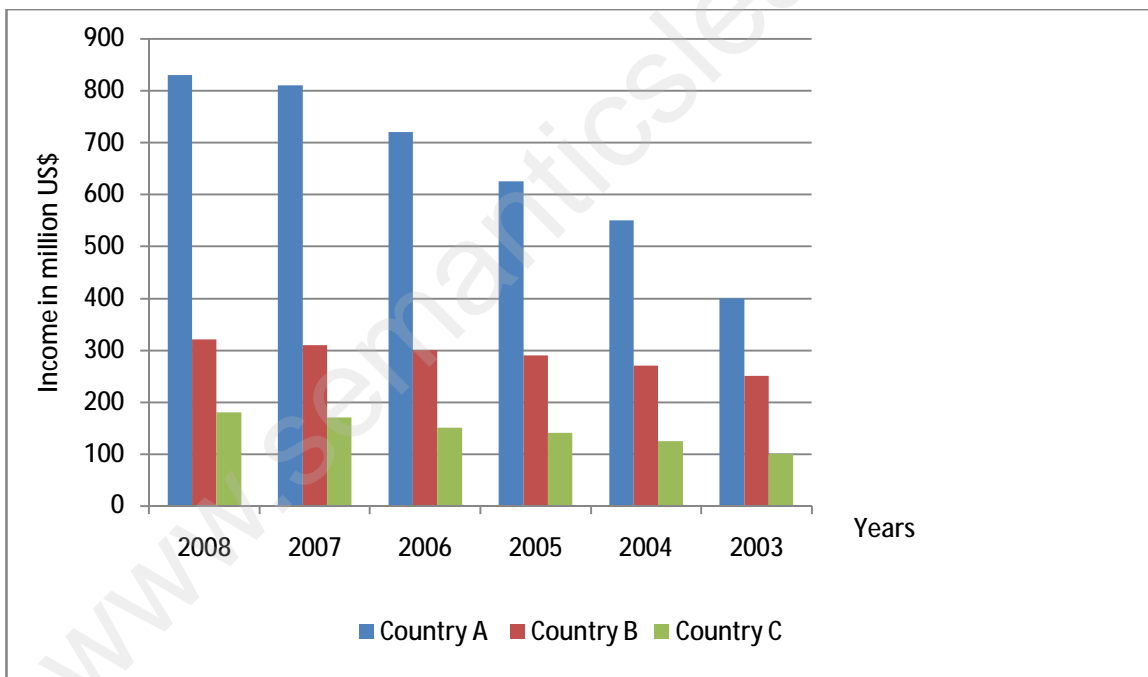
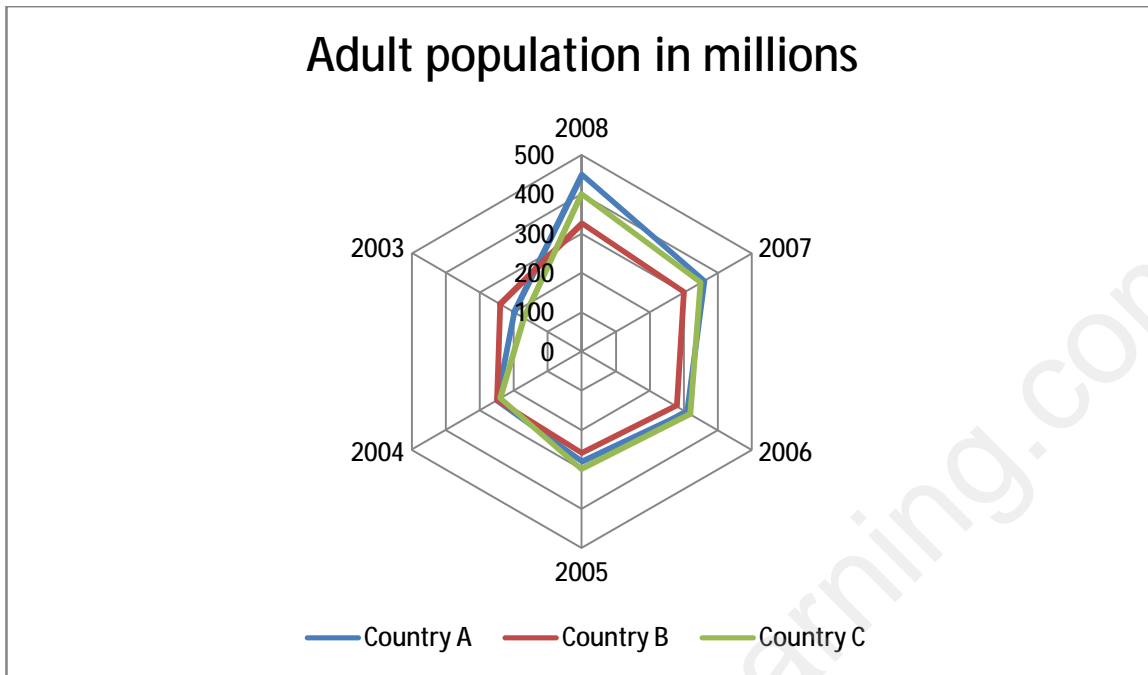
m

n

SECTION 2

This section contains 25 questions

Directions for questions 26 -28: Answer the questions based on the information given in the two graphs given below. The graphs present adult population of countries A,B and C and the income generated by the adult population for the years 2003 to 2008. Per capita income is defined as the income generated divided by the population.



26. What is the CAGR of the population of country A from 2003 to 2008?

- j** 11.7% **k** 12.5% **l** 13.6% **m** 14.67% **n** 16.89%

27. If the per capita income of country B increases at the same rate as in 2008 then what is the per capita income of country B in 2009?

- j** 0.185 **k** 0.1625 **l** 0.254 **m** 0.2514 **n** 0.19

28. In 2008 if women of country C which comprised 60% of the entire population, whose average salary was 50% more than the average salary earned by country C that year, then what is the average salary earned by men?(in million US\$)

- j** 0.110 **k** 0.116 **l** 0.234 **m** 0.254 **n** 0.196

Directions for questions 29-31: Answer the questions based on the graph below.

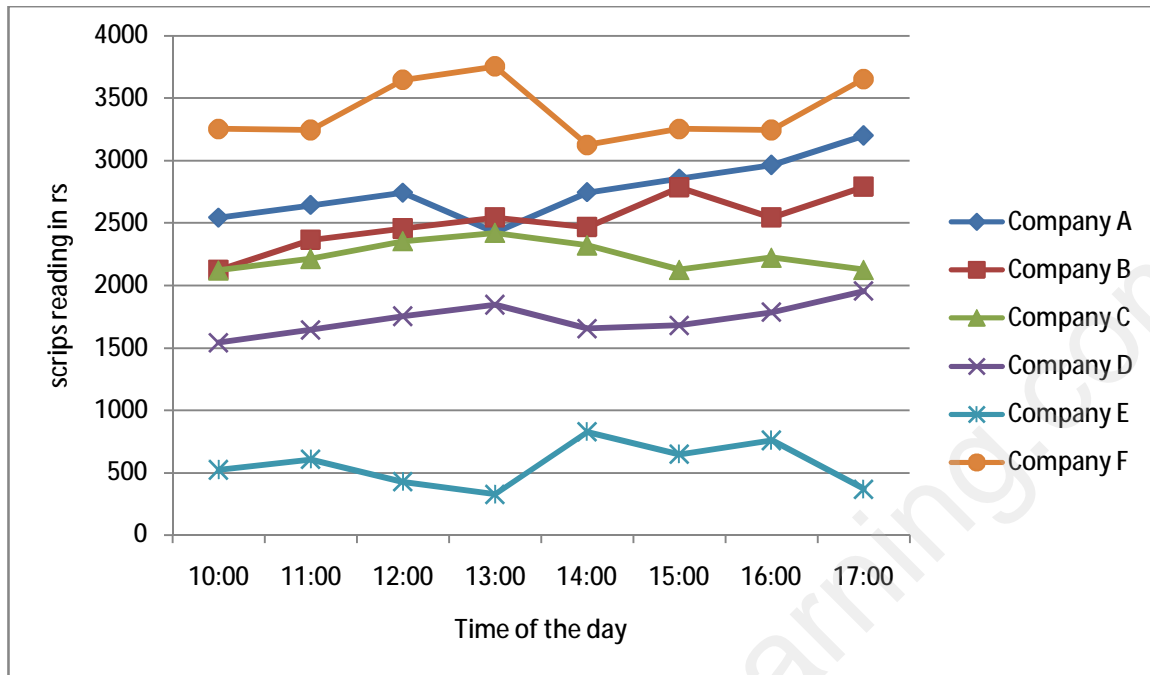
Below is a graph depicting the scrip prices of 6 companies on July 8th 2009 from 10:00 to 17:00. This data is presented before a mutual fund manager who has to categorize the 6 companies based on the following ratings.

Grade1 company: The company which has shown highest growth (percentage wise) from opening session to closing session

Grade2 company: The most stable company with the lowest intra day variation

Grade3 company: The company which has shown lowest growth (percentage wise) from opening session to closing session

Grade 4 company: A highly volatile company whose scrip values has highest intraday rise or fall



29. A person bought 20 shares of A, 10 shares of B and 20 shares of C at the opening of the trading session and sells all of them at the closing session. What is his profit or loss at the end of the day?

- j** Rs.54000 **k** Rs.12000 **l** Rs.31000 **m** Rs.46000 **n** Rs.61000

30. A person was looking at the trend of the scrip throughout the day. If he had bought 30 shares of grade 4 company and 20 shares of grade1 company at the opening of the trading session and sells all of them at the closing session, what is his percentage gain?

- j** Rs.24000 **k** Rs.52000 **l** Rs.32000 **m** Rs.42500 **n** Rs.28050

31. A risk-averse person decides to buy shares of different companies. For him a low risk company is defined as the company which has the lowest cumulative intra day variation. Identify his choice of companies from least risky to very risky.

- j** CEFBDA **k** CEBFDA **l** CFDEAB **m** CEFDAB **n** CEDFBA

Directions for questions 32-36: Answer the questions based on the graph below.

5 friends A,B,C,D & E fill a questionnaire in which they entered their ages and the salaries they earned at that age. Some of the data got erased. Fill the table with data based on the conditions given below.

	10 years back	5 years back	Now
A			
B			35 –
C			– (38000)
D			
E	– (30000)	31 –	– (55000)

Salaries are given in brackets.

All their ages 10 years back were less than 20.

The salary of the youngest person increased by Rs.10,000 every 5 years.

10 years back, two friends earned 10,000 more than the youngest person.

C at age 32 earned 35,000, C is now 37.

10 years back E's salary = C's salary five years back

A at age 33 (his age now) earned 40,000

The average salary of the friends 10 years back = 28.4 years

5 years back the average salary of A & E = average salary of B, C and D.

E's age now is 15 years more than A's age 10 years back.

E earned 5,000 more than B 10 years back.

5 years ago three friends earned the same salary.

32. What is the average age of the five friends 5 years back?

j 25

k 30.8

l 45

m 54

n 67

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33. What is D's salary now?

- j** 25,000 **k** 30,000 **l** 45,000 **m** 54,000 **n** Can't be determined

34. If A's salary now has increased by 5000, how many earn a salary less than him?

- j** 2 **k** 3 **l** 4 **m** 5 **n** 1

35. What is the average of E's salary 10 years back till now?

- j** 30 **k** 43.33 **l** 41 **m** 35 **n** 23

36. Whose salary increased by the greatest margin over ten years?

- j** A & C **k** B & C **l** C & D **m** A & B **n** A & D

Directions for questions 37-40: Answer the questions based on the graph below.

Rank	Country	Birth Rate	Death Rate	Region	number of primary health centers
1	South Africa	36	12	Africa	1243450
2	Japan	16	6	Asia	2343450
3	Germany	10	12	Europe	3433450
4	U.S.A	15	9	N. America	5463450
5	Argentina	22	10	S. America	2345456
6	Egypt	39	13	Africa	3500210
7	Korea (ROK)	26	6	Asia	2541215
8	Austria	12	13	Europe	1584654
9	Chile	22	7	S. America	2125465
10	Cameroon	42	22	Africa	3214556
11	Sri Lanka	26	9	Asia	2564546
12	Belgium	12	12	Europe	1895464
13	Colombia	34	10	S. America	2645642
14	Canada	16	7	N. America	2154635
15	Mozambique	45	18	Africa	1484645

16	Taiwan	26	5	Asia	1454684
17	Upper Volta	50	28	Africa	1025464
18	Cuba	20	6	N. America	1065465
19	Australia	16	8	Pacific	2541354
20	Zaire	45	18	Africa	2316544
21	Romania	19	10	Europe	1589464
22	Luxemburg	12	14	Europe	1659465
23	Mexico	40	7	N. America	2454621
24	Ghana	46	14	Africa	986544
25	Malaysia	30	6	Asia	1574894
26	Sweden	12	11	Europe	1365484
27	Angola	47	23	Africa	975464
28	China	31	11	Asia	5646584
29	Switzerland	12	9	Europe	1645415
30	Madagascar	47	22	Africa	125464
31	Thailand	34	10	Asia	1256463
32	U.K.	12	12	Europe	3654644
33	Brazil	36	10	S. America	4568462
34	Tanzania	47	17	Africa	45654
35	Turkey	34	12	Asia	65494
36	Netherlands	13	8	Europe	324564
37	Venezuela	36	6	S. America	2541235
38	Morocco	47	16	Africa	1238944
39	India	36	15	Asia	4123564
40	France	14	11	Europe	6547893
41	Indonesia	38	16	Pacific	1112356
42	Ethiopia	48	23	Africa	874652
43	Burma	38	15	Asia	784564
44	Italy	14	10	Europe	2365489
45	Philippines	34	10	Pacific	1456987
46	Ivory coast	48	23	Africa	754625
47	Iran	42	12	Asia	564786
48	Greece	16	9	Europe	123564
49	Guatemala	40	14	S. America	45654
50	Rhodesia	48	14	Africa	123545

51	Vietnam	42	17	Asia	235464
52	Bulgaria	17	10	Europe	2146584
53	Peru	40	13	S. America	1026584
54	Uganda	48	17	Africa	541235
55	Korea (DPRK)	43	12	Asia	123564
56	Hungary	18	12	Europe	178945
57	Ecuador	42	11	S. America	2346545
58	Nigeria	49	22	Africa	123564
59	Pakistan	44	14	Asia	1789564
60	Spain	18	8	Europe	2564894
61	Saudi Arabia	49	19	Africa	2134985
62	Nepal	46	20	Asia	234654
63	USSR	18	9	Europe	4568594
64	Sudan	49	17	Africa	189465
65	Bangladesh	47	19	Asia	1745654
66	Yugoslavia	18	8	Europe	216543
67	Algeria	50	16	Africa	223546
68	Syria	47	14	Asia	2146586
69	Czech. Rep.	19	11	Europe	564894
70	Kenya	50	14	Africa	3254654
71	Iraq	48	14	Asia	214654
72	Portugal	19	10	Europe	235645
73	Afghanistan	52	30	Asia	312465
74	Poland	20	9	Europe	2656485

The table lists countries with details of primary health centers, regions, birth rate and death rate. It is necessary to make a consolidated list by merging the countries in a particular region and then ranking the countries based on the birth rate (the country with the highest birth rate is #1). If two countries have the same birth rate, then the country with the lower death rate is ranked above the other country. If the death rates are also the same then the country with a higher number of primary health centers is ranked above the other country.

37. Which country is ranked 5th in the Asia region?

- j** China **k.** Vietnam **l** Nepal **m** India **n** Pakistan

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38. How many countries are there(in Europe) which have primary health centers greater than 158465

j 12 **k**10 **l** 15 **m**16 **n**18

39. How many countries are there in North America which have a birth rate greater than 17?

j 2 **k**4 **l** 3 **m**1 **n**5

40. How many countries are there in south America?

j 5 **k**8 **l** 7 **m**7 **n**6

Directions for questions 41-44: Answer the questions based on the information given below.

A, B, C, D, E, F, G, H, I, J, K are 10 members in a club. Members from the club form committees for various social projects based on the conditions given below

1. A & C are together.
2. G & D are never together.
3. If C is present then H was to be present.
4. A and D can come together if only E is present.
5. A & K are never together.
6. If J and I are in the committee then K has to be there.
7. Every team must have F or A in the team but not both.
8. E and J cannot be together.

41.What is the size of the largest committee if A has to be present?

j 2 **k** 3 **l** 4 **m**6 **n**7

42. If K is present, who may not be present?

j A **k** B **l** I **m**J **n**G

43. What could be the size of the team if I is present in the committee?

j 4 **k** 5 **l** 6 **m**7 **n**2

44. In how many ways can a team of 4 be formed?

j 5 **k** 3 **l** 4 **m**5 **n**None of these

Directions for questions 45-47: Answer the questions based on the information given below.

5 teams ABCDE played a tournament. These were 3 stages. 2 points were awarded for a win. No points were deducted for a loss. There were no draws. At each stage the following observations were made.

Stage 1 : All 5 teams played against each other. No team won all the matches & no team lost all the matches.

B lost to C & A. But won against D & E

D won the least number of matches.

3 teams had the same score. C had the highest score.

A won against B & C

Stage 2 : Only the top 4 teams entered this stage. They played against each other. No team won all the matches & no team lost all the matches.

The top two teams had the same score & the bottom two teams had the same score.

C lost only one game. i.e against A

B beat E only

Stage 3: Only the top 2 teams entered this stage. The winner of stage 1 lost the tournament.

45. Who won the tournament?

j A **k**B **l** C **m**E **n**D

46. Who scored the maximum points in stage 2 of the tournament?

j A & B **k**B **l** A & C **m**E **n**A

47. Who was eliminated at the end of stage 1?

j A **k**B **l** C **m**E **n**.D

Directions for questions 48-50: Answer the questions based on the information given below.

A,B,C, D, E, F are 6 personnel in an office. The office has one exit door. 3 of the personnel sit adjacent to each other and the other 3 sit facing them. Each of them has a designation and possesses a branded laptop (one of Toshiba, Lenovo, HP, Compaq, Dell and Acer).

A, the manager is seated opposite the person with Toshiba. C is seated diagonally opposite to the HR manager. The person who owns Compaq is opposite the person with Lenovo. E is the web manager. B is not in the same row as D and E. The clerk doesn't sit adjacent to the centre manager. The receptionist owns Dell computer. D sits next to the door. A and F sit diagonally opposite each other.

48. If C is the receptionist and A has an Acer, what brand of computer does the clerk have?

- j** Lenovo **k** Compaq **l** Dell **m** HP **n** Toshiba

49. How many arrangements (people and their laptops) are possible?

- j** 2 **k** 3 **l** 4 **m** 5 **n** 6

50. If F is a clerk and A doesn't own HP, then which brand does the manager own?

- j** Lenovo **k** Compaq **l** Dell **m** Acer **n** Toshiba

SECTION 3

This section contains 40 questions

Directions for questions 51 to 54: In each of the questions, a word has been used in sentences in five different ways. Choose the option corresponding to the sentence in which the usage of the word is incorrect or inappropriate.

51. TRACK

- j** The detective, with amazing sleuthing skills, was able to track down the culprit.
- k** I have lost track of the conversation.
- l** These mountain tracks can be quite precarious.
- m** I will try to track in the book for you.
- n** All radars are enabled to track the rocket's progress across the stratosphere.

52. PART

- j** Ryan wanted to have the biggest part of the cake.
- k** As citizens of India, we must do our part to contribute towards empowering the underprivileged.

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- l** The curtain parted on time and the lights dimmed.
- m** The two friends parted ways after a huge fight.
- n** Rainfall and thunder showers are very common in the southern parts of India.

53. CRACK

- j** The police questioned Shyam for days before he cracked.
- k** If we crack on with the documentation, we should finish it today.
- l** Jean is so funny, that she cracks me into laughter.
- m** The sharp crack of a rifle shot ran a chill down my spine.
- n** I cracked my head on the low ceiling.

54. CENTRE

- j** Small towns in South India serve as economic centres for the surrounding villages.
- k** Discussions were centred on the uplift of the poor.
- l** The Prime Minister is at the centre of a political row over leaked cabinet documents.
- m** In the absence of the vice-president, the Managing Director centered the meeting.
- n** Carefully, centre the painting on the wall before hanging it.

Directions for questions 55 -58: Each of the following questions has a sentence with two blanks. Given below each question are five pairs of words. Choose the pair that best completes the sentence.

55. Although ancient scripts were -----preserved, enough oral tradition has survived to allow us to demonstrate a generally -----language progress through out history.

- j** partially Documented
- k** seldom familiar
- l** needlessly Noticeable

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m rarelycontinual

n superficiallyincessant

56. Life is _____ such attributes as a will to survive, an urge to overcome competition and a _____ for adaptation.

j suited for ----gift

k modified by---sustenance

l endowed with--- talent

m unique to----quest

n bereft of.....flair

57. Reservation in education -----merit and is generally regarded not as a concession but as a ----- for groups, historically sidelined.

j undermines a conscious awakening

k debilitates an indulgent tolerance

l dilutes a compensation

m suppresses an exaltation

n percolatessublimation

58. The right to food law can enable the government to----- its pledge to reach freedom to all, by ----- hunger from every home.

j extenderadicating

k meet upexacerbating

l endorseabating

m efface satisfying

n redeem exiling

Directions for questions 59 -62: In each of the following questions there are sentences that form a paragraph. Identify the sentence(s) or parts of sentence(s) that is/are correct in terms of grammar and usage(including spelling, punctuation and logical consistency). Then choose the most appropriate option.

59. (a) Rupa gave Ram a very contemporary / contemptuous look after she lost the game.

(A) (B)

(b) His pugnacious / punctilious disposition won him a lot of enemies.

(A) (B)

(c) The Indo – US nuclear deal is a hotly contested / continual issue.

(A) (B)

(d) The forest is thickly inhabited by leaches / leeches.

(A) (B)

j ABAB

kBABB

l BABA

m ABBB

nBAAA

60. (a) Gandhiji was a man of strong convictions / convections.

(A) (B)

(b) Sita felt very contrite / contrived for having stolen the book.

(A) (B)

(c) Roger Federer is one of the most consommé / consummate tennis players of all times.

(A) (B)

(d) Don't let all the small failures in life dampen / damper your spirits.

(A) (B)

j AABA

kBABB

l BABA

m ABBB

nBAAA

61. (a) Meghna has an enviable / envious collection of accessories.

(A) (B)

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(b) The passerby got entangled / engulfed in the street fight accidentally.

(A) (B)

(c) Ryan's hair turned fuzzy / fussy due to the inclement weather.

(A) (B)

(d) The trekkers were shocked when they were accosted / accompanied by a group of tribes.

(A) (B)

j ABAA **k**BAAB **l** BABA **m** AAAA **n**BBBB

62. (a) There have been rampant / rampage rumours about Sheetal being involved in drug trafficking.

(A) (B)

(b) The factors, the captain quoted for the failure of the team are impertinent/ impudent

(A) (B)

(c) The student was in a state of delirium / delusion after he received a letter of

(A) (B)

acknowledgement from Harvard.

(d) Humans have a proclivity / profanity for panicking during times of distress.

(A) (B)

j ABAB **k**BBBB **l** ABAA **m** AAAA **n**BABA

Directions for questions 63- 66: Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

63. The State-owned Indian Airlines have had to contend with some competition for many years now. But where liberalization and increased competition have lowered prices and benefitted consumers in a number of sectors, the price of domestic air travel has been remarkably sticky. One reason is the comfortable co-habitation with Indian airlines as the price leader. But competition has been gradually intensifying, and improving the quality of service. A destructive price war is unlikely as these airlines have learned to live together.

j Domestic air travel in India is not a monopoly of the state and hence consumers get better services.

k Competition has been gradually intensifying in air travel and can be felt in the changing price war.

l The government -owned Airlines had to cope up with competition from subsidized private services.

- m** Liberalization and increased competition have lowered prices and benefitted consumers in a number of sectors.
- n** A price war is unlikely to erupt because airlines have learned to coexist.
64. Plantations - tea, coffee, rubber and cardamom - have always been treated as a separate entity within the agricultural sector for two major reasons. First, these are the four agricultural crops where the state government have granted exemption from land ceiling, thereby facilitating corporatization of cultivation, and second, all the four crops have been declared as industry by parliament. Equally important is the factor that special labour welfare measures for this segment are exclusively covered under the plantation Labour Act.
- j** Certain crops - tea, coffee, rubber and cardamom - have been corporatized entities within the agricultural sector.
- k** Special labour welfare measures covered under the plantation Labour Act help safeguard workers' interests.
- l** Corporatization of cultivation of rubber, tea, coffee and cardamom has helped plantation owners immensely.
- m** Absence of land ceiling, industry status and labour welfare have helped tea, coffee, rubber and cardamom gain special status.
- n** Special labour welfare measures are exclusively covered under the plantation Act.
65. A learning space has three essential dimensions: openness, boundaries and an air of hospitality. To create open learning space is to remove the impediments to learning that we find around and within us; we often create them ourselves to evade the challenge of truth and transformation. One source of such impediments is our fear of appearing ignorant to others or to ourselves. The openness of a space is created by the firmness of its boundaries.
- j** A learning space has multiple dimensions.
- k** To create open learning space is to remove the hindrances that we encounter around us.
- l** When space boundaries are violated the quality of space suffers.
- m** The openness of a learning space is created by the nature of its boundaries.
- n** An air of hospitality differentiates learning boundary from other types.
66. Globalisation has passed its initial high-pitched 'for' and 'against' stage. Some two decades after it appeared the arguments still continue, but it is now possible to subject them to a reality check. And the evidence is mixed. The US, once the loudest champion of globalisation, has begun to have doubts about it because employment of its workforce is being taken away by countries situated far away from its shores, its once mighty dollar is losing its strength and shine, and its global economic supremacy is being challenged. It would appear that China, once a

tightly closed economy has emerged as the greatest beneficiary of opening up to the rest of the world, especially to its one time bitter enemy. In India it is claimed that globalization has resulted in high rates of growth, unprecedented prosperity, and, above all, a sense of optimism about the future shared by its citizens and many other countries.

- j** The US, a staunch supporter of globalisation, has begun to have doubts about it because employment of its workforce is being taken away by countries.
- k** In India globalisation has resulted in high rates of growth and unprecedented prosperity.
- l** Globalisation has passed its initial uncertainties and moved on to a more stable phase.
- m** Globalisation has resulted in inequalities across nations leading to social and political tensions.
- n** With mixed evidence of success, globalisation is now subjected to a reality check.

Directions for questions 67- 70: In each question, there are five sentences. Each sentence has a pair of words that are italicized and highlighted. From the italicized and highlighted words select the most appropriate words(A or B) to form correct sentences. The sentences are followed by options that indicate the words, which may be selected to correctly complete the set of sentences. For the options given, choose the most appropriate one.

67. A. On a clear, moonless night, in a field far from city lights
 B. the sky might be the cabinet of some celestial jeweler
 C. displaying glittering points of light in a field of black velvet.
 D. A faint, irregular band meanders overhead as a river of cosmic milk.
 E. On any particular night, noticeable bright stars might stand out among the others.
- j** A only **k** A and B **l** B and C **m** D only **n** A, B and E
68. A. Pre-scientific cosmologies generally interpret the universe byn strictly human terms.
 B. Early cosmologies certainly begun with basic observations
 C. the connection among the changes in the skies
 D. and the days and seasons is difficult to miss.
 E. Mythological models of the universe sought to render such observations intelligible.
- j** A and B **k** . D only **l** B, C and E **m** C and E **n** D and E

69. A. The first clear manifestations of Buddhist art dates back
B. to the time of the emperor Ashoka during the Mauryan era
C. through the building of numerous stupas such like the one at Sanchi
D. the pillars were surmounted by animal capitals and decorated by Buddhist symbols
E. which invoked respect for all creatures and also the acceptance of the Dharma.

j B only **k** C and D **l** A and E **m** D and E **n** B and D

70. A. When used as part of a commodity money system, the functions of paper currency
B. is to reduce the danger of transporting gold, reduces the possibility of debasement of coins
C. and avoid the reduction in circulating medium to hoarding and losses.
D. the early development of paper money was spurred originally in the unreliability of transportation
E. and the dangers to long voyages, as well as by the desire of governments to control the flow of commerce.

j A, C **k** D only **l** B and E **m** C and E **n** A only

Directions for questions 71 -75: the passage below is followed by a set of five questions. Choose the most appropriate answer to each question.

Passage I

We know that all forms of life on Earth are based on the same molecular biology. They all use the same genetic code to make proteins from their genes. All genes are made of DNA sequences. And even the DNA sequences of different organisms are closely related. For example, the genes of humans and apes have DNA sequences that are about 95-98 per cent identical. It is because humans and apes both evolved from a common ancestor. Despite the similarities, there is also an incredible variety – between different species, within a single species, and even within one population of a species. Some of this variation is inheritable. This is one of the things that struck Darwin and led him to discover a mechanism for evolution: natural selection.

Speculation that one species gave rise to another species has occurred throughout history. The achievement of Darwin was not only in recognizing that evolution has occurred, but in discovering how it occurs through natural selection. Darwin once wrote that perhaps he chose the wrong word – perhaps he should have called this mechanism natural preservation. The problem with the word “selection” is that it may imply that evolution is driven by some purposely chosen path, an act of designing. It isn't.

The similarities to artificial selection also lead us to such a misconception. Since the beginning of agriculture, people have been designing and producing varieties of plants and animals for specific purposes. Farmers chose seeds from mustard plants that had a desired characteristic – in one case

thick roots, enlarged stems, or tightly condensed flower clusters. After thousands of generations of selecting for one particular characteristic, a very different looking plant arises.

As Charles Darwin pointed out, a similar process occurs in nature – but without any act of design. In the last 200 years, natural selection has been observed in action. For example, in Britain, there were populations of peppered moths that were mostly white with black speckles. But, due to a chance gene mutation, a few of this species of moths were dark brown. The light coloured moths happened to be well camouflaged as they rested during the day on trees covered with pale lichens. The dark moths were easily seen and eaten by birds. With a large increase in industry and the resulting pollution, the trees became covered by black soot instead of lichens. Now the dark-coloured moths were camouflaged and the light coloured moths were more likely to be seen and eaten. Since more dark moths survived and reproduced, the population became mostly dark, with just a few light moths.

In this case, the process of natural selection did not form a new species – since both varieties of moth continued to be able to interbreed. But it did change the population. This change did not occur by design. Some of the moths in the original population just happened to already have a mutation that caused them to be a different colour. This mutation did not occur because of the change in environment. The change in their environment resulted in a change in the colour of the moth population. But the moths did not change colour in order to adapt to the environment.

Thus, we see that natural selection is not a purposeful creative act – it is simply a mindless, editing mechanism. There is no goal in evolution. No form of life is more perfect than any other form of life. The role of chance in evolution is one of the aspects that make it remarkable. When we say evolution happened by chance, we do not mean that it happened without reason – but that the reason was not designed to give the particular effect. Thus, the work of Darwin gives a new truth to the insight of Democritus: ‘Everything existing in the universe is the fruit of chance and necessity’.

Darwin found evidence for evolution and natural selection by studying the varied forms of animals and plants he and others had collected from the Galapagos Islands, South America, and other areas. He saw how populations of organisms had evolved into new forms as they immigrated to new places, and as their environment changed. After decades of study, hundreds of publications in addition to on the *Origin of Species*, and thousands of letters to and from eminent scientists and intellectuals of his day, it was clear to him that nothing is fixed – all of life is constantly changing.

This realisation was a challenge to theology. The evidence of science countered some religious beliefs. We now know that life itself arose from simple self-reproducing chemicals. As life evolved, consciousness also evolved. As we investigate, we find out more and more about how the nervous system works in simple organisms, and how even human consciousness can be understood in terms of the same basic physical processes organized into very complex systems.

71. Which of the following best summarises the contents of the passage?
- j** The simplest of animals in the evolutionary history contain the most complex of structures.
 - k** The changes that occur in living beings occur according to a predetermined design which is immutable.
 - l** The elucidation of the mechanisms of evolution shows that life is more astonishing than we have imagined.
 - m** The evidences of science counter religious belief such that theologians viewed Darwin's theory as socially harmful
 - n** Evolution has a fixed goal: to evolve the most perfect form out of all existing organisms.
72. It can be inferred from the passage that organisms that are closely related have
- j** nearly identical DNA sequences
 - k** common genetic code
 - l** all genetic variations inheritable
 - m** the same act of genetic design
 - n** the same evolutionary advantage
73. Which of the following can be termed central to Darwin's tenets of evolution?
- I. The recognition of the occurrence of evolution
 - II. The role of natural selection in evolution
 - III. The purposely chosen path that results in evolution
- j** II only **k** I only **l** I and II **m** II and III **n** I and III
74. In the speaker's analysis 'selection' is a misleading term because
- a. It can mean nature's deliberate act.
 - b. It can mean man made alteration
 - c. It can mean speculating
- j** a and b **k** b and c **l** a only **m** b only **n** a and b
75. Which of the following is untrue in the context of the passage?
- j** All mutations do not happen due to change in the environment.
 - k** If we continue to choose any particular characteristic in a species for generations, a new looking species can evolve
 - l** Natural selection need not always result in new species
 - m** Environment does not contribute to changes in the physical characteristics in a species
 - n** Evolution happens by chance factor but there is reason behind the process.

Directions for questions 76 -80: the passage below is followed by a set of five questions. Choose the most appropriate answer to each question.

The finance minister has proposed to slash the highest custom duty by five percentage points and to eliminate the Special Additional Duty of up to four percentage points. With some exceptions such as automobiles, which attract a duty of 60%, this will bring the highest tariff on industrial goods down to 20%. Alongside, India has embarked on an aggressive strategy of preferential liberalization with its neighbours in Asia. Agreements have been signed for the creation of free trade areas (FTA) within South Asia and with the members of the Associations of South East Asian Nations (Asean). Unlike tariff reductions announced by the finance minister that apply to all trading partners, FTAs eliminate tariffs against FTA members but retain them on non-members. No doubt, we have adopted this alternative approach to promote better political ties with our neighbours as well as in reaction to similar arrangements elsewhere. Nevertheless, from an economic standpoint, FTAs bring two potential risks: our external tariffs being still as high as 20%, FTAs are likely to give rise to harmful trade diversion effect and they threaten to undermine our national liberalization program as well as that under the Doha multilateral negotiations.

Consider first the losses from trade diversion in the context of the proposed India-Singapore FTA. After the tariff cuts just announced are implemented, the tariff on steel imports would be 20%. Assuming the world price of steel to be \$500 per ton, the tariff-inclusive price in India would be \$600 per ton. The FTA with Singapore would give that country's steel exporters tariff-free access to the Indian market allowing them to displace some of the steel previously imported from outside countries such as South Korea and Russia. Economists call this displacement trade diversion.

A surprising point is that despite this 'liberalization', as long as some steel continues to be imported from the outside countries, internal price of steel would remain unchanged at \$600. Outside countries must continue to receive \$500 per ton of steel and with the Indian customs authorities collecting \$100 in duty, buyers must pay \$600 since Singaporean steel is exempt from the duty. However, their exporters now receive extra \$100 per ton in revenue. What used to be the tariff revenue collected by India now becomes extra revenue for Singaporean firms. One might ask why the price of steel in India will not drop to \$500 per ton as a result of the FTA. This could happen but only if Singapore produced enough steel to supply the entire quantity of steel imported by India at \$500. But as long as even a small quantity of steel continues to be imported from non-members, it will have to be sold at \$600 and no change in the price can take place.

It is tempting to conjecture that even though India might lose on goods it imports from Singapore, the losses may be offset by tariff preferences received on exports in Singapore. The catch, however, is that Singapore is already a free-trading country. The FTA gives Indian exporters no tariff preference whatsoever in the Singaporean market. More generally, in an FTA, a high-tariff member is likely to lose since it gives larger preference to its partner than it receives from the latter. The lesson is that it is best to have low external tariffs, as is the case with Singapore, if a country wants to benefit from FTAs.

The second risk of FTAs is their likely adverse effect on non-discriminatory liberalisation as illustrated by the experience of the countries in Latin America. These countries had been liberalizing their external trade barriers aggressively prior to the North American Free Trade Agreement (NAFTA). But following NAFTA, they all turned to FTAs with a vengeance and the move toward non-discriminatory liberalisation came to a standstill. The countries felt they had a better chance of forming FTAs if they kept external tariffs so as to be able to exchange them for preferential access to partner country markets.

The move towards FTAs can also undermine the Doha negotiations. Because FTAs give preferential access to partner country markets, export lobbies prefer them to multilateral liberalisation. But in so far as India is concerned, it can scarcely afford to let the multilateral route close. Because of the numerous FTAs that already exist in America and Europe, India faces considerable discrimination against its products in those markets. The only way to end this discrimination is to bring tariffs down to near zero on a multilateral basis under the WTO auspices. The good news is that the prospects for a Doha agreement that serves India's interests are better than ever. Now, the US has made the elimination of agricultural export subsidies a priority and agreed to drop all Singapore issues from the agenda except trade facilitation. It has further offered to focus the round principally on trade liberalisation. India can scarcely pass this opportunity.

76. Which of the following best summarizes the author's objective in this passage?

- j** To demonstrate the difference between tariff reductions and free trade areas.
- k** To point out the loopholes in the proposal to reduce customs duty.
- l** To warn against the risks free trade agreements pose.
- m** To reconcile seemingly contradictory views on the benefits of free trade agreement.
- n** To urge India to use to its advantage the opportunity arising from the US government's decision to eliminate agricultural export subsidies.

77. The author's thesis comprises which of the following points?

- a. Likelihood of pernicious trade distractions caused by free trade agreements.
- b. Free trade agreements can jeopardize the Doha negotiations.
- c. Free trade agreements can resist natural liberalization programs.

- j** . a but not b **k** b only **l** b and c but not a **m** D. c but not a and b
- n** a and b but not c

78. Exporters welcome free trade agreement because

- j** multilateral liberalization is harmful to India.
- k** they receive preferential access to partner country markets.
- l** they benefit from the US government's decision to offer agri-export subsidies.
- m** their export losses can be offset by benefits from the subsidies of foreign markets.
- n** of all these

79. The passage primarily discusses which of the following ramifications of the budget?

- j** Political
- k** Bilateral
- l** Ecological
- m** Economic
- n** Social

80. The author's use of 'liberalization' in the opening line (para 3) best expresses

- j** irony
- k** amusement
- l** satire
- m** dismay
- n** extolment

Directions for questions 81 -85: the passage below is followed by a set of five questions. Choose the most appropriate answer to each question.

Children, like women in literature, have been voiceless and invisible for a long time. A doctoral thesis published on the Victorian perception of childhood deserves attention for preparing the ground for subsequent work on this theme of child psyche. At the outset, the author convinces the reader that the work is not likely to be intimidating as a large number of published research materials turn out to be laborious and complex. She sets forward her arguments with lucidity and persuasiveness; the book is eminently readable.

The author begins by giving chronological approach to the subject, a methodology which aids in a wider perspective. Although traditionally the Victorian age was a period when children were seen and not heard, Rousseau, Blake and Wordsworth had earlier attempted to change the current thinking on childhood. As infant mortality grew less, children lived longer and were considered as separate entities and not as miniature adults. While Blake and Wordsworth celebrated the divinity associated with innocence the Victorian novelists saw the children as victims of circumstance.

The work deals with child characters from the books of four major Victorian novelists Dickens, Bronte sisters -Emily and Charlotte- and George Eliot. Amongst the four novelists the author is mostly preoccupied with Dickensian portraits of childhood protagonists. Dickens considered the child as 'the finest creature upon earth', a man with a mission and message. *David* and *Oliver Twist* have a tenacious hold on the collective memory of readers as they symbolised the suffering of the orphan child.

The author discusses the Victorian attitude towards children as seen in the works of the novelists mentioned. In the ensuing chapters she goes on to classify the various types of children she identifies in the famous novels of the Victorian era. The innocent, petulant, the rebel the motherly and the ambitious child are all discussed with adequate examples from the novels which have been painstakingly researched to substantiate her arguments. While dwelling on the abject misery of the orphaned, deprived child portrayed in the novels mentioned above, the author must also remember that the Victorian age was also the first golden age of children's literature. Children's books no longer were didactic but came to be written to entertain the child reader.

Catherine Sinclair's *Holiday House* celebrated the spirit of the mischievous, carefree child far removed from the Dickensian concept of childhood. Dickens himself wrote a book for children, *A Holiday Romance* which possessed the novelist's characteristic wit and exaggeration. Children's books, written after 1850, were peopled by child protagonists who were no longer types but well rounded individuals. It would be impossible to classify *Alice* or E Nesbit's famous *Treasure Seekers*, and put them into neat pigeon holes. The latter half of the Victorian perceptions regarding childhood changed rapidly and came nearer to our own ideas on the subject. Children became robust individuals with distinct personalities. The argument of child prototypes can only apply to the four novelists and not to the entire range of child protagonists of the Victorian era.

81. Which of the following best paraphrases the opening line of the passage?

- j** Literature portrays children as 'silent' protagonists.
- k** Children and women characters in novels are less vocal than men characters.
- l** Literature involving children and women as protagonists is rare.
- m** The Victorian readers did not consider children's novels as serious writing.
- n** The trend in researches in literature is to ignore child and women characters.

82. Which of the following best expresses the author's views on the doctoral thesis under study?

- j** The study has valid premises and observations, but draws a broad generalization from limited evidence.

- k** The study is highly persuasive and aptly covers the main literary figures of the Victorian era.
- l** The researcher's analysis of women protagonists in Victorian novels is incomplete, though her review of children's literature is comprehensive.
- m** The researcher's portrayal of 'suffering child protagonist' is too frightening and realistic.
- n** The researcher's conclusion that Victorian readers didn't welcome children's literature is inconclusive and refutable.

83. The researcher's main purpose was to

- j** explore Victorian society's attitude towards writing centered on child and women protagonists.
- k** discuss Victorian writer's attitude towards portraying child protagonists in selected works.
- l** establish the fact that Victorian period was a golden era for children's literature.
- m** prove that except for four works, all Victorian novels treated children as deprived and lacking identity.
- n** suggest the need for paradigm shift in the way Victorian novels on children are measured.

84. The authors of the above passage believe which of the following about Victorian novels on children?

- a. The protagonists can be easily typecast into personality types, reflecting the ethos of the times.
- b. They were written primarily to amuse child readers.
- c. They were not overly instructive.

- j** a and c but not b
- k** a and b but not c
- l** b and c but not a
- m** a, b and c

n b only

85. Which of the following best expresses the author's assessment of the study of Victorian novels on children?

- j** The thesis comprises valid and clear appraisal of Victorian writings on children but fails to accommodate the perceivable changes in them in the second half of the 19th century.
- k** The thesis classifies child characters in Victorian novels on stereotypes leading to predictable personality characterisations.
- l** The thesis is extensively researched and encompasses all prominent Victorian writings, but draws no conclusive statements about the 'classic' protagonists.
- m** The thesis has persuasive observations about the prominent children's novels and draws specific generalization about them.
- n** The thesis trenchantly points out the reactions of Victorian critics to writing centered on children and women characters.

Directions for questions 86 -90: the passage below is followed by a set of five questions. Choose the most appropriate answer to each question.

The write-up by N.S. Rajaram is a serious misrepresentation of the results of various fields of scholarship. Certainly, the writing of ancient Indian history 'must begin with a thorough study of the primary sources- the first step is to close the unnatural gap between archaeology and literature.' However such study, which is not altogether new, has to begin without prejudices of any kind, such as Rajaram's wrong presuppositions. There is little overlap between the archaeology of the Indus civilisation, and early Vedic texts. Clearly, the Rigveda must fall between 2000 BC and 1700 BC. However the Indus (Harappan) Civilisation is dated by all archaeologists between 2600 and 1900 BC. No wonder, there is geographical but not a temporal overlap between the two. Further, in spite of recent rewriters of history, whatever the pastoral Rigveda describes does not fit the fully developed cities of the Harappan Civilisation, these are two different worlds. How to explain this 'gap' is another matter, with which scholars still struggle. Whether the decline of the Indus Civilisation was due to drought or a number of separate, coinciding, and self-reinforcing reasons, is still undecided. Rajaram however, simply overlooks such annoying details by adducing various isolated features in mono-lateral fashion, features which do not add up and are in fact to be contradicted by the various sciences that he evokes against mere students of the humanities. The Harappans are believed to

have lost their script and language and took over an Indo-Aryan language just as the descendants of the great Maya Civilisation who mostly speak Spanish now have long lost their script. Their civilisation was disintegrating on its own when the Spanish arrived who did not have to resort to the same brutal methods they used in Mexico and Peru. Civilisations do die when under strains of various sorts.

Why then such a 'simple' solution, a 'systematic program to rationally connect Harappan archaeology and the Vedic literature'? No Aryans were needed for the demise. The earliest Aryan-like culture in the subcontinent may be the Gandhara Culture of North Pakistan well within the time frame mentioned above. The 'Aryans', perhaps Pathan-like seasonal pastoral migrants from Afghanistan, merely exploited a new opportunity in the then less agricultural Indus Valley, and set off a wave of acculturation based on their more effective pastoralism. No Hun-like 'invasion' is needed, though one has to take into account a whole range of processes, from peaceful acculturation to forceful takeover in the various parts of North-west. As history teaches, one size does not fit them all.

86. The author's statement 'the first step is to close the unnatural gap between archeology and literature' (opening para) implies that?

- j** Rajaram has misrepresented widely accepted knowledge.
- k** There is no significant relationship between archeology of the Indus civilization and Vedic texts.
- l** Rajaram has not attempted the study of Vedic texts objectively.
- m** The study being reviewed by the author has several questionable assumptions.
- n** The study under review uses flawed secondary sources to bring out a picture of the Indus civilization.

87. The author of the passage is most likely to endorse which of the following views?

- a. Reviewers of history approach available sources with an open mind.
- b. The credibility of history reviews is less debated if the sources are primary.
- c. Literature is a reliable source to discern the nature of a civilization.

- j** c but not a or b **k** a only

SEM/e CAT/1001

- l** b and c but not a **m** b only
n a and b but not c

88 'Archeology' and 'literature' stated in para1, refer respectively to

- j** fact and fiction
k Harappan archeology and Vedic texts
l Aryan civilization and Spanish languages
m Aryan archaeology and Rigveda
n none of these

89. In responding to NS Rajaram's write-up, the author's tone is one of

- j** hesitant approval **k** unsubstantiated denial
l vehement refutation **m** superfluous rejection
n guarded optimism

90. The use of the term 'simple' in the concluding paragraph most nearly refers o

- j** Rajaram's questionable conclusions on Indo Aryan languages.
k Rajaram's lack of scholarship when it comes to decoding ancient language.
l Rajaram's biased analysis of the origin of Aryan civilization.
m Rajaram's failure to accommodate the complexities of true history.
n Rajaram's inability to link archeology and literature rationally.

Please email urmentor@semanticslearning.com to get this test's answer key with solutions