OCET 2010

Code No.: 210101

Important : Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet

Roll No. *In Figures* *In Words*

O.M.R. Answer Sheet Serial No.

Signature of the Candidate : _____

Subject : M.C.A. (MASTER OF COMPUTER APPLICATIONS)

Time : 90 minutes **Number of Questions : 75** **Maximum Marks : 75**

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO

INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Code No. of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen.**
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal (s) gently when asked to do so.
5. Please check that this Question Booklet contains **75** questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen.**
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation**. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied / noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so, would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/ Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

M.C.A. (Master of Computer Applications)/210101

1. **If $X=\{8^n-7n-1 \backslash n \in N\}$ and $Y=\{49(n-1) \backslash n \in N\}$ then :**

   (A) $X \subset Y$ (B) $Y \subset X$

   (C) $X=Y$ (D) $X \cup Y=N$

2. **The relation $R=\{(1,1)\ (2,2),\ (3,3),\ (1,2),\ (2,3),\ (1,3)\}$ on the set $A=\{1,2,3\}$ is :**

   (A) reflexive but not symmetric (B) reflexive but not transitive

   (C) symmetric and transitive (D) neither symmetric nor transitive

3. **The argument of $\frac{1-i\sqrt{3}}{1+i\sqrt{3}}$ is :**

   (A) $\frac{\pi}{3}$ (B) $\frac{2\pi}{3}$

   (C) $\frac{7\pi}{3}$ (D) $\frac{4\pi}{3}$

4. **The Locus of the point z satisfying the condition $\arg\left(\frac{-z-1}{-z+1}\right)=\frac{\pi}{3}$ is a part of :**

   (A) parabola (B) circle

   (C) pair of straight lines (D) ellipse

5. **If $\sqrt{3}+i=(a+ib)(c+id)$ then $\tan^{-1}\left(\frac{b}{a}\right)+\tan^{-1}\left(\frac{d}{c}\right)$ is equal to :**

   (A) $\frac{\pi}{3}+2n\pi$ for $n \in \mathbb{Z}$ (B) $\frac{-\pi}{3}+2n\pi,\ n \in \mathbb{Z}$

   (C) $\frac{\pi}{6}+2n\pi,\ n \in \mathbb{Z}$ (D) $\frac{-\pi}{6}+2n\pi,\ n \in \mathbb{Z}$

6. **If x, 2x+2, 3x+3 are in G.P then the 4^{th} term is :**

   (A) 27 (B) –27

   (C) 13.5 (D) –13.5

7. **$(\underbrace{666.....6}_{\text{n-digits}})^2 + (\underbrace{888.....8}_{\text{n-digits}})$ is equal to :**

   (A) $\frac{4}{9}(10^n-1)$ (B) $\frac{4}{9}(10^{2n}-1)$

   (C) $\frac{4}{9}(10^n-1)^2$ (D) $\frac{14}{9}(10^n-1)$

8. The roots of the equation $|x^2 - x - 6| = x + 2$ are :

(A) – 2,1,4 (B) 0,2,4

(C) 0, 1, 4 (D) – 2, 2, 4

9. If one root of the equation $ax^2+bx+c=0$ is twice the other then :

(A) $2a^2 = 3c^2$ (B) $2b^2 = 3ac$

(C) $2b^2 = 9ac$ (D) $b^2 = ac$

10. Total number of ways in which five + and seven – signs can be arranged in a line such that no two + signs occur together is :

(A) 56 (B) 42

(C) 28 (D) 21

11. All letters of the word AGAIN are permuted in all possible ways and the words so formed (with or without meaning) are written in dictionary order then the 50th word is :

(A) NAAGI (B) NAAIG

(C) IAANG (D) INAGA

12. If the co–efficient of x^7 in the expansion of $\left(ax^2 + \frac{1}{bx}\right)^{11}$ and the coefficient of x^{-7} in the expansion of $\left(ax - \frac{1}{bx^2}\right)^{11}$ are equal then ab is equal to :

(A) 1 (B) 2

(C) 3 (D) 4

13. If 7 and 2 are two roots of the equation $\begin{vmatrix} x & 3 & 7 \\ 2 & x & 2 \\ 7 & 6 & x \end{vmatrix} = 0$, then the third root is :

(A) – 9 (B) 14

(C) $\frac{1}{2}$ (D) 3

14. If the value of determinant of a 2×2 matrix is 11, then the square of the determinant formed by its cofactors will be :

(A) 11 (B) 121

(C) 1305 (D) 14641

15. A pair of straight lines prependicular to each other are represented by :

(A) $2x^2 = 2y\,(x+y)$ (B) $x^2+y^2+3 = 0$

(C) $2x^2 = y\,(2x+y)$ (D) $x^2 = 2\,(x-y)$

16. The point (4,1) undergoes the following transformations :

(i) reflection about the line y = x

(ii) translation through a distance 2 units along the positive x–axis in the same order as mentioned, then the co–ordinates of the resulting point are :

(A) (4, 3) (B) (3, 4)

(C) (– 1, 4) (D) $\left(\frac{7}{2}, \frac{7}{2}\right)$

17. Equation of circle with 2x – 3y = 5 and 3x – 4y = 7 as diameters and radius equal to 8 units is :

(A) $x^2 + y^2 + 2x + 2y - 2 = 0$ (B) $x^2 + y^2 + 2x - 2y + 62 = 0$

(C) $x^2 + y^2 - 2x + 2y - 62 = 0$ (D) $x^2 + y^2 + 2x + 2y + 2 = 0$

18. If the line 2x – 3y + 6 = 0 is tangent to the parabola then a is equal to :

(A) $\frac{4}{3}$ (B) $\frac{3}{4}$

(C) $\frac{-4}{3}$ (D) $\frac{-3}{4}$

19. The locus of the centre of the circle $x^2 + y^2 + 4x \tan\theta - 2y \sec\theta - 7 = 0$ is

(A) an ellipse (B) a circle

(C) a hyperbola (D) a parabola

20. The value of $\lim_{h \to 0} \frac{(a+h)\cos(a+h) - a\cos a}{h}$ is :

(A) a cos a – sin a (B) cos a – a sin a

(C) cos a + a sin a (D) a cos a + sin a

21. Which of the following is not a differential equation ?

(A) $\frac{d}{dx}(ax^2 + bx + c) = y$ (B) $\frac{dy}{dx} = ax^2 + bx + c$

(C) $\frac{d}{dx}(x + y) = c$ (D) $\frac{d}{dx}(\sin y) = x$

22. The value of the integral $\int_0^{2a} \frac{f(x)dx}{f(x) + f(2a - x)}$ is equal to :

(A) a (B) 2a

(C) 1 (D) 0

23. $\underset{n \to \infty}{\text{Limit}} \left(\frac{1}{n+1} + \frac{1}{n+2} + ... + \frac{1}{2n} \right)$ **is equal to :**

(A) 0 (B) ∞

(C) $\log 2$ (D) e^2

24. $\int \frac{\sin x + \cos x}{\sqrt{1+\sin 2x}} dx$ **is equal to (Here c is a constant) :**

(A) $\sin x + c$ (B) $\cos x + c$

(C) $\tan x + c$ (D) $x + c$

25. If f (x) = $\begin{cases} x \sin \frac{1}{x}, & x \neq 0 \\ 0, & x = 0 \end{cases}$ **then**

(A) f(x) is discontinuous at $x = 0$

(B) f(x) is continuous at $x = 0$ only

(C) f (x) is differentiable at $x = 0$

(D) f(x) is continuous at $x = 0$ but not differentiable at $x = 0$.

26. Area between the curve y=4sin x and the x–axis from x=0 to x=π is :

(A) 1 (B) 2

(C) 4 (D) 8

27. The vector $\vec{a} + 3\vec{b}$ is perpendicular to the vector $7\vec{a} - 5\vec{b}$ and the vector $\vec{a} - 4\vec{b}$ is perpendicular to the vector $7\vec{a} - 2\vec{b}$ then the angle between the vectors $\vec{a}$ and $\vec{b}$ is :

(A) 30^o (B) 45^o

(C) 60^o (D) 90^o

28. Rs. 3100 are divided between A, B, C and D so that B's share is $\frac{2}{3}$ of A's, C's share is $\frac{5}{6}$ of B's and D's share is equal to that of B and C together. What does A get ?

(A) Rs. 750 (B) Rs. 900

(C) Rs. 990 (D) Rs. 1000

29. The value of sin ($\cot^{-1}x$) is :

(A) $\sqrt{1+x^2}$ (B) x

(C) $(1+x^2)^{\frac{-3}{2}}$ (D) $(1+x^2)^{\frac{-1}{2}}$

30. Sin 50^o–sin70^o+sin10^o is equal to :

(A) 1 (B) 0

(C) $\frac{1}{2}$ (D) 2

31. Cos $x+\cos^2 x=1$, then the value of $\sin^6 x - 2\sin^2 x + 2$ is :

(A) 0 (B) 1

(C) 2 (D) – 1

32. The two regression lines for a bivariate data are $x + 2y + 37 = 0$, and $x + y + k = 0$. If $\bar{x} = 0$, then $\bar{y}$ =

(A) $\frac{37}{2}$ (B) $k - \frac{37}{2}$

(C) $-\frac{37}{2}$ (D) $k + \frac{37}{2}$

33. The maximum value of $P=40x+50y$ subject to the constraints $3x+y \leq 9$, $x+2y \leq 8$, $x \geq 0$, $y \geq 0$ is :

(A) 120 (B) 230

(C) 200 (D) 210

34. A tree is broken by wind and its upper part touches the ground at a point 10 meters from the foot of the tree and makes an angle of 45^o with the ground. The entire length of the tree was :

(A) 15m (B) 20m

(C) $10(1+\sqrt{2})$ m (D) $10\left(1+\frac{\sqrt{3}}{2}\right)$ m

35. If four positive integers are taken at random and are multiplied together, then the probability that the last digit is 1, 3, 7 or 9 is :

(A) $\frac{1}{8}$ (B) $\frac{2}{7}$

(C) $\frac{1}{625}$ (D) $\frac{16}{625}$

36. If $\sin^2 x+\cos^6 x=1$, then the most general value of x is given by (for $n \in \mathbb{Z}$)

(A) $x = 2n\pi$ (B) $x = n\pi$

(C) $x = \frac{n\pi}{2}$ (D) $x = \frac{n\pi}{4}$

37. The numbers X and Y are selected at random (without replacement) from the set (1, 2, ...3N). The probability that $x^2 - y^2$ is divisible by 3 is :

(A) $\frac{3N-1}{3N}$ (B) $\frac{N-1}{N}$

(C) $\frac{5N-3}{9N-3}$ (D) $\frac{4N-3}{9N-3}$

38. If $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A \begin{bmatrix} -3 & 2 \\ 5 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then the matrix A equals :

(A) $\begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$

(C) $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$ (D) $\begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix}$

39. If [x] = (greatest integer $\leq$ x) then $\lim_{x \to \infty} \frac{[x]}{x}$ is equal to :

(A) 0 (B) ∞

(C) 1 (D) $\frac{1}{2}$

40. If f (x+y) = f(x) f(y) for all x and y and f(5) =2, f'(0) =3, then f'(5) is :

(A) 5 (B) 6

(C) 0 (D) 3

41. The radix of the binary number system is :

(A) 3 (B) 1

(C) 2 (D) 10

42. Who is regarded as the 'Father of Computers' ?

(A) Abacus (B) John Napier

(C) Pascal (D) Charles Babbage

43. Which of the following is NOT an example of application software ?

(A) Word Processing (B) Spreadsheet

(C) DOS (D) Computer graphics

44. A file containing relatively permanent data is :

(A) Random file (B) Transaction file

(C) Master file (D) Sequential file

45. What does the acronym VGA stand for ?

(A) Video Graphics Array (B) Video Graphics Adapter

(C) Color Graphics Array (D) None of the above

46. The term gigabyte refers to :

(A) 1024 bytes (B) 1024 kilobytes

(C) 1024 megabytes (D) 1024 gigabytes

47. The word "Computer" usually refers to the central processor unit plus :

(A) External Memory (B) Internal Memory

(C) Input Devices (D) Output Devices

48. Integrated circuit, solid state technology was used in the following generation of computers :

(A) First (B) Second

(C) Third (D) Fourth

49. Which of the following is a non–impact printer ?

(A) Daisy Wheel printer (B) Drum printer

(C) Laser printer (D) All of the above

50. An error in computer data is called :

(A) Chip (B) Bug

(C) Bit (D) Byte

51. In computer terminology, a compiler means :

(A) a person who computes source programs

(B) the same thing as a programmer

(C) key punch operator

(D) a program which translates source program into object program

52. The OCR stands for :

(A) Outsized character reader (B) Optical character recognition

(C) Operational character reader (D) Only character reader

53. PARAM is a :

(A) DBMS package (B) Parallel computer

(C) Programming language (D) Parallel Random Access Memory

54. Which of the following terms does not describe a database structure used by a DBMS to link data from several files ?

(A) Relational (B) Hierarchical

(C) Structural (D) Network

55. Which of the following is <u>not</u> an example of time shared real time processing ?

(A) Train reservation (B) Airline reservation

(C) Seat Booking (D) Batch Processing

56. Which amongst the alternatives best expresses the word PLACID :

(A) Clear (B) Calm

(C) Enjoyable (D) Dull

57. Complete the sentence from the best possible alternative :

The medicine gave him a short ___ from the suffering.

(A) escape (B) relief

(C) respite (D) release

58. Mr. Shekhar _____the letter by return of post.

(A) replied (B) reciprocated

(C) answered (D) questioned

59. The antonym of THRIFT would be :

(A) Purchase (B) Destroy

(C) Waste (D) Invest

60. Choose the word opposite in the meaning of the underlined word :

We should not <u>belittle</u> other's achievements.

(A) recommend (B) praise

(C) inspire (D) encourage

61. In the sentence.

"Please <u>sound</u> the principal about the reaction of students", sound, here, means :

(A) support (B) discuss

(C) tell (D) caution

62. Complete the sentence :

Health is too important to be _____ .

(A) neglected (B) detested

(C) despised (D) discarded

63. He has a lot of beautiful pictures _____ the wall.

(A) in (B) on

(C) at (D) from

64. We waited for over on hour ____ the bus–stop.

(A) at (B) in

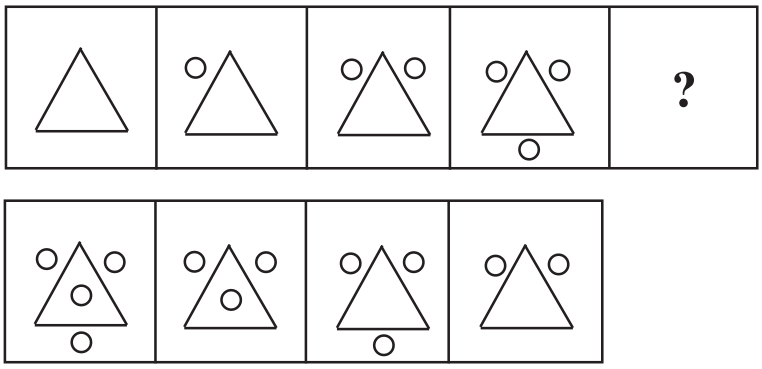
(C) by (D) on

65. We must _____ to authority :

(A) bend (B) surrender

(C) subdue (D) submit

66.



(A) (B) (C) (D)

67. Race : Fatigue

(A) Fast : Athlete (B) Running : Sleeping

(C) Wrestle : Fight (D) Fast : Hunger

68. Pick the odd one out :

(A) BC (B) FG

(C) PQ (D) TV

69. Ram is the brother of Shyam and Mahesh is the father of Ram. Jagat is the brother of Priya and Priya is the daughter of Shyam. Who's the uncle of Jagat ?

(A) Shyam (B) Ram

(C) Mahesh (D) None of these

70. In a certain code "786" means "bring me apple", "958" means "peel green apple"and "645" means "bring green fruit" Which of the following is the code for "me" ?

(A) 8 (B) 6

(C) 7 (D) can't be determined

71. Mohan travels from a point to east 10Km, and turned right and travelled 5Km, and turned right travelled 6 Km, and turned right travelled 5 Km. How far is he from the starting point ?

(A) 4 Km (B) 6 Km

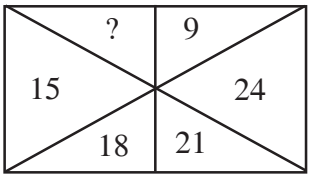
(C) 26 Km (D) 22 Km

72. Which would be the next number in the series 24, 27, 30, 31, 36, 35, ...

(A) 42 (B) 40

(C) 39 (D) 45

73.



(A) 27 (B) 12

(C) 24 (D) 42

74. In a certain code DESIRABILITY is written as ARISEDYTILIB. In the same code PRE REQUISITE would be written as :

(A) QER EPRETISIU (B) QERERPETSIU

(C) QERERPETISIU (D) QERERPETSIIU

75. Which letter would be next one in the series AZPBYQCXRDW ?

(A) E (B) U

(C) T (D) S

ROUGH WORK

ROUGH WORK

Panjab University, Chandigarh

OCET-2010

FINAL ANSWERS / KEY

Subject: M.C.A.

1	2	3	4	5	6	7	8	9	10
A	A	D	B	C	D	B	D	C	A
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
B	A	A	B	A	B	C	A	C	B
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
A	A	C	D	D	D	C	B	D	B
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
B	C	B	C	D	C	C	A	C	B
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
C	D	C	C	A	C	B	C	C	B
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
D	B	B	C	D	B	C	C	C	D
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
D	A	B	A	D	A	D	D	B	C
71	**72**	**73**	**74**	**75**					
A	A	B	C	D					

Note: An 'X' in the key indicates that either the question is ambiguous or it has printing mistake. All candidates will be given credit for this question

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Subject:

1	2	3	4	5	6	7	8	9	10
B	C	A	C	B	A	A	C	D	D
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
D	C	B	D	B	B	C	B	C	D
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
C	C	A	C	B	C	D	C	C	A
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
C	B	C	C	B	D	B	B	C	D
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
B	C	C	C	D	D	A	B	A	D
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
A	D	D	B	C	A	A	B	C	D
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
A	A	D	B	C	D	B	D	C	A
71	**72**	**73**	**74**	**75**					
B	A	A	B	A					

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Subject:

1	2	3	4	5	6	7	8	9	10
B	C	B	C	D	C	C	A	C	B
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
C	D	C	C	A	C	B	C	C	B
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
D	B	B	C	D	B	C	C	C	D
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
D	A	B	A	D	A	D	D	B	C
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
A	A	B	C	D	A	A	D	B	C
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
D	B	D	C	A	B	A	A	B	A
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
B	C	A	C	B	A	A	C	D	D
71	**72**	**73**	**74**	**75**					
D	C	B	D	B					

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Subject:

1	2	3	4	5	6	7	8	9	10
C	B	C	C	B	D	B	B	C	D
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
B	C	C	C	D	D	A	B	A	D
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
A	D	D	B	C	A	A	B	C	D
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
A	A	D	B	C	D	B	D	C	A
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
B	A	A	B	A	B	C	A	C	B
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
A	A	C	D	D	D	C	B	D	B
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
B	C	B	C	D	C	C	A	C	B
71	**72**	**73**	**74**	**75**					
C	D	C	C	A					

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Subject:

1	2	3	4	5	6	7	8	9	10
D	A	B	A	D	A	D	D	B	C
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A	A	B	C	D	A	A	D	B	C
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
D	B	D	C	A	B	A	A	B	A
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
B	C	A	C	B	A	A	C	D	D
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
D	C	B	D	B	B	C	B	C	D
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
C	C	A	C	B	C	D	C	C	A
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
C	B	C	C	B	D	B	B	C	D
71	**72**	**73**	**74**	**75**					
B	C	C	C	D					

Note: An 'X' in the key indicates that either the question is ambiguous or it has printing mistake. All candidates will be given credit for this question