PGCET-2013

011

SEAL

DOs :

1. Check whether the PGCET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the 2ⁿᵈ Bell i.e., after 10.25 a.m.
3. The Serial Number of this question booklet should be entered on the OMR answer sheet.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts :

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. The 3ʳᵈ Bell rings at 10.30 a.m., till then;
   * Do not remove the paper seal / polythene bag of this question booklet.
   * Do not look inside this question booklet.
   * Do not start answering on the OMR answer sheet.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 80 (items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the 3ʳᵈ Bell is rung at 10.30 a.m., remove the paper seal / polythene bag of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by a complete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 120 minutes:
   * Read each question (item) carefully.
   * Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **only one response** for each item.
   * **Completely darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**
4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
5. After the **last Bell is rung at 12.30 pm,** stop marking on the OMR answer sheet and affix your **left hand thumb impression** on the OMR answer sheet as per the instructions.
6. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is.
7. After separating the top sheet, the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of **ONE year.**
9. Only **Non-programmable** calculators are allowed.

Marks Distribution		
PART-1	:	60 QUESTIONS CARRY ONE MARK EACH (1 TO 60)
PART-2	:	20 QUESTIONS CARRY TWO MARKS EACH (61 TO 80)

011-A1   **011-A1**

[Turn Over

MASTER OF COMPUTER APPLICATIONS

PART – 1

Each question carries one mark. $(60 \times 1 = 60)$

1. $2\log_{10}5 + \log_{10}8 - \frac{1}{2}\log_{10}4 = 0$

    (A) 2   (B) 4
    (C) $2 + 2\log_{10}2$ (D) $4 - 4\log_{10}2$

2. Find 20th term of G.P. $\frac{5}{2}, \frac{5}{4}, \frac{5}{8}$ ————————

    (A) $\dfrac{5^{10}}{2^{19}}$ (B) $\dfrac{5^{19}}{2^{20}}$

    (C) $\dfrac{5^{15}}{2^{10}}$ (D) None of these

3. The arithmetic mean of 4 and another number is 10. Find the other number.
    (A) 16   (B) 4
    (C) 10   (D) 2

4. Find the eccentricity of ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{9} = 1$

    (A) $\dfrac{\sqrt{7}}{4}$ (B) 3

    (C) 4   (D) 16

5. Evaluate $\lim\limits_{x \to 0} \dfrac{(x + 1)^5 - 1}{x}$

    (A) 4   (B) 5
    (C) 0   (D) None of these

6. Find the equation of circle with radius 4 and centre (–2, 3)
    (A) $x^2 + y^2 + 4x - 6y - 3 = 0$ (B) $x^2 + y^2 - x = 0$
    (C) $x^2 + y^2 = 1$ (D) None of these

Space For Rough Work

7. If $\vec{a}$ and $\vec{b}$ are unit vectors, then $\vec{a} + \vec{b}$ is

   (A) Also a unit vector

   (B) A unit vector when $\vec{a}$ perpendicular to $\vec{b}$

   (C) A unit vector when $\vec{a}$ is parallel to $\vec{b}$

   (D) None of these

8. If $A = \begin{bmatrix} -1 & 2 \\ -2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 3 & 4 \\ 2 & -1 \end{bmatrix}$ and $A + 2X = B$, then $X =$

   (A) $\begin{bmatrix} 2 & 1 \\ -2 & -1 \end{bmatrix}$

   (B) $\begin{bmatrix} 2 & 1 \\ 2 & -1 \end{bmatrix}$

   (C) $\begin{bmatrix} 2 & -1 \\ 2 & 1 \end{bmatrix}$

   (D) $\begin{bmatrix} -2 & -1 \\ -2 & -1 \end{bmatrix}$

9. What is the value of $\cos\left(\dfrac{\pi}{4} - x\right) \cos\left(\dfrac{\pi}{4} - y\right) - \sin\left(\dfrac{\pi}{4} - x\right) \sin\left(\dfrac{\pi}{4} - y\right)$?

   (A) $\sin(x + y)$

   (B) $\sin(x - y)$

   (C) $\cos(x + y)$

   (D) $\cos(x - y)$

10. The formula for mean deviation of grouped data about mean

    (A) $\dfrac{\Sigma f_i |x_i - \bar{x}|}{N}$

    (B) $\dfrac{\Sigma x_i f_i}{N}$

    (C) $\dfrac{\Sigma |x_i - \bar{x}|}{N}$

    (D) None of these

11. If G be the geometric mean of x and y, then $\dfrac{1}{g^2 - x^2} + \dfrac{1}{g^2 - y^2} = $ _____

    (A) G^2

    (B) $\dfrac{1}{G^2}$

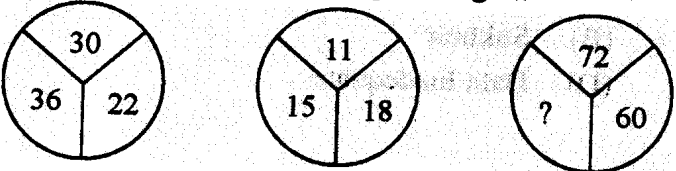   (C) $\dfrac{2}{G^2}$

    (D) $3G^2$

Space For Rough Work

12. Find the distance between $3x + 4y + 5 = 0$ and $6x + 8y + 2 = 0$

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

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

(C) $\frac{5}{4}$

(D) $\frac{4}{5}$

13. Solve $5x - 3 < 7$, when x is a positive integer.

(A) 1

(B) 2

(C) 0

(D) 4

14. A committee of two persons is selected from two men and two women. What is the probability that the committee will have no man ?

(A) $\frac{1}{6}$

(B) $\frac{1}{3}$

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

(D) None of these

15. What is probability mass function for Poisson distribution ?

(A) $f(x) = \dfrac{m^x\, e^{-m}}{x!}$

(B) $f(x) = \dfrac{x^m\, e^{-x}}{m!}$

(C) $f(x) = \dfrac{e^m\, x^m}{x!}$

(D) None of these

16. A list of instruction used by computer is called

(A) Program

(B) CPU

(C) Text processing

(D) Video input/output

17. A collection of four bits is called

(A) Nibble

(B) Byte

(C) Word

(D) Double-word

Space For Rough Work

18. A CPU generally contains

(A) Register and ALU   (B) A control and timing section

(C) Instruction decoding circuit   (D) All the above

19. Which of the following computers is least powerful ?

(A) Minicomputer   (B) Microcomputer

(C) Mainframe computer   (D) Supercomputer

20. Magnetic tape can serve as

(A) Input media   (B) Output media

(C) Secondary storage media   (D) All the above

21. Which of the following is the internal memory of the computer ?

(A) CPU register   (B) Cache

(C) Main memory   (D) All the above

22. The use of computer for business applications is attractive because of its

(A) Accuracy   (B) Reliability

(C) Speed   (D) All the above

23. In computer terminology information means

(A) Raw data

(B) Data in more useful or intelligible form

(C) Alphanumeric data

(D) Program

24. Linux is a

(A) Operating system software   (B) Application software

(C) Compiler   (D) Interpreter

25. The 1's complement of the binary number 1101101 is

(A) 0000010   (B) 0010010

(C) 0010011   (D) 1101110

Space For Rough Work

26. Convert $(109)_{10}$ to $()_2$

(A) 011100

(B) 111000

(C) 101111

(D) 110111

27. The 2's complement of the binary number 10111 is

(A) 011000

(B) 111000

(C) 01001

(D) 10111

28. Convert $(1245)_8$ to $()_2$

(A) 001010100101

(B) 001011111110

(C) 010011111101

(D) 110110110111

29. Addition of two binary numbers $(1101)_2 + (0011)_2$

(A) 0111

(B) 1110

(C) 1000

(D) 0101

30. ASCII code is a _____ bit code.

(A) 8

(B) 9

(C) 7

(D) 6

31. The missing number in the given figure is

(A) 44

(B) 48

(C) 40

(D) 50

32. Ten men can finish construction of a wall in eight days. How much men are needed to finish the work in half-a-day ?

(A) 80

(B) 100

(C) 120

(D) 160

Space For Rough Work

33. A shop gives 10% discount on the purchase of an item. If paid for in cash immediately, a further discount of 12% is given. If the original price of the item is ₹ 250, what is the price of the article if a cash purchase is made ?

    (A) ₹ 200   (B) ₹ 195

    (C) ₹ 198   (D) ₹ 190

34. The radius of the pool in a South Bangalore Club is twice the radius of the pool in North Bangalore club. The area of the pool in South Bangalore Club is how many times the area of pool in the North Bangalore Club ?

    (A) ¼   (B) ½

    (C) 2   (D) 4

35. A sofa set carrying a sale-price ticket of ₹ 5,000 is sold at a discount of 4%, thereby the trader earns a profit of 20%. The trader's cost price of the sofa set is

    (A) ₹ 4,200   (B) ₹ 4,000

    (C) ₹ 3,600   (D) ₹ 3,800

36. Which of the following is the smallest ?

    (A) 15/16   (B) 16/6

    (C) 7/8   (D) 11/12

37. Sukhbir is taller than Ranbir but not as tall as Ajit. If Manoj is taller than Nitin, who is shorter than Ajit, then who among them is the shortest ?

    (A) Nitin   (B) Sukhbir

    (C) Manoj   (D) Data Inadequate

38. Express $\dfrac{1999}{2111}$ in decimal.

    (A) 0.946   (B) 0.904

    (C) 0.893   (D) 0.981

39. The smallest number of 5 digit beginning with 3 and ending with 5 will be

    (A) 31005   (B) 30015

    (C) 30005   (D) 30025

Space For Rough Work

40. If DROWSY is written as HVSAWC, BEAUTY will be written as
(A) FIEYXC
(B) EHDXWC
(C) GJFZYD
(D) KFBVUC

41. Who is the winner of Ranji Trophy 2012 – 2013 ?
(A) Mumbai
(B) Kolkata
(C) Delhi
(D) None of the above

42. Who scored fastest hundred on debut in Test Cricket ?
(A) Shikar Dhawan
(B) M S Dhoni
(C) Sachin Tendulkar
(D) Kapil Dev

43. Venkataraman Ramakrishnan was jointly awarded Nobel Prize in Chemistry in the year 2009 for
(A) Theory of electron transfer
(B) Studies of the structure and function of the ribosome
(C) Palladium catalysed cross couplings in organic synthesis
(D) Work in the area of olefin metathesis

44. A non-conventional source of power is
(A) Solar-power
(B) Coal
(C) Uranium
(D) Petroleum

45. World Environment Day is celebrated every year on
(A) January 15
(B) August 26
(C) June 5
(D) July 10

46. The ball used in which of the games is usually oval in shape ?
(A) Rugby
(B) Golf
(C) Polo
(D) Volleyball

47. Humidity is measured by which of the following instrument ?
(A) Barometer
(B) Thermometer
(C) Hygrometer
(D) Hydrometer

---

48. Which of the following is not a missile tested in Indian missile programme ?

(A) Agni   (B) Trishul

(C) Prithvi   (D) Arjun

49. The multi-lingual natural disaster information system (MDIS) has been developed by

(A) Geneva Software Technologies Ltd

(B) Infosys

(C) Wipro

(D) Microsoft

50. Atomic power station is located in which of the following places in India ?

(A) Kalpakkam   (B) Allahabad

(C) Pune   (D) Shimla

51. In the following question, group of four words are given. One word is wrongly spelt. Identify the word.

(A) Severity   (B) Cruelity

(C) Sincerity   (D) Superiority

52. A sentence has been given in active/passive voice. Out of the four alternatives suggested below, select the one which best expresses the same sentence in passive/active voice.

"The tiger caught a fox."

(A) A fox has been caught by the tiger.

(B) A fox was caught by the tiger.

(C) A fox is caught by the tiger.

(D) A fox had been caught by the tiger.

53. Fill up the blank with the word that is suitable.

I cannot .... meaning of the sentence.

(A) make   (B) make up

(C) make for   (D) make out

Space For Rough Work

A-1   10   011

54. Find out the word which is the synonym of scanty.

(A) Insufficient

(B) Adequate

(C) Enough

(D) Plentiful

55. Find out the word which is the antonym of counsel.

(A) Advise

(B) Oppose

(C) Publish

(D) Rectify

56. Correct the meaning of phrase/idiom out of the four responses given.
"To see eye to eye"

(A) To be annoyed

(B) To be unhappy

(C) To agree with

(D) Not to be friendly to someone

57. From the given alternatives choose one which best expresses the meaning :
"He is out and out a reactionary"

(A) No more

(B) Thoroughly

(C) In favour of

(D) Deadly against

58. Select a word from four alternatives which is closest in meaning to the statement.
"One who is at the stage of growth between boyhood and youth"

(A) Adolescent

(B) Equilibrium

(C) Gullible

(D) Denatured

59. Replace part of the given sentence, which is in bold with an alternative to improve the sentence.

She teaches us grammar, **isn't it** ?

(A) Isn't she ?

(B) Doesn't she ?

(C) Dosen't it ?

(D) No improvement

60. Fill up the blank with a suitable word.

She completed the work first .... she had began late.

(A) Though

(B) Because

(C) For

(D) Still

Space For Rough Work

Each question carries two marks. $(20 \times 2 = 40)$

61. If $a^x = b$, $b^y = c$, $c^z = a$, then the value of xyz is
    (A) 1   (B) abc
    (C) 2   (D) log(abc)

62. The difference between two acute angles of a right angled triangle is $\frac{3\pi}{10}$ radians, Express the _____ angles in degrees.
    (A) (90°, 45°)   (B) (144°, 36°)
    (C) (15°, 10°)   (D) none of these

63. Find the value of P so that the three lines $3x + y - 2 = 0$, $Px + 2y - 3 = 0$ and $2x - y - 3 = 0$ intersect at one point find the point of concurrence.
    (A) P = 1 and (1, –1)   (B) P = 0 and (–1, 1)
    (C) P = 2 and (1, 1)   (D) P = 3 and (2, 3)

64. The function $f(x) = \frac{x}{2^4}$, $x = 0, 1, 2, 3, 4$ represents a probability distribution function
    (A) True   (B) False
    (C) Neither (A) or (B)   (D) None of these

65. Solve the equation $x^2 + \frac{x}{\sqrt{2}} + 1 = 0$

    (A) $x = \dfrac{-1 \pm \sqrt{7}i}{2\sqrt{2}}$ (B) $x = \dfrac{1 \pm \sqrt{5}i}{\sqrt{2}}$

    (C) $x = \dfrac{-1 \pm \sqrt{7}i}{2\sqrt{3}}$ (D) $x = \dfrac{2 \pm 4i}{\sqrt{2}}$

66. The term independent of x in the expansion of $\left(\dfrac{3x^2}{2} - \dfrac{1}{3x}\right)^6$
    (A) 12/5   (B) 5/12
    (C) 12   (D) 5

Space For Rough Work

67. The value of $\lim\limits_{x \to 3} \left(\dfrac{x-3}{x^2 - 5x + 6} \right)$ is

(A) 2

(B) 4

(C) 1

(D) 3

68. $\sin\left[\sin^{-1}\left(\dfrac{1-\sqrt{3}}{2\sqrt{2}} \right) \right] + \cos^{-1}\left(\dfrac{1+\sqrt{3}}{2\sqrt{2}} \right) =$ _____

(A) 0

(B) 1/2

(C) $\dfrac{\sqrt{3}}{2}$

(D) $1/\sqrt{2}$

69. The mean deviation about the median for the following data

3, 9, 5, 3, 12, 10, 18, 4, 7, 19, 21 is

(A) 5.27

(B) 5.20

(C) 4.59

(D) 3

70. The mean and standard deviation of 100 observations were calculated as 40 and 5.1, respectively by a student who took by mistake 50 instead of 40 for one observation. What are the correct mean and standard deviation ?

(A) (39.9, 5)

(B) (29.9, 5.5)

(C) (30, 4)

(D) (20, 2)

71. If $A = \begin{bmatrix} 1 & -3 \\ 2 & k \end{bmatrix}$ and $A^2 - 4A + 10I = A$ then k =

(A) 1 or 4

(B) 4 and not 1

(C) −4

(D) 0

Space For Rough Work

72. The mean and standard deviation of the binomial distribution with 'n' observations and probability of success p is

(A) $(np, \sqrt{(npq)})$

(B) (nq, npq)

(C) (np, pq)

(D) None of these

73. The vector $i + xj + 3k$ is rotated through an angle θ and doubled in magnitude, then it becomes $4i + (4x - 2)j + 2k$. The value of x is

(A) $\left(\dfrac{-2}{3}, 2\right)$

(B) $\left(\dfrac{1}{3}, 2\right)$

(C) $\left(\dfrac{2}{3}, 0\right)$

(D) $(2, 7)$

74. If A and B are mutually exclusive events, $P(A) = 0.29$, $P(B) = 0.43$, then $P(A \cup B) =$ _____ and $P(A \cap \bar{B}) =$ _____

(A) 0.72 and 0.1653

(B) 0.9 and 0.15

(C) 0.5 and 0.02

(D) 0.1 and 0.001

75. The angle between two regression lines is given by _____

(A) $\tan^{-1}\left[\dfrac{1 - r^2}{r} \cdot \dfrac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2}\right]$

(B) $\tan^{-1}\left[\dfrac{1 - r^2}{r} \cdot \dfrac{\sigma_x \sigma_y}{\sigma_x + \sigma_y}\right]$

(C) $\tan^{-1}\left[\dfrac{r}{1 - r^2} \cdot \dfrac{\sigma_y}{\sigma_x^2 + \sigma_y^2}\right]$

(D) None of these

76. Ram chips

    (A)   Allow the computer to store data electronically

    (B)   Store data indefinitely unless you delete it

    (C)   Are always measured in thousands of bytes

    (D)   All the above

77. Word processing is used for

    (A)   Presentation of data in graphical form

    (B)   What if analysis

    (C)   Entry, verifying, updating, retrieving etc. of records

    (D)   Creation, storage, editing etc. of text

78. The process of putting data into a storage location is called

    (A)   Reading   (B)   Writing

    (C)   Handshaking   (D)   Controlling

79. DOS is a

    (A)   Multiuser operating system

    (B)   Multitasking operating system

    (C)   Single user operating system

    (D)   None of the above

80. Who is the founder of Facebook ?

    (A)   Bill Gates

    (B)   Sabir Bhatia

    (C)   Mark Zuckerberg

    (D)   None of the above

Space For Rough Work