POST GRADUATE COMMON ENTRANCE TEST-2018

DATE	COURSE	TIME
15-07-2018	MCA	10.30 am to 12.30 pm
MAXIMUM MARKS	**TOTAL DURATION**	**MAXIMUM TIME FOR ANSWERING**
100	150 Minutes	120 Minutes
MENTION YOUR PGCET NO.		**QUESTION BOOKLET DETAILS**

MENTION YOUR PGCET NO.						VERSION CODE	SERIAL NUMBER
						A	153929

DOs :

1. Candidate must verify that the PGCET number & Name printed on the OMR Answer Sheet is tallying with the PGCET number and Name printed on the Admission Ticket. Discrepancy if any, report to invigilator.
2. This question booklet is issued to you by the invigilator after the **2nd bell i.e., after 10.25 am.**
3. The Version Code of this Question Booklet should be entered on the OMR Answer Sheet and the respective circle should also be shaded completely.
4. The Version Code and Serial Number of this question booklet should be entered on the Nominal Roll without any mistakes.
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 am., till then;
   - Do not remove the paper seal / polythene bag present on the right hand side 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 am., remove the paper seal / polythene bag on the right hand side 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.**

ಸರಿಯಾದ ಕ್ರಮ CORRECT METHOD	ತಪ್ಪು ಕ್ರಮಗಳು WRONG METHODS		
Ⓐ ● Ⓒ Ⓓ	✖ Ⓑ Ⓒ Ⓓ	Ⓐ Ⓑ Ⓒ ✓	Ⓐ ● ● Ⓓ
	● Ⓑ Ⓒ Ⓓ	Ⓐ ◉ Ⓒ Ⓓ	

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. Handover the **OMR ANSWER SHEET** to the room invigilator as it is.
7. After separating the top sheet (KEA copy), 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**.

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

MCA - A

MCA
PART – I
Each question carry one mark. $(60 \times 1 = 60)$

1. The Rank of a Unit matrix of order 3 is
   - (A) 1
   - (B) 0
   - (C) 3
   - (D) –3

2. The equations $x + y + z = 2$, $x + y - z = 4$ and $x + y = 3$, have
   - (A) No Solution
   - (B) Unique Solution
   - (C) Infinitely many solutions
   - (D) Finitely many solutions

3. The value of $\sin^{-1}(x) + \cos^{-1}(x)$ is
   - (A) 0
   - (B) 1
   - (C) $\pi/2$
   - (D) ∞

4. The value of series
   $\dfrac{1}{1.2.3} + \dfrac{3}{2.3.4} + \dfrac{5}{3.4.5} + \ldots \ldots \alpha$ is
   - (A) 0
   - (B) 2
   - (C) $\dfrac{1}{2}$
   - (D) 1

5. Evaluate the integral $\displaystyle\int_{0}^{\pi/2} \sin^6 x \, dx$ is
   - (A) 0
   - (B) 3
   - (C) $5\pi/32$
   - (D) 5

6. If $y = e^{2t}$ is a solution of $y'' - 5y' + ky = 0$, then the value of k is
   - (A) 6
   - (B) 0
   - (C) 8
   - (D) 10

7. The solution of the Differential equations $2x\dfrac{dy}{dx} - y = 3$ represents
   - (A) Straight lines
   - (B) Circles
   - (C) Parabolas
   - (D) Ellipses

Space For Rough Work

8. Evaluate the integral $\int_0^1 \frac{x^2}{1+x^2}dx$

   (A) $1-\frac{\pi}{4}$

   (B) π

   (C) $\pi/4$

   (D) ∞

9. $f(x) = \log(x + \sqrt{1+x^2})$ is

   (A)   Even function

   (B)   Odd function

   (C)   Singular function

   (D)   Neither even nor odd

10. The product of Eigen values of a Matrix

$A = \begin{pmatrix} 1 & 3 & 6 \\ 2 & 5 & 1 \\ 1 & -1 & 2 \end{pmatrix}$ is

   (A)   10

   (B)   8

   (C)   9

   (D)   11

11. The general solution of $\frac{dy}{dx} = \frac{y}{x}$ is

   (A) $y = ax$

   (B) $y = \log(x)$

   (C) $1/x$

   (D)   0

12. If $\int_1^2 f(x-c)dx = 5$, then $\int_{1-c}^{2-c} f(x-c)dx$ is

   (A)   10

   (B)   5

   (C)   c

   (D)   1

13. $\int_0^a \int_0^b \int_0^c dxdydz$ is

   (A)   abc

   (B) $a + b + c$

   (C)   0

   (D) $(a + b + c)/3$

14. A wife and husband attend an interview. The probability of the wife getting selected is 1/3 and that of the husband is 1/4, then the probability of atleast one of them getting selected is

   (A)   1/2

   (B)   7/12

   (C)   2/3

   (D)   3/4

Space For Rough Work

15. An integer is chosen from the numbers 1 to 1000. The probability that it is not divisible by 5 or 7 is
    (A) 0.314
    (B) 0.686
    (C) 0.142
    (D) 0.8

16. The perpendicular distance from the point $(1,1,1)$ to the line $\frac{x-2}{2} = \frac{y+3}{2} = \frac{z}{-1}$ is
    (A) 4.1
    (B) 4.0
    (C) 4.2
    (D) 4.4

17. If $u = \log \tan\left(\frac{\pi}{4} + \frac{\theta}{2}\right)$, then the value of $\tanh\frac{u}{2}$ is
    (A) $\tan\frac{\theta}{2}$
    (B) $\cot\frac{\theta}{2}$
    (C) $\sin\frac{\theta}{2}$
    (D) $\sinh\frac{\theta}{2}$

18. If $x + y + z = 1$, then the value of the determinant $\begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ x^3 & y^3 & z^3 \end{vmatrix}$ is
    (A) 2
    (B) 3
    (C) 1
    (D) 0

19. If $A = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$, then $A^2 - 9A + 14I$, where I is a unit matrix of second order, is
    (A) I
    (B) 2I
    (C) A
    (D) 0

20. Let $u = x^3 + y^3 - 3axy$, where a is any constant, then
    (A) $\frac{\partial u}{\partial x} = \frac{\partial u}{\partial y}$
    (B) $\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial y^2}$
    (C) $\frac{\partial^2 u}{\partial x \partial y} = \frac{\partial^2 u}{\partial y \partial x}$
    (D) None of the above

Space For Rough Work

21. The time required for the fetching and execution of one simple machine instruction is

(A) Delay time

(B) CPU cycle

(C) Real time

(D) Seek time

22. Computer word size is a multiple of

(A) 16 bits

(B) 4 bits

(C) 1024 bits

(D) 10 bits

23. A nibble is composed of

(A) 8 bits

(B) 4 bits

(C) 2 bits

(D) 6 bits

24. An attribute that uniquely identifies the rows of a table is known as the _____ key.

(A) foreign

(B) composite

(C) candidate

(D) primary

25. Which among the following standard protocols is the most widely used by the internet ?

(A) HTTP

(B) SMTP

(C) TCP/IP

(D) FTP

26. WLL stands for

(A) Wireless Local Loop

(B) Walking Loop Line

(C) Walking Land Line

(D) Wireless Land Line

27. Which one of the following is an MS-DOS external command ?

(A) PROMPT

(B) FORMAT

(C) DIR

(D) COPY

28. In C language, the formatting character should be preceded by the symbol :

(A) +

(B) /

(C) %

(D) –

Space For Rough Work

29. How are java web applications packaged ?

(A) jar

(B) war

(C) zip

(D) Both jar and war

30. How can we connect to database in a web application ?

(A) Oracle SQL developer

(B) Toad

(C) JDBC template

(D) MySQL

31. How can we take input text from user in HTML page ?

(A) input tag

(B) inoutBufferedReader tag

(C) meta tag

(D) scanner tag

32. What type of protocol is HTTP ?

(A) stateless

(B) stateful

(C) transfer protocol

(D) information protocol

33. What does MIME stand for ?

(A) Multipurpose Internet Messaging Extension

(B) Multipurpose Internet Mail Extension

(C) Multipurpose Internet Media Extension

(D) Multipurpose Internet Mass Extension

34. Which of the following registers is loaded with the contents of the memory location pointed by the PC ?

(A) Memory address register

(B) Memory data register

(C) Instruction registers

(D) Program counter

Space For Rough Work

35. Thrashing

(A) is a natural consequence of virtual memory systems.

(B) can always be avoided by swapping.

(C) always occurs on large computers.

(D) can be caused by poor paging algorithms.

36. Which of the following options will complete the given series ?

1, 6, 15, (___?___), 45, 66, 91

(A) 25

(B) 26

(C) 27

(D) 28

37. Harsh starts walking straight facing south. After 15 metres he turned to his right, walked 10 metres and turned to his left. Again after walking a distance of 5 metres, he turned to his left. Which direction is he facing now ?

(A) West

(B) East

(C) North-East

(D) South-West

38. Study the set of numbers given below and answer the question which follow :

427   581   839   275   589

If two is subtracted from the first digit of each of the numbers and then the first and the third digits are interchanges, which of the following will be the lowest ?

(A) 427

(B) 581

(C) 839

(D) 275

39. Which would be the proper order of the following (in ascending order) ?

1. Trillion

2. Thousand

3. Billion

4. Hundred

5. Million

(A) 1, 2, 4, 3, 5

(B) 1, 5, 3, 2, 4

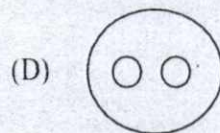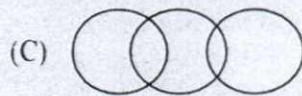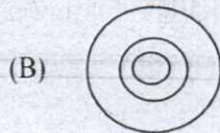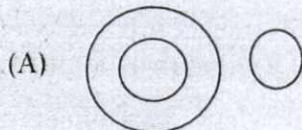(C) 4, 2, 3, 5, 1

(D) 4, 2, 5, 3, 1

Space For Rough Work

40. Two cyclist start biking from a trail start 3 hours apart. The second cyclist travels 10 miles per hour and starts 3 hours after the first who is travelling 6 miles per hour. How much time will pass before the second cyclist catches up with the first from the time the second cyclist started biking ?

(A) 2 hrs

(B) 4 ½ hrs

(C) 5 ¾ hrs

(D) 6 hrs

41. What interest rate Susan need to secure to make ₹ 2,500 in interest on ₹ 10,000 principal over 5 years ?

(A) 4%

(B) 5%

(C) 6%

(D) 7%

42. Six pipes are fitted to a water tank. Some of these pipes are used for filling while others for emptying. Each filling pipe can fill the tank in 18 hours and each emptying pipe can empty the tank in 12 hours. On opening all the pipes, an empty tank can be filled in 18 hours. The numbers of emptying pipes are

(A) 5

(B) 4

(C) 2

(D) 3

43. Two litres of a mixture of alcohol and water contain 10% water. This is added to 4 litres of another mixture containing 8% water and half a litre of water is then added to the whole, then the percentage of water in the resulting mixture is

(A) $17\frac{3}{11}\%$

(B) $15\frac{3}{13}\%$

(C) $14\frac{12}{13}\%$

(D) $15\frac{9}{13}\%$

Space For Rough Work

44. 5 mangoes and 4 oranges cost as much as 3 mangoes and $\overset{\cdot}{7}$ oranges. What is the ratio of the cost of 1 mango to that of 1 orange ?

(A) 4:3

(B) 1:3

(C) 3:2

(D) 5:2

45. Which of the following Venn diagrams best represents the relationship amongst "Airplane, Pilot, Air hostess" ?

46. United Nations Headquarters is situated at

(A) Geneva

(B) Washington D.C.

(C) New York

(D) Paris

47. Who was the first Indian to go into space ?

(A) Satish Dhawan

(B) Ravi Malhotra

(C) Rakesh Sharma

(D) None of these

48. Which among the following ranks in Indian Air Force is the highest ?

(A) Flying Officer

(B) Air Commodore

(C) Wing Commander

(D) Squadron Leader

Space For Rough Work

49. Indian Cancer Research Institute is located at

    (A) New Delhi

    (B) Calcutta

    (C) Mumbai

    (D) Chennai

50. Who invented penicillin ?

    (A) Dresser

    (B) Louis Pasteur

    (C) Edward Jenner

    (D) Alexander Fleming

51. On the surface of the moon, the :

    (A) Mass and weight become lesser.

    (B) Mass remains constant and only weight is lesser.

    (C) Only mass is lesser.

    (D) Mass and weight both remain unchanged.

52. Which of the following is non-toxic ?

    (A) Cadmium

    (B) Mercury

    (C) Beryllium

    (D) Sodium

53. Which country gifted the Statue of Liberty to the United States of America?

    (A) England

    (B) Australia

    (C) Italy

    (D) France

54. Fly ash is environment pollutant produced by

    (A) Thermal power plant

    (B) Oil refinery

    (C) Hydro-electric power plants

    (D) Fertilizer plant

Space For Rough Work

55. Pathology is

    (A) the science dealing with the functioning of organisms

    (B) the branch of medical science that studies diseases

    (C) the humanistic study of language and literature

    (D) the study or investigation of ancestry and family history

56. The synonym of "Fright" is

    (A) Calmness

    (B) Disappoint

    (C) Scare

    (D) Thrill

57. Choose the word with the correct spelling.

    (A) Feathers

    (B) Fethers

    (C) Feathars

    (D) Faethers

58. Rearrange the sentence in the correct order.
    1. now worships in the church
    2. my entire family
    3. used to be a priest
    4. where my great-grandfather

    (A) 2-1-4-3

    (B) 2-3-4-1

    (C) 2-1-3-4

    (D) 2-4-1-3

59. Fill in the blank with the correct phrasal verb from the options given.
    How can you think of _____ a car ?

    (A) moving in

    (B) picking up

    (C) setting off

    (D) getting on

60. Mark the sentence with the correct adjective order.

    (A) Who does not like hot delicious coconut cookies ?

    (B) Who does not like delicious hot coconut cookies ?

    (C) Who does not like delicious coconut hot cookies ?

    (D) Who does not like coconut delicious hot cookies ?

Space For Rough Work

Each question carry two mark. (20 × 2 = 40)

61. If A and B are sets and A ∪ B = A ∩ B, then
    (A) A = Φ
    (B) B = Φ
    (C) A = B
    (D) None of these

62. How many permutations of the letters of the word APPLE are there ?
    (A) 600
    (B) 120
    (C) 240
    (D) 60

63. A piece of equipment cost a certain factory ₹ 6,00,000. If it depreciates in value, 15% the first year, 13.5% the next year, 12% the third year, and so on, what will be its value at the end of 10 years, all percentages applying to the original cost?
    (A) ₹ 2,00,000
    (B) ₹ 1,05,000
    (C) ₹ 4,05,000
    (D) ₹ 6,50,000

64. Find the co-ordinates of the point equidistant from the points A(1, 2), B(3, –4) and C(5, –6).
    (A) (2, 3)
    (B) (–1, –2)
    (C) (0, 3)
    (D) (1, 3)

65. Complement of the expression $A'B + CD'$ is
    (A) $(A' + B)(C' + D)$
    (B) $(A + B')(C' + D)$
    (C) $(A' + B)(C + D')$
    (D) $(A + B')(C + D')$

66. The graphs of the two linear equations $ax + by = c$ and $bx - ay = c$, where a, b and c are all not equal to zero,
    (A) are parallel
    (B) intersect at one point
    (C) intersect at two points
    (D) perpendicular

67. Which of the following of a random variable is a measure of spread ?
    (A) Variance
    (B) Standard deviation
    (C) Empirical mean
    (D) All of the mentioned

68. Optic fibers are used in place of wire cables because
    (A) they are more economical.
    (B) they generate strong magnetic fields.
    (C) Walking Land Line.
    (D) they do not require boosting.

69. What is the storage capacity of single cookie ?
    (A) 2048 MB
    (B) 2048 bytes
    (C) 4095 bytes
    (D) 4095 MB

Space For Rough Work

70. The basic Web Services platform is combination of _____ and _____.

(A) CSS + HTTP

(B) XML + HTML

(C) XML + HTTP

(D) CSS + JAVA

71. If a typical PC uses a 20-bit address code, how much memory can the CPU address ?

(A) 20 MB

(B) 10 MB

(C) 1 MB

(D) 580 MB

72. Convert binary 111111110010 to hexadecimal.

(A) $EE2_{16}$

(B) $FF2_{16}$

(C) $2FE_{16}$

(D) $FD2_{16}$

73. Which of the following will come in place of (?) in the given series ?

GHA, KLE, OPI, ..?.., WXQ

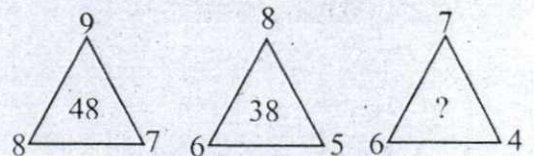(A) SPQ

(B) STQ

(C) STP

(D) STM

74. If '+' is called '/', '/' is called '–', '–' is called '*' and '*' is called '+', then what is the value of 6 * 3 / 2 – 2 + 5 ?

(A) $8\dfrac{1}{5}$

(B) $2\dfrac{3}{5}$

(C) $4\dfrac{2}{7}$

(D) 5

75. If in a certain language 'WEAK' is coded as '9%2$' and 'SKIT' is coded as '#$7@' then how will 'WAIT' be coded in the same language ?
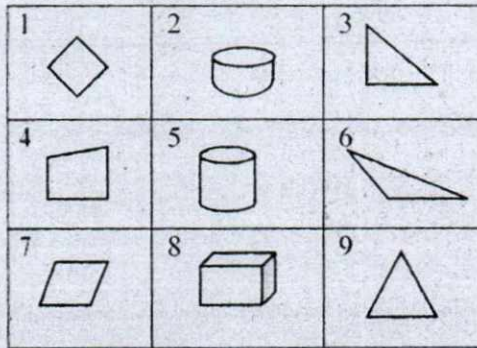
(A) 9267

(B) 927@

(C) 92@6

(D) 9@67

76. Find the missing number, if a certain rule is followed in all the three figures.

(A) 48

(B) 34

(C) 38

(D) 40

Space For Rough Work

77. Group the given figures into three classes using each figure only once.

(A) 1, 4, 7; 2, 5, 8; 3, 6, 9

(B) 1, 4, 7; 2, 5, 9; 3, 6, 8

(C) 1, 3, 4; 2, 5, 8; 6, 7, 9

(D) 1, 2, 3; 4, 5, 6; 7, 8, 9

78. A principal is about to take over the leadership of a low-performing school. One of the principal's first goals will be to evaluate teacher quality in the school. The principal can best begin this process by

(A) arranging to observe instruction in each classroom.

(B) interviewing each teacher about his or her teaching practices.

(C) comparing student grades in each subject area across classrooms.

(D) having each teacher complete a teaching self-evaluation.

79. How are Earnings per Share calculated?

(A) Use the income statement to determine earnings after taxes (net income) and divide by the previous period's earnings after taxes, then subtract 1 from the previously calculated value.

(B) Use the income statement to determine earnings after taxes (net income) and divide by the number of common shares outstanding.

(C) Use the income statement to determine earnings after taxes (net income) and divide by the number of common and preferred shares outstanding.

(D) Use the income statement to determine earnings after taxes (net income) and divide by the forecasted period's earnings after taxes, then subtract 1 from the previously calculated value.

80. Most Europeans live in small villages. They grow their own food and barter with others. As well as keeping animals, they grow small crops of wheat, rye and vegetables. Milk, from dairy cows, is a vital part of the diet. This milk is also used to make butter and cheese.
Which of the following words can replace the word 'barter' used above, without changing the meaning of the text?
(A) Traverse
(B) Keep
(C) Persuade
(D) Exchange

Space For Rough Work

Space For Rough Work