



Instructions: Each Question has 4 possible answers (A, B, C, D). You have to fill the circle on FACE SHEET relevant to correct answer. DO NOT WRITE ANY ANSWER ON THIS QUESTION PAPER. You can use backside of this question paper for rough work.

Q1. Which of the following series converge to 2?

A	$\sum_{n=1}^{\infty} \frac{1}{2^n}$	B	$\sum_{n=1}^{\infty} \frac{2n}{n+3}$	C	$\sum_{n=1}^{\infty} \frac{-8}{-3^n}$	D	None of These
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Q2. If x percent of y is 50 then what is y

A	2x	B	50x	C	X	D	None
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Q3. When Discriminant of a quadratic is zero, its both roots are

A	Distinct	B	coincident	C	Imaginary	D	Complex
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Q4. $X = 25a^2 - 25b^2$ and $Y = [5(a-b)]^2$ then

A	$X=Y$	B	$X<Y$	C	$X>Y$	D	Not sure
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Q5. If $6x - 2 < 4$

A	$x>1$	B	$x<1$	C	$x>1/3$	D	$X<1/3$
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Q6. Three of out every 8 students in GCU use public transport. If the university has a strength of 6000, how many students use public transport?

A	2150	B	2700	C	2250	D	2400
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Q7. In July, the price of sugar increased by 10%, in August, it declined by 20% and in September, it increased by 10%. What was the final decline in price?

A	3.2%	B	Zero	C	20%	D	None
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Q8. What is next number in the series. 0, 2, 6, 12, 20, 30,

A	40	B	32	C	42	D	50
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Q9. A rectangular pool is 40 meters long and 30 feet wide. A walkway 3 feet wide surrounds the pool. What is area of the walkway.

A	120	B	456	C	1191	D	1200
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Q10. What is next number in series 1,1,2,3,5,8,13,

A	20	B	18	C	21	D	None
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Q11. For how many two digit positive numbers will tripling the tens digit give us a two digit number that is triple of the original.

A	0	B	2	C	3	D	4
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Q12. The expression $x^2 - 8x + 12$ is equal to 0 when $x = 2$ and when $x = ?$

A	-2	B	-4	C	-6	D	6
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Q13. if $a+b = 3(c+d)$ which if the following is average of a, b, c, d?

A	$c+d$	B	$(c+d)/4$	C	$3(c+d)/8$	D	$3(c+d)/4$
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Q14. $(x-2)(x+3) - (x-4)(x+5) =$

A	7	B	14	C	-14	D	-26
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Q15. $c^2 + d^2 = 4$ and $(c-d)^2 = 2$, what is value of cd?

A	1	B	$\sqrt{2}$	C	2	D	3
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Q16. Three brothers divide X rupees such that the elder gets 2/5 of it, middle gets 1/3 of it and younger gets Rs 120/-. What was X

A	1800	B	450	C	1200	D	None
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Q17. A certain colony of bacteria is growing at 4% daily. If the culture of bacteria has a population of 4,000 today, what will it be after 10 days?

A	4640	B	5920	C	6400	D	None of these
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Q18. if $7x+3y = 17$ and $3x+7y = 19$, what is arithmetic mean of x and y?

A	1.55	B	1.8	C	3.6	D	36
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Q19. if 25% of 260 = 6.5 % of a, what is a?

A	10	B	65	C	1000	D	130
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Q20. When $a > b$, then $a^3 - b^3$ is greater than

A	Zero	B	$(a+b)^3$	C	$(a-b)^3$	D	none
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Q21. If $\sin(x) = \cos(x)$ then $x =$

A	$\pi/2$	B	45	C	$\pi/45$	D	None
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Q22. When measurements of sides of a rectangle of area X are squared, then its new are is

A	4X	B	X^3	C	X^4	D	X^2
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Q23. If equation of line normal to any curve $f(x)$ at $(1,4)$ is $x+7y=29$, then $f'(1)$ is

A	7	B	1	C	1/7	D	4
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Q24. The radii of two cylinders are equal. The height of one cylinder is three times the height of the other. How many times more volume does the tall cylinder have

A	3	B	9	C	3 pi	D	27
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Q25. If $\sin A = 3/5$, and $\cos A < 0$, then $\tan A =$

A	0.75	B	-0.66	C	-0.80	D	0.80
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Q26. for any triangle if tangent of any internal angle = 0 then area of triangle is

A	Zero	B	Infinity	C	Undefined	D	Not sure
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Q27. Sin and cosine are both negative in which quadrant?

A	1 st	B	2 nd	C	3 rd	D	4 th
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Q28. Let A,B,C are points on a line and B is between A and C. Let M and N are midpoints of AB and BC. If $AB:BC = 3:1$, what is $MN:BC =$

A	1:3	B	1:2	C	2:3	D	2:1
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A

Q29. In a right-angle triangle, perpendicular is $\sqrt{3}$ times the base. What is ratio of their opposite angles?

A	30:60	B	45:45	C	30:30	D	None
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Q30. What is volume of a cube whose surface area is 96?

A	64 pi	B	64	C	144	D	256
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Q31. Vertices of a quadrilateral ABCD are A(1,1), B(5,6), C(10,10) and D(6,5). What is the shape of the quadrilateral

A	Square	B	Rhombus	C	Parallelogram	D	Rectangle
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Q32. $y = ax^2$ is the general equation of a

A	Parabola	B	Hyperbola	C	Ellipse	D	None
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Q33. If $y = e^{5x}$, then $\ln(dy/dx)$ at $x = 2$ is

A	$5e^{5x}$	B	$10\ln(5)$	C	$10 + \ln(5)$	D	None
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Q34. $f(x) = \ln(x+10)$ then its 2nd derivative $f''(x) =$

A	$-1/(x+10)^2$	B	$-2/(x+10)$	C	$-1/(x+10)$	D	None
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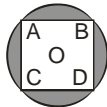
Q35. Area Bounded by the curve $y = 9 - x^2$ and x-axis is

A	1/3	B	2	C	$\ln(2)$	D	$\frac{\ln(3)}{2}$
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Q36. $\frac{d}{dx}(f \cdot g) =$

A	$f \cdot \frac{dg}{dx}$	B	$g \cdot \frac{df}{dx}$	C	$\frac{dg}{dx} + \frac{df}{dx}$	D	$f \cdot \frac{dg}{dx} + g \cdot \frac{df}{dx}$
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Q37. In the figure below, square ABCD is inscribed in circle O. if the perimeter of ABCD is 24, what is area of shaded region?



A	$18\pi - 36$	B	$18\pi - 24$	C	$12\pi - 36$	D	$36\pi - 24$
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Q38. if $3x = 2(5-2x)$ then $x =$

A	-10/7	B	0	C	3/7	D	10/7
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Q39. Which of the following about set of primes is not true.

A	Subset of Z^+	B	Finite	C	Odd except first	D	Cannot divide each other
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Q40. Only one of the following function has the property that its derivative is equal to its integral.

A	1/x	B	$\log(x)$	C	e^x	D	No such function
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Q41. Output of XOR will be low when both inputs are

A	Low	B	High	C	Same	D	different
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Q42. Rule to add two scalars is

A	Head to tail rule	B	Simple addition	C	Right hand rule	D	None
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Q43. Cross product of two vectors a and b is in direction of

A	a+b	B	In the plane of a and b	C	Normal to the plane of a & b	D	None
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Pick the most suitable synonym (similar) word

Q44. ARID

A	Cold	B	Dry	C	Weather	D	Hot
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Q45. ABOLISH

A	Waiver	B	Pressurize	C	Insist	D	Preserve
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Q46. BROWSE

A	Travel	B	Look at	C	Watch carefully	D	Jump to
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Pick the most suitable opposite of the following words.

Q47. Magnify

A	Forget	B	comprehend	C	Extract	D	Diminish
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Q48. CRYPTIC

A	Candid	B	Futile	C	Famous	D	Indifferent
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Write the Most suitable pair of Prepositions

Q49. To get to the Marketing department, you have to go _____ those stairs and then _____ the corridor to the end.

6	Up/Along	B	Between/Into	C	out of / into	D	up to / out of
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Q50. Please Abide _____ the rules.

A	By	B	With	C	Of	D	To
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Q51. In China's largest psychiatric facility there is a serious lack of resources but the staff try hard to — this in their treatment of the patients

A	Put up with	B	Make up for	C	Go in for	D	Come up with
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Q52. The auditing of accounts means the official inspection of a company's accounts by a qualified accountant, and this — by law each year.

A	requires	B	is required	C	has been required	D	must be required
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Read the following passage carefully and select the best answer of the questions below.

“Drug companies lose money when they manufacture drugs for those suffering from rare diseases, because selling drugs to a few people usually does not recoup research and manufacturing costs. Therefore a company manufacturing drug for Loxemia disease will eventually lose money”

Q53. Which of the following statement does not support the conclusion of above paragraph?

- A. Loxemia is a common disease.
- B. No private company manufactures drugs for Loxemia.
- C. Research on Loxemia cure is funded by government.
- D. Cancer drugs are very costly and Loxemia is a rare type of cancer.

A

- Q54. Which argument is in favor of the above paragraph.
E.No private company is manufacturing Loxemia Drug.
F.Loxemia patients are given free drugs by companies.
G. Prices of Loxemia drugs are falling rapidly.
H. Loxemia disease is cured by operation only.
- Q55. If a private company starts manufacturing Loxemia drugs,
I. It is a financially secure company.
J. It has decided to wind up its business.
K. It wants to earn profits by monopoly.
L.It is using media campaign to establish its goodwill.
- Q56. Companies do not afford manufacturing of rare disease drugs because.
M. It is difficult to supply drug to people in a wide region.
N. Loxemia patients are living isolated life.
O. Hospitals refuse to accommodate Loxemia patients.
P.Small scale manufacturing always involves higher fixed costs per item.
- Q57. Drugs prepared for rare disease are costly because.
Q. These are made from costly raw materials.
R. These are made on small scale, and small scale manufacturing is always costly.
S.Rare disease patients normally live in rich countries.
T.Reason cannot be determined.

Remaining Question are based on the following Paragraph.

A florist is designing flower arrangements containing two or more varieties of flowers, Irises, Roses, Lilies, Gardenia, Tulips, and Violets. All acceptable arrangements must conform to the following conditions.

- If an arrangement contains any Roses, it cannot contain any Violets.”
- If an arrangement contains any Tulips, it cannot contains any Violets.
- If an arrangement contains any Gardenia, it must also contain Violets in equal number of Gardenias.
- If an arrangement contains Roses, the number of Roses must be greater than the total number of other flowers used.
- If an arrangement contains any Irises, it must also contain Tulips in exactly double number than Irises.

Q58. Which one of the following arrangement is not allowed?

- A. 3Gardenia, 3 Violets.
B. 10 Tulips and 5 Lilies.
C. 3 Irises, Violets, Tulips.
D. None of above

Q59. Which of the following flower arrangements could be made acceptable by just adding one tulip.

- A. 4 Roses, 1 Lily, 2 Tulips.
B. 4 Roses, 2 Gardenia, 1 Tulip..
C. 5 Roses, 1 Iris, 1 Tulip.
D. 2 Irises, 2 Tulips, 2 Violets.

Q60. An unacceptable arrangement has 4 Roses, 1 Lily, 1 Gardenia and 2 Tulips. What can we do to make it acceptable.

- a. Add 1 Rose.
b. Add 1 Iris.
c. Add 1 Violet.
d. Remove the Gardenia.
e. Remove 1 Tulip.