

Candidate's Roll number

Booklet Code:

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Time Allowed: 120 Minutes Total Questions : 100 Maximum Marks : 100

Instructions to Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR Answer sheet given, with **Black or Blue Ball Point Pen**. Read the **Instructions printed on the OMR sheet carefully before answering the questions.**

- The candidate Roll No. and all other relevant information is printed on the OMR.
- This test consists of 100 questions(Q.Nos. 1 to 50 Mathematics, 51 to 75 Physical Science, 76 to 100 Biological Science).
- Each question carries **one** mark.
- Blank pages are provided for rough work at the end of question paper.
- REMEMBER YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR ANSWER SHEET PROVIDED**
- Shade the correct answer in the OMR Sheet for the corresponding question.
- The candidate **need not return** this Question Paper booklet and can take it after completion of the examination. No candidate should leave the examination hall before the end of the examination.
- Now turn to the next page and start answering the questions.

MATHEMATICS

- If the denominator of $13/500$ is expressed in the form of $2^n \times 5^m$ then the value of $(m+n)$ is x []
 A) 6 B) 3 C) 2 D) 5
- The value of $[\log_9 \sqrt{3}\sqrt{3}\sqrt{3}] \cdot \log_{10} 0.01$ []
 A) $-7/8$ B) $7/8$ C) $(1/16)x - 2$ D) $1/8 \times 2$
- I: If P is a prime then \sqrt{P} is an irrational number
 II: If $a \in \mathbb{Q}$ and b is an odd natural number, then $a + \sqrt{b}$ is rational number. Which of the following is true? []
 A) only I B) only II C) Both I and II D) Neither A nor B
- Which one of the following is an example for an empty set ? []
 A) $A = \{x: x \in \mathbb{N} \text{ and } 2 < x < 5\}$ B) $A = \{x: x \in \mathbb{N} \text{ and } 1 < x < 4\}$ C) $A = \{x: x \in \mathbb{W} \text{ and } -1 < x < 3\}$ D) $A = \{x: x \in \mathbb{N} \text{ and } 2 < x < 3\}$
- If $n(A-B)=5$ and $n(A \cap B)=2$ then $n(A)=$ []
 A) 3 B) 4 C) 6 D) 7
- Match the following []
 1) If $A \subset B$ then $A-B$ p) B
 2) If $A \subset B$ then $A \cup B$ q) A
 3) $A \cup \mu =$ r) \emptyset
 4) If $B \subset A$ then $A \cup B$ s) μ
 A) 1-r, 2-p, 3-s, 4-q B) 1-s, 2-r, 3-p, 4-q C) 1-r, 2-p, 3-q, 4-s D) 1-p, 2-r, 3-q, 4-s
- From the given diagram the shaded portion represents []
 A) $A \cap B = B$ B) $A - B = B$ C) $A \cup B = B$ D) $A \cap B = A$



- In a division, if divisor is $x+1$, quotient is x and remainder is 4 then dividend is []
 A) $x^2 + x$ B) $4(x+1)+x$ C) $x(x+1)+4$ D) $4x+4$
- If $a < 0$ in ax^2+bx+c , the shape of parabola opening towards []



- The degree of the polynomial of $(\sqrt{x+1})^2 + (\sqrt{x-1})^2$ []
 A) 0 B) 1 C) 2 D) not a polynomial
- Let α, β be the zeros of the polynomial $P(x) = x^2 - 4x - 1$ then the value of $\log_2(\alpha + \beta) =$ []
 A) 1 B) 2 C) 3 D) 4
- A quadratic polynomial whose zeros are same -2 is []
 A) $x^2 + 5x - 2$ B) $x^2 + 3x - 10$ C) $x^2 - 3x - 10$ D) $x^2 - 2x + 5$
- The larger of two supplementary angles exceeds the smaller by 38° then the angles are []
 A) $72^\circ, 108^\circ$ B) $70^\circ, 110^\circ$ C) $38^\circ, 142^\circ$ D) $109^\circ, 71^\circ$

14. The equations $9x + 3y = 5k$ and $6x + 2y = 3$ have infinitely many solutions if []
 A) $k = 9/10$ B) $k \neq 9/10$ C) $k = -9/10$ D) $k \neq -9/10$

15. If $(x + y, x - y) = (5, 1)$ then $2x - 3y =$ []
 A) $6x - 9y$ B) $8x - 12y$ C) $6x + 9y$ D) Both A and B

16. If $x = \sqrt{6} + \sqrt{6} + \sqrt{6} + \dots$ then $x =$ []
 A) -3 B) -2 C) 3 D) 1

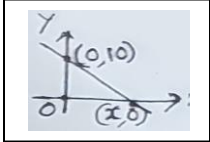
17. If α, β are the roots of the quadratic equation $px^2 + qx + r = 0$ the $\alpha^2/\beta + \beta^2/\alpha =$ []
 A) $(3q^2 - qr)/r$ B) $(3qr - q^3)/2$ C) 0 D) $(3qr - q^3)/r$

18. Statement I: If $x^2 - 2mx + 8m - 15 = 0$ has equal roots then $m = 3$ or 5
 Statement II: The discriminant of the equation $3x^2 - 2x + 1/3 = 0$ is 0 []
 A) Both I & II are true B) Both I & II are false C) I is true, II is false D) I is false, II is true

19. If $18, x, y-3$ are in A.P then the value of $x + y$ is []
 A) 12 B) 15 C) 16 D) 11

20. In a G.P; $2, 2\sqrt{2}, 4, \dots$ which term should be equal to 64 ? []
 A) 10 B) 11 C) 12 D) 13

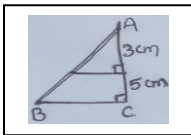
21. If n^{th} term of an A.P is $7 - 2n$, then the common difference is []
 A) -2 B) 2 C) 7 D) -7

22.  The area of given triangle is 60 sq.unit then $x =$ ___ unit []
 A) 6 B) 8 C) 10 D) 12

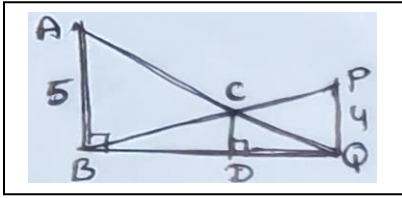
23. The length of the median from A to BC in ΔABC . Where $A = (-1, 1)$, $B = (-1, 3)$, $C = (5, 1)$ is []
 A) $\sqrt{10}$ B) $\sqrt{15}$ C) $\sqrt{21}$ D) $\sqrt{18}$

24. Two end points of a diameter of circle are $(3, 2)$ and $(5, -4)$ then centre is []
 A) $(-4, -1)$ B) $(-4, 1)$ C) $(4, -1)$ D) $(4, 1)$

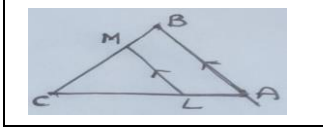
25. The distance between $A(a \cos\theta, 0)$, $B(0, a \sin\theta)$ is []
 A) 0 B) 1 C) a D) a^2

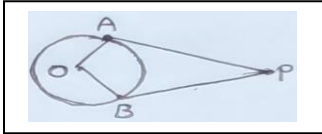
26. In the figure $\Delta ADE/\Delta ABC =$  []
 A) 3:5 B) 3:64 C) 9:8 D) 9:64

27. $\Delta ABC \sim \Delta PQR$, $\angle A = 50^\circ$ then $\angle Q + \angle R =$ ___ []
 A) 120° B) 110° C) 130° D) 80°

28.  In the figure AB, CD, PQ are perpendicular to BQ and []
 $AB = 5, PQ = 4$ then $CD =$ []
 A) 1 B) 9 C) $9/20$ D) $20/9$

29. The length of the hypotenuse of an isosceles triangle whose one side is $4\sqrt{2}$ cm is []
 A) 12cm B) 8cm C) $8\sqrt{2}$ cm D) 26cm

30.  In the given figure $LM \parallel AB$, $AL = x - 3$, $AC = 2x$, $BM = x - 2$ and $BC = 2x + 3$ then the value of x is []
 A) 9 B) -9 C) 6 D) -6

31.  In the given figure $\angle AOB = 120^\circ$ then $\angle APO =$ []
 A) 30° B) 45° C) 60° D) 90°

32. The area of the largest square that can be inscribed in a circle of radius 7cm is []
 A) 196 cm^2 B) 98 cm^2 C) 49 cm^2 D) 154 cm^2

33. If radii of two concentric circles are 6cm and 10cm then length of chord of the large circle which is touches to other is []
 A) 8cm B) 12cm C) 16cm D) 20cm

34. If a sphere and cube have equal surface areas, then the ratio of their volumes is []
 A) $\sqrt{6} : \sqrt{\pi}$ B) $\sqrt{\pi} : \sqrt{6}$ C) $\sqrt{2} : \sqrt{\pi}$ D) $\sqrt{\pi} : \sqrt{2}$

35. Match the following []

- 1) L.S.A of cylinder p) $2\pi r(r+h)$
2) T.S.A of cone q) πrl
3) C.S.A of cone r) $\pi r(1+r)$
4) T.S.A of cylinder s) $2\pi rh$

- A) 1-p, 2-q, 3-r, 4-s B) 1-q, 2-r, 3-s, 4-p C) 1-s, 2-r, 3-q, 4-p D) 1-q, 2-s, 3-r, 4-p

36. The radius of the base and height of a right circular cone are 7cm and 24cm, then the slant height of the cone is []
A) 31cm B) 25cm C) 18cm D) 15cm

37. The radii of two cylinders are in the ratio 2:3 and their heights are in the ratio 5:3 then ratio of their L.S.A is []
A) 10:9 B) 5:9 C) 4:9 D) 16:9

38. In $\triangle ABC$, $\angle C=90^\circ$. If $\tan A=1/\sqrt{3}$ then $\sin B=$ []
A) 1 B) $\sqrt{3}$ C) 1/2 D) $\sqrt{3}/2$

39. If $\sec\theta = 3k$ and $\tan\theta = 3/k$ then $k^2 - 1/k^2 =$ []
A) 9 B) 3 C) 1/3 D) 1/9

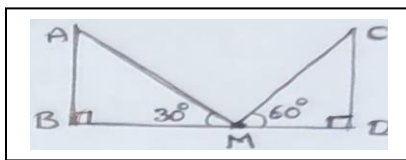
40. If $\sec\theta - \cos\theta = 0$ then the value of $\sin^4\theta + \cos^4\theta$ is []
A) 1 B) 3/4 C) 1/2 D) 1/4

41. $\sqrt{(1-\sin\theta)}/\sqrt{(1+\sin\theta)} =$ []
A) $\sec\theta + \tan\theta$ B) $\sec\theta - \tan\theta$ C) $\operatorname{cosec}\theta + \cot\theta$ D) $\operatorname{cosec}\theta - \cot\theta$

42. A ladder of 20m long touches the wall at height of 10m. The angle made by ladder with the horizontal []
A) 30° B) 60° C) 45° D) 32°

43. Length of shadow of a 12m high pole is $4\sqrt{3}$ m in the morning. What is the angle of elevation of the sun rays with the ground at that time []
A) 30° B) 45° C) 60° D) 90°

44. In the given figure, if $AB = CD = 10\sqrt{3}$ m then $BD =$ []
A) 30° B) 40° C) 20° D) 60°



45. The probability of an event E is $p(E)$ then I) $p(E) \geq 1$ II) $0 \leq p(E) \leq 1$ III) $p(E) \leq 0$ IV) $p(E) \leq 1$. Which is correct []
A) I B) II C) III D) IV

46. A number x is selected at random from -4, -3, -2, -1, 0, 1, 2, 3, 4 the probability that x lies between -3 and 3 is []
A) 5/9 B) 4/9 C) 6/9 D) 7/9

47. The probability of getting 53 Mondays in a leap year is []
A) 1/7 B) 2/7 C) 53/366 D) 53/365

48. The mean of 12 observation is 15. An observation 4 is deleted. The mean of the remaining observations is []
A) 11 B) 10 C) 14 D) 16

49. I: To find most popular T.V programme being watched then it considered median
II: Median is not effected by extrem values. Which statement is correct? []
A) I only B) II only C) Both A & B D) Neither A nor B

50. The mean of the values of $\sin 0^\circ$, $\sin 30^\circ$, $\cos 60^\circ$ and $\tan 45^\circ$ is []
A) 0 B) $1/\sqrt{2}$ C) 1/2 D) 1

R.A GANAPATI RAO

SPSMCHS

VIJAYAWADA

PHYSICAL SCIENCE

51. A liquid of mass "m" that requires heat energy "Q" calories to change its state from liquid to vapour. Latent heat is []
A) m/Q B) Q/m C) mQ D) $2mQ$

52. 1 Joule = _____ []
A) 4.186 B) $1/4.186$ C) 273 D) $1/273$

53. $Zn + NaOH \rightarrow X + H_2$, What is X []
A) $NaZnO_3$ B) $Na_2 ZnO_3$ C) $Na_2 ZnO_2$ D) $Na_3 ZnO_3$

54. The indicators which turn red in acidic solutions are []
A) Turmeric, Litmus B) Phenolphthalein, Methyl orange C) Litmus, Methyl orange D) All

55. Match the following []
X) Bleaching powder [] P) Preparation of glass
Y) Baking soda [] Q) Decolourisation
Z) Washing soda [] R) Antacid

- A) X-P, Y-R, Z-Q B) X-R, Y-P, Z-Q C) X-Q, Y-P, Z-R D) X-Q, Y-R, Z-P

56. Thickness of a slab is 2cm, vertical shift is 1cm. Then refractive index of slab []
A) 1 B) 3/2 C) 2/3 D) 2

57. In which the velocity of light is high []

Substance	Benzene	Diamond	Water	Kerosene
Refractive index	1.50	2.42	1.33	1.44

- A) Benzene B) Diamond C) Water D) Kerosene
58. When light travels from denser to rarer medium the condition at which total internal reflection takes place? []
 A) $i < c$ B) $i = c$ C) $i > c$ D) None
59. Two plane convex lenses of focal lengths 10cm and 20cm are placed in contact with each other. The effective focal length of the combination is []
 A) 10 cm B) 20 cm C) 200 cm D) 6.67 cm
60. A ray of light passes from glass into air. The angle of refraction will be []
 A) Equal to the angle of incidence B) Greater than the angle of incidence
 C) Smaller than the angle of incidence D) 45°
61. At which angle of scattering the intensity is maximum? []
 A) 45° B) 30° C) 90° D) 0°
62. Find odd one out []
 A) Bi- Convex lens is used to correct Hypermetropia B) Bi-Concave lens is used to Myopia
 C) Bi- focal lens is used to correct Presbyopia D) Bi- Concave lens is used to correct Hypermetropia
63. The correct set of four quantum numbers for valence electron of Sodium atom []
 A) $n=3; l=0; m=0; s= +1/2$ B) $n=3; l=1; m=0; s= +1/2$ C) $n=4; l=0; m=0; s= +1/2$ D) $n=2; l=0; m=0; s= +1/2$
64. Which spectrum is used to identify the fingerprint to identify people []
 A) Emission spectrum B) Absorption spectrum C) Line spectrum D) Continues spectrum
65. The region in long form periodic table where most of the non-metals are present []
 A) s-block B) p-block C) d-block D) f-block
66. An X element lose of two electrons what is the group number and valence of element []
 A) 4,4 B) 2,2 C) 1,2 D) 2,1
67. According to ionic bond electrons transfer from these []
 A) metalloid B) noble gas C) metal D) non-metal
68. Bond angle of NH_3 []
 A) $104^\circ 31'$ B) $107^\circ 48'$ C) $104^\circ 28'$ D) $107^\circ 31'$
69. Keeping the potential difference constant, the resistance of a circuit is halved. The current will become []
 A) One-fourth B) Four times C) Half D) Double
70. A charge is moved from a point A to a point B. The work done to move unit charge during this process is called []
 A) Potential A B) Potential B C) Potential difference between A and B D) Current from A to B
71. If a charge particle is at rest in a magnetic field, How much force it will experiences []
 A) Bqv B) $Bqvsin\theta$ C) Zero D) All of these
72. $\text{Wb/m}^2 =$ []
 A) Watt B) Joule C) Tesla D) Volt
73. Reverberatory furnace is used to carry out []
 A) Smelting B) Roasting C) Calcination D) Distillation
74. Which one of the following hydrocarbon can show isomerism? []
 A) C_2H_4 B) C_2H_6 C) C_3H_8 D) C_4H_{10}
75. Micelles repel to each other because []
 A) ion-molecular repulsion B) molecular-molecular repulsion C) ion-ion repulsion D) None

BIOLOGICAL SCIENCE

76. Find out wrong pair []
 A) Saliva- ptyaline B) Pancreatic juice- Amylase C) Gastric juice- Lipase D) Intestinal juice- Peptidose
77. Why we use KOH in a bottle in the experiment to know CO_2 is necessary for photosynthesis? []
 A) To absorb chlorophyll in leaves B) To absorb air in bottle
 C) To absorb CO_2 in bottle D) To absorb water vapour in the bottle
78. Which of the following plant take the food by parasitic nutrition? []
 A) Yeast B) Mushrooms C) Cuscuta D) Leeches
79. 'C' shaped cartilaginous rings are present in this part of respiratory system of man []
 A) Larynx B) Trachea C) Pharynx D) All the above
80. Power houses of cell are []
 A) Golgi complex B) Endoplasmic reticulum C) Mitochondria D) Vacuole
81. Which of the following is the correct sequence of air passage during in halation ? []
 A) Nostrils-> Larynx-> Pharynx-> Trachea-> Lungs B) Nasal passage-> Trachea->Pharynx->Larynx-> Alveoli
 C) Larynx-> Nostrils-> Pharynx-> Lungs D) Nostrils-> Pharynx-> Larynx-> Trachea-> Alveoli
82. Write the sequence different phases of Human Cardiac cycle []
 i) Ventricle systole ii) Auricle systole iii) Ventricle diastole iv) Auricle diastole
 A) i, ii, iii, iv B) ii, iv, i, iii C) iii, i, ii, iv D) iv, iii, ii, i

83. On which side of the human heart is low oxygen? []
 A) left ventricle B) right ventricle C) left atrium D) right atrium
84. The failure of kidney is called []
 A) ESRD B) MSRD C) ASRD D) KSRD
85. Dheeraj's brother is a regular bed wetter probably this is due to []
 A) less vasopressin secretion B) more vasopressin secretion C) no secretion of vasopressin at all D) no adequate secretion
86. Identify the correct pair []
 I) Annelida - Nephridia II) Arthropoda - Green glands III) Mollusca - Flame cells IV) Nematoda - kidney
 A) I, II B) I, III C) II, III D) I, III, IV
87. Quinine : Malaria : : Reserpine : _____ []
 A) Antiseptic B) Insecticide C) Pain killer D) Snake bite medicine
88. The fight and flight hormone is []
 A) Thyroxine B) Parathormone C) Adrenaline D) Insulin
89. Match the following []
 1) Hibiscus () X) Grafting
 2) Nerium () Y) Cutting
 3) Mango () Z) Layering
 A) 1 - X, 2 - Y, 3 - Z B) 1 - Y, 2 - Z, 3 - X C) 1 - Z, 2 - X, 3 - Y D) 1 - Y, 2 - X, 3 - Z
90. In the third month of pregnancy the zygote is called []
 A) Ovum B) Embryo C) Foetus D) Baby
91. Paramoecium prefers sexual reproduction during []
 A) Favourable conditions B) Unfavourable conditions C) Normal conditions D) Sterile conditions
92. Accessory glands of human male reproductive system includes []
 A) 1 prostrate gland, 1 cowper gland B) 1 prostrate gland, 2 cowper gland
 C) 2 prostrate gland, 1 cowper gland D) 2 prostrate gland, 2 cowper gland
93. Surface area of the small intestine for absorption is increased by []
 A) Villi B) Lymph vessels C) Blood vessels D) Sphincter muscles
94. The dental formula of man []
 A) 2113/2113 B) 2123/2123 C) 2242/2224 D) 1211/1222
95. Sphincter that helps in opening of stomach into duodenum []
 A) Cardiac B) Pyloric C) Anal D) Gastric
96. August Weismann proved that bodily changes []
 A) Passed to its off springs B) Won't be passed to its off springs C) Passed to its F₂ generation off springs D) None
97. Embryology is the study of []
 A) Fossils B) Development from egg to adult C) Classification D) Evolution
98. Methyl mercury causes a disease []
 A) Jaundice B) Typhoid C) Minamata D) None
99. "Niche" denote []
 A) Animal position in food chain B) What it eats C) Its mode of life D) All
100. Planting Gliricidia on field bunds make the soil []
 A) Nitrogen rich B) Phosphorous rich C) Potassium rich D) Oxygen rich

M.SRINIVASA RAO,SA(PS) AGKMHS GUDIVADA PH:9848143855 SRINI SCIENCE MIND

Key

- 1.D 2. A 3. A 4. D 5. D 6. A 7. C 8. C 9. B 10. B 11. B 12. C 13. D 14. A 15. D
 16. C 17. D 18. A 19. B 20. B 21. A 22. D 23. A 24. C 25. C 26. D 27. C 28. D 29. B 30. A
 31.A 32. B 33. C 34. A 35. C 36.B 37. A 38. D 39. D 40. C 41. B 42. A 43. C 44. B 45. C
 46. A 47. B 48. D 49. B 50. C 51. B 52. B 53. C 54. C 55. C 56. D 57. C 58. C 59. D 60. B
 61. C 62. D 63. A 64. C 65. B 66. B 67. C 68. B 69. D 70. C 71. C 72. C 73. B 74. D 75. C
 76. C 77. C 78. C 79. B 80. C 81. D 82. B 83. D 84. A 85. D 86. A 87. D 88. C 89. B 90. C
 91. B 92. B 93. A 94. B 95. B 96. B 97. B 98. C 99. D 100.A