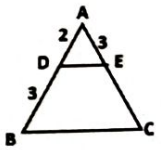
Office of the Deputy Director of Public Instruction, Tumkur (S) District
First Multiple Choice Question Based Question Paper-1 2020-21

Paper: 1 **Subject: Mathematics + Science + Social Science** **Medium: English Code:** 81E+83E+85E **Time: 3 Hrs** **Total Questions:** 40+40+40=120 **Total Marks:** 40+40+40=120

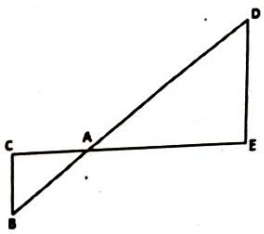
ಗಣಿತ/ Mathematics

Four choices are given for each of the questions / incomplete statements. Choose the correct answer and shade the correct choice in the b given to you with blue/black ball point pen. 40x1=40

1. The n^{th} term of an Arithmetic progression is given by $a_n = 3n - 2$,then the 12^{th} term is
   A) 24 B) 26
   C) 34 D) 36
2. Common difference of the Arithmetic progression 13,8,3, ...
   A) -4 B) - 5
   C) 4 D) 5
3. Which term of Arithmetic progression,-12,-9,-6, ... is 0(zero)?
   A) 3 B) 6
   C) 5 D) 7
4. Sum of first n terms ofan Arithmetic progression with first term a and common difference d, is given by
   A) $S_n = \frac{n}{2}[2a-(n+1)d]$ B) $S_n = \frac{n}{2}[2a+(n+1)d]$
   C) $S_n = \frac{n}{2}[2a+(n-1)d]$ D) $S_n = \frac{n}{2}[2a-(n-1)d]$
5. If the 10th and 14th terms of an AP are 25 and 37 respectively, then common difference is,
   A) 2 B) 3
   C) 5 D) 6
6. If $\Delta ABC \sim \Delta PQR$, $\angle A = 47^0$, $\angle Q = 83^0$ then $\angle C =$
   A) 50^0 B) 60^0 C) 70^0 D) 80^0
7. If $\Delta ABC \sim \Delta DEF$ $BC = 3cm, EF = 4cm$ and area of $\Delta ABC = 54cm^2$ then the area of ΔDEF is,
   A) $25cm^2$ B) $96cm^2$
   C) $100cm^2$ D) $108cm^2$
8. In ΔABC, if $\angle ADE = \angle ABC$ as shown in figure. Then CE=
   A) 4.5 cm B) 3cm
   C) 5cm D) 6 cm



9. In ΔPQR, if PQ=10cm, QR= 8cm and PR=6 cm then , $\angle R =$
   A) 45^0 B) 60^0
   C) 80^0 D) 90^0
10. In the figure, , $\Delta ADE \sim \Delta ABC$. If . AE=10cm, BC=3.5cm and DE =7cm then AC=
    A) 3.5 cm B) 5cm
    C) 7.5 cm D) 10cm



11. If a pair of linear equations in two variables $3x + 2y = 4$ and $6x - ky = 8$ have infinitely many solutions ,then the value of k is

A) - 4 B) 4

C) 8 D) 1

12. If $x + y = 0$ and $x - y = 6$,then the values of x and y are respectively

A) 3 and 3 B) 3 and -3

C) 0 and 3 D) -3 and 0

13. If a pair of linear equations in two variables is consistent then the lines represented by two equations are

A) intersecting B) parallel

C) always coincident D) intersecting and coincident

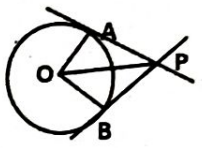
14. The cost of 2 pens and 3 pencils is ₹ 45 and the cost of 3 pens and 4 pencils is ₹50.These can be represented in form of pair of equations as

A) 3x+2y=45, 3x+4y=50 B) 2x+3y=45, 3x+4y= 50 C) 2x+y=45, 3x + y=50 D) 2x+3y= 45, 2x + 4y=50

15. In the following figure, AP and BP are tangents to the circle, $\angle AOP = 30^0$ then $\angle APB =$

A) 60^0 B) 30^0

C) 90^0 D) 120^0



16. The length of tangent drawn to a circle of radius 5cm is 12 cm.Then the distance of external point to the centre of circle is

A) 7cm B) 17cm

C) 14cm D) 13cm

17. The linesegment joiningthe contact points of two parallel tangents is a

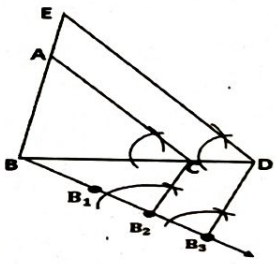
A) Diameter B) radius

C) secant D) tangent

18. In the figure, ΔEBD is constructed similar to ΔABC,The scale factor is

A) $\frac{2}{3}$ B) $\frac{2}{5}$

C) $\frac{3}{2}$ D) $\frac{5}{2}$



19. Pair of tangents to be drawn from an external point which is ata distance of 5cm from the circle of radius 4cm.Then the distance from the centre of the circle to the external point is

A) 5cm B) 7cm

C) 9cm D) 13cm

20. The distance from the y-axis to the point A(-2,3) is

A) 1 unit B) 2 units

C) 3 units D) 5 units

21. The coordinates of midpoint of the line joining the points (3,5) and (5,a) is(4,5) Then the value of 'a' is

A) 3 B) 4

C) 5 D) 9

22. The distance between the origin and the point A (p,q) is

A) $\sqrt{p^2 - q^2}$ B) p^2+q^2

C) $\sqrt{p^2+q^2}$ D) p^2-q^2

23. The area of triangle whose vertices are A(0,2) ,B(2,0) and C (0,4) is

A) 1.5sq.units B) 2 sq.units

C) 3 sq.unitsD) 5 sq.units

24. If $(x+1)^2 = 49$ then the value of x is

A) -8 and 6 B) 8 and -6

C) -7 and 7 D) 8 and 6

25. The roots of the quadratic equation $x^2 - 4x = 0$ are

A) 0 and -2 B) 2 and -2

C) 4 and -4 D) 0and 4

26. The discriminant of the quadratic equation $ax^2 - c = 0$ is

A) $4a^2$B) $4ac$

C) $-4ac$D) $-ac$

27. If the quadratic equation $kx^2 + 4x + 1 = 0$ has equal roots, then the value of 'k' is

A) 1 B) 2

C) 3 D) 4

28. In $\triangle ABC$, if $2\sin A = \sqrt{3}$,then $\angle A$ =

A) 30^0B) 45^0

C) 60^0D) 90^0

29. If ΔPQR is a right triangle with $\angle R = 90^0$,then the value of $\cos(P+Q)$ is

A) 0 B) $\frac{1}{2}$

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

30. The value of ($\tan^2 45$ - $\cos^2 30$) is

A) 0 B) $\frac{1}{4}$

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

31. The value of $(\cos 31^0 - \sin 59^0)$ is

A) 0 B) 1

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

32. The height of a tree is 10m.If the angle of the elevation of Sun from the ground is45^0,then the length of its shadow is

A) 5mB) $5\sqrt{3}$m

C) $10\sqrt{3}$m D) 10m

33. The arithmetic mean of 12,15,x,19 and 20 is 16.Then the value of x is

A) 14 B) 18

C) 15 D) 16

34. The lower limit of median class in the following frequency distribution table is

Class interval	0-5	5-10	10-15	15-20	20-25
frequency	4	8	14	10	2

A) 5 B) 10

C) 20 D) 22.5

35. The arithmetic mean and mode of a data are 24 and 12 respectively.Then the median is

A) 5 B) 10

C) 20 D) 22.5

36. Total surface area of a hemisphere with radius r is

A) $\frac{1}{2}\pi r^2$ B) $2\pi r^2$

C) $3\pi r^2$ D) $4\pi r^2$

37. The volume of a solid cone for which area of the base is 45 cm^2 and height is 10cm is

A) 450cm^3 B) 150cm^3

C) 300cm^3 D) 225cm^3

38. A metallic solid cone is melted to form a solid cylinder of equal radius .If the height of cylinder is 6cm,then the height of the cone is

A) 6 cm B) 12cm

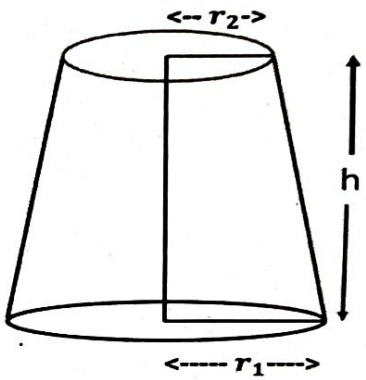
C) 16cm D) 18cm

39. The perimeter of the right cylinder is 44cm and its height is 5cm then its lateral surface area is

A) 110cm^2 B) 200cm^2

C) 220cm^2 D) 440 cm^2

40. The volume of the frustum of a cone given in the figure is



A) $\frac{1}{3}\pi h(r_1^2+r_2^2+r_1r_2)$ B) $\frac{1}{3}\pi h(r_1^2+r_2^2-r_1r_2)$

C) $\pi(r_1+r_2)l$ D) $\frac{1}{3}\pi(r_1+r_2)h$

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Science-83E

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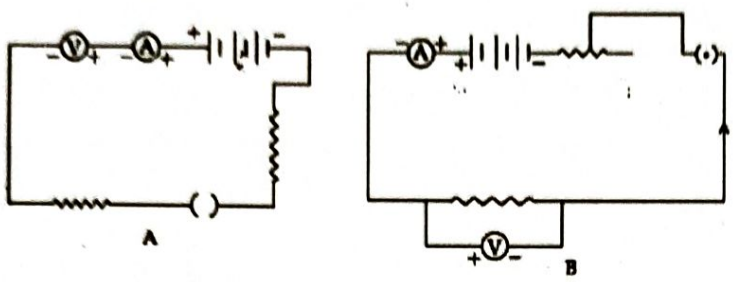
Four choices are given for each of the questions / incomplete statements choose the correct answer and shade the correct choice in the OMR given to you with blue or black ball point pen.

41. Identify the correct experimental setup for verification of Ohm's law



A. A B. B C. A and B D. None of the above

42. A unit used to measure the flow of current is

A. Watt B. Coulomb C. Volt D. Ampere

43. The energy transferred by a 100W electric bulb in 1 minute is

A. 100 J B. 600 J C. 3600 J D. 6000 J

44. The potential difference across a 3 Ω resistor is 6V. the current flow in the resistor will be

A. ½ A B. 1 A C. 2 A D. 6 A

45. When the diameter of a wire is doubled, its resistance becomes

A. Double B. Four times C. One-half D. One-fourth

46. The rule which indicates the magnetic field in a current carrying straight conductor is

A. Right hand thumb rule B. Fleming's Left –hand rule

C. Fleming's right –hand rule D. Screw rule

47. The magnetic field intensity inside a solenoid is

A. Zero B. Medium C. Low D. High

48. The Part of a motor which change the direction of flow of current is

A. Armature B. Brushes C. Split rings D. Magnets

49. The main component of biogas

A. Methane B. Carbon dioxide C. Hydrogen D. Hydrogen sulphide

50 . Optimal wind speed for power generation from wind mills

A. 5 km/hr B. 8 km/hr C. 15km/hr D. 25km/hr

51. Type of radiation responsible to form ozone layer is

A. micro waves B. UV rays C. radio waves D. ultra sound

52. The method of using materials at homes less frequently or only as needed is

A. Reuse B. Reduce C. Repurpose D. Recycling

53. By building khaddin embankments on flat terrain

A .The water level decreses B .The water level increases

C .The plants in the submerged area willsuffer from excess moisture

D. Contaminated of Groundwater

54. The pH of fresh milk is 6. The pH value of the milk after its conversion into curd

A. 6 B. Below 6 C. Above 7 D. 7

55. Acid present in honey bee bite

A. Hydrochloric acid B. Methanoic acid

C. Nitric acid D. Hydro fluoric acid

56. The pH value of the solutions A, B, C and D is 2, 3, 4 and 5. respectively. Which one of these has more acidic property?

A. Solution A B. Solution B C. Solution C D. Solution D

57. Descending order of reactivity of metals

A. Fe > Zn > Al > Mg B. Zn> Fe > Al > Mg

C. Al > Mg > Fe > Zn D. Mg > Al > Zn > Fe

58. Example for amphoteric oxide

A. Na_2O B. Al_2O_3 C. K_2O D. CuO

59. components used to fuse electrical wires

A. Iron and cobalt B. Copper and tin C. Iron and Nickel D. Lead and tin

60. An example for unsaturated hydrocarbon is

A. Ethyne B. Hexane C. Pentan D. Butane

61 . The hydro carbon which undergoes addition reaction is

A. C_2H_4 B. C_2H_6 C. C_3H_8 D. CH_4

62. The catalyst used in hydrogenation of plant oils

A. Cobalt B. Iron C. Nickle D. Iodine

63. Carbon has the unique ability to form bonds with other atoms of carbon, giving rise to large molecules. This property is called

A. Isomerism B. Allotropy C. Catenation D. Hydrogenation

64. Which of the following rule states that Properties of elements are a periodic function of their atomic number.

A. Dobereiner's law of Triads B. Newlands' Law of Octaves

C. Mendeleev's Period Law D. Moseley's Modern Periodic Law

65. Period and group number of sodium element is

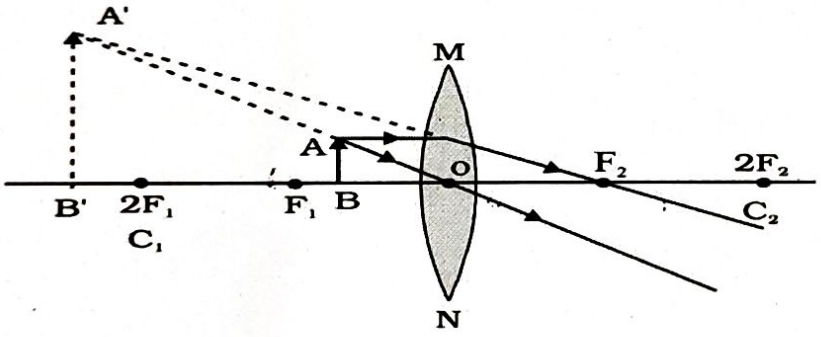
A. 1, 3 B. 2, 4 C. 1, 2 D. 1, 4

66. Snell's law of refraction is true for angle

A. $0 < i < 90º$ B. $0 < i < 60º$

C. $30 < i < 90º$ D. $0 > i > 90º27.$

67. Observe the picture, relative size and nature of the image formed is



A. Highly diminished, real and inverted B. Enlarged, real and erect

C. Enlarged, virtual and erect D. Enlarged, real and inverted

68. Unit used to measure the power of a lens is

A. Meter B. Dioptre C. Decible D. Degree

69. A concave lens has focal length of 15 cm. At whatdistance should the object from the lens be placed so that it forms an image at 10 cm from the lens? Also, the magnification produced by the lens.

A. 30cm, +0.33 B. 30mm, +0.33

C. 30cm, -0.33 D. 30mm, -0.33

70. The unit helps in clotting of blood

A. Platelets B. White blood cells C. Red blood cells D. Plasma

71. The structure and functional unit of the excretory system

A. neuron B. ureter C. bladder D. nephron

72. A Small space between the two neurones is

A. Nerve cell B. Synapse C. Dendrite D. Axon

73. The phenomenon of growth of roots towards water is

A. Hydrotropism B. Phototropism C. Hemotropism D. Phototropism

74. The functionof hypothalamus is

A. Sleeping B. Necessity of food C. Thirst D. All of the above

75. In human males, the testes lie in the scrotum outside the body because

A. Health of sperms B. Formation of sperms

C. Transfer of sperms D. More number of sperms

76. Sex of a child will be determined by

A. X chromosome of father B. X chromosome of mother

C. Y chromosome of father D. Chromosomes of both father and mother

77. Which of the following is not a part of the female reproductive system.?

A. Ovary B. Uterus C. Vas deferens D. Oviducts

78. An example for homologous organ is

A. Wing of bat and bird B. Embryos of man and bird

C. Fossils of vertebrates and invertebrates D. Forelimbs of man and bird

79) Basic unit of classification of living organisms

A. Species B. Genus C. Ecosystem D. Kingdom

80. Phenotypic ratio of dihybrid cross F2 generation

A. 6:3:3:1 B. 3:1 C. 9:3:3:1 D. 1:2:1

Social Science-85E

Four choices are given for each of the questions/Incomplete statements. Choose the correct answer and shade the correct choice in the OMR given to you with blue / black ball point pen

40*1=40

81. "Robert clive introduced system in Bengal " was
A) Blue water policy B) Dual government C) Subsidiary alliance D) Doctrine of lapse

82. This war ended with Lahore treaty
A) 1st Anglo –maratha war B) 2 nd Anglo –sikh war
B) 3rd nglo –maratha war D) 1st Anglo –sikh war

83. Administration of civil service was introduced by
A) Dalhousie B) Warren Hastings C) Lord Cornwallis D) Willum Bentinc

84. Surapura revolt was laid in the leadership of
A) Puttabasappa B) Veerappa C) Dondia wagh D) Venkatappa Nayaka

85. "Arms Act " of British was opposed in Karnataka by
A) Halagali Bedas B) Hyderali C) Sangolli Rayanna D) Veerappa of Koppala

86. "The Book of Gulamagiri " was written by
A)Mahatma Jyothi ba phule B)Swami Vivekananda C) Dayananda saraswathi D) Anniebesent

87. The main reason for Decline of Indian Handicraft and Domestic Industries was
A) Doctrine of lapse policy B) Industries revolution of England
C) Divide and rule policy of British D) Subsidiary alliance

88. This Radical leader profound the statement "Swaraj is my birth right and I shall have it "
A) Lala lajapat ray B) Bipin chandrapal C) Balagangadhar tilak D) Aurubindo Ghosh

89. First President of Indian National congress
A) Dadabai navaroji B) W.C.Bynargee C) Gopalakrishna Gokale D) M.G.Ranade

90. Swatantra Karnataka Party was Founded by
A) Dr.B.R.Ambedkar B) Mahathma Gandhiji C) Jawarlal Nehru D) Subash Chandra bose

91. Because of this reason Mahatma Gandhiji withdraw Non co-operation movement
A) Poona pact B) Chauri chaura incident
C) Gandhi –Irwin pact D) Formation of simon commission

92. "Delhi chalo " call was given by
A) Dr.B.R.Ambedkar B) Mahathma Gandhiji C) Subash Chandra bose D) Jawarlal Nehru

93. President of Reorganization of state commission was
A) K.M.Pannikker B) H.N.Kunjru C) Jawahar lal Nehru D)Fazal Ali

94. " Stree Shakti " programme was started for
A) Development of Rural Women B) Development of urban Women
C) To the Betterment and women Employees D) for women struggle

95. Main reason for opposing colonialism by India is
A) India has signed Panchasheela B) U.N.O has been started
C) Ruled by British Colonialism D) Non alignment policy

96. India had a relationship with this country since Ancient civilization period
A) Pakistan B) China C) America D) Russia

97. French Revolution held in the year
A) 1947 B) 1776 C) 1917 D) 1789

98. This affiliated body of U.N.O works as a global parliament
A) Security Council B) Trusteeship council C) General Assembly D) international court of justice

99. According to this Article of our Constitution untouchability was prohibited
A) Article 17 B) Article 51 C) Article 14 D) Article 25

100. The statement "Division of labour creates less skill full working " was given by
A) Plato B) Karl marx C) Amarthyasen D) Aristotle

101. The Leader of the movement to oppose Kaiga Nuclear Power Plant was
A) Medha patkar B) Kusuma sorab C) Baba Amte D) Shivaram karanth

102. "Protection of children from sexual offences Act " Brought in the year
A) 2015 B) 2020 C) 2012 D) 2001

103. The highest mountain peak in the world is
A) K 2 B) Gowrishankara C) Kanchana junga D) Mount Everest

104. Mawsynram of Meghalaya is famous for
A) It witnesses very low rain fall in India
B) It witnesses very high temperature in India
C) It witnesses very high rainfall in India
D) It witnesses very low temperature in India

105. Alluvial soil is formed by
A) Sediments deposited by Rivers B) By Quartz rocks
C) By Ingenious rocks D) By Basalt rocks

106. Trees in these forests shed their leaves during spring and early summer
A) The tropical Deciduous forests B) The tropical evergreen forests
C) Mangrove forests D) Desert vegetation

107. The Longest River of India is
A) River Sindhu B) River Ganga C) River Brahmaputra D) River Godavari

108. Agriculture involving the cultivation of crops and livestock rearing is called
A) Subsistence forming B) Mixed forming C) Commercial forming D) Intensive forming

109. The City which popularly known as Silicon Valley of India is
A) Bengaluru B) New Delhi C) Mumbai D) Chennai

110. This port is popularly known as " Queen of Arabian Sea "
A) Nava Mangalore B) Mumbai C) Chennai D) Kochi

111. The new mode of land transport is
A) Road transport B) Railway transport C) Pipelines D) Air transport

112. This is one of the important non-ferrous metal
A) Gold B) Aluminium C) Manganese D) Copper

113. The Natural Disaster which oftenly occurs in hill and Mountain region is
A) Floods B) Earthquake C) Coastal erosion D) Land slides

114. Average of life expectancy –Literary attainment and percapita income is called
A) Percapita income B) Human Development C) National income D) Net National income

115. The main (aim) objective of panchayat Raj institution is
A) Decentralization of Power B) Centralization of power
C) Consolidation of power D) None of above

116. The programme designed for economic self reliance and organization of poor Rural women is
A) Stree Shakti organization B) Women organization
C) Women self help groups D) Women commission

117. The account which is suitable for students and salaried person is
A) Saving Bank Account B) Current Account C) Recurring Account D) Fixed deposit Account

118. Which Bank in India is called Bankers Bank
A) Post office B) State Bank of India C) Reserve Bank of India D) Land development Bank

119. Consumer protection rights are given in America by the president John F Kennedy to citizens in the year
A) 1980 B) 1986 C) 1962 D) 2012

120. Consumer can file his complaint upto 20 lakhs in this institution
A) The state commission B) District Forum
C) The National Commission D) International Commission