TS POLYCET 2026 Set C

Question Paper

Conducted by SBTET, Telangana

General Instructions

- **Duration:** The total duration of the examination is 150 minutes.
- **Total Marks:** The complete paper carries a maximum of 150 marks.
- Each question has four options. Only **one** option is correct.
- **Right Answer:** +1 mark for each correct answer.
- **Incorrect Answer:** (No Negative marking).

1. In grouped frequency distribution, the formula to find median is:

(1) $l + \left(\frac{\frac{n}{2} - cf}{f}\right) \times h$

(2) $l - \left(\frac{\frac{n}{2} - cf}{f}\right)$

(3) $l + \left(\frac{\frac{n}{2} + cf}{f}\right) \times h$

(4) $l \pm \left(\frac{\frac{n}{2} + cf}{2f}\right)$

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2. The median of the data 13, 9, 11, 7, 17, 15, 5 **is:**

(1) 5

(2) 7

(3) 11

(4) 15

---

3. Which of the following is not in Geometric Progression?

(1) $-2, -6, -18, \ldots$

(2) $64, -32, 16, \ldots$

(3) $3, 6, 12, \ldots$

(4) $5, 55, 555, \ldots$

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4. If $x-1,\ x+2$ and $x+8$ are three consecutive terms of a Geometric Progression, then the value of x is:

(1) 2

(2) 3

(3) 4

(4) 5

---

5. The value which occurs most frequently in a data set is called:

(1) Mean

(2) Median

(3) Mode

(4) None

6. 12 defective pens are accidentally mixed with 132 good ones. It is not possible to tell by looking at a pen whether it is defective or not. One pen is taken out at random from this lot. What is the probability that the pen taken out is a good one?

(1) $\frac{15}{18}$

(2) $\frac{13}{15}$

(3) $\frac{10}{12}$

(4) $\frac{11}{12}$

---

7. The mode of the data $5,\ 7,\ 9,\ 7,\ 11,\ 13,\ 7,\ 15,\ 17,\ 19$ **is:**

(1) 5

(2) 7

(3) 11

(4) 15

---

8. The 20^{th} **term of the Arithmetic Progression** $10,\ 7,\ 4,\ \ldots$ **is:**

(1) -27

(2) -33

(3) -39

(4) -47

---

9. The mean of first ten natural numbers is:

(1) 4

(2) 4.5

(3) 5

(4) 5.5

---

10. 0.30300300030000 . . . **number is:**

(1) Rational number

(2) Irrational number

(3) Natural number

(4) Integer

---

11. Which of the following rational number has a terminating decimal form?

(1) $\frac{11}{12}$

(2) $\frac{9}{15}$

(3) $\frac{29}{343}$

(4) $\frac{23}{200}$

---

12. The decimal expansion of $\frac{43}{2^4.5^3}$ will terminate after how many places?

(1) 7

(2) 4

(3) 5

(4) 3

---

13. Which of the following is a finite set?

(1) $\{x : x$ is a natural number$\}$

(2) $\{x : x$ is a day of the week$\}$

(3) $\{x : x$ is an even integer$\}$

(4) $\{x : x$ is a whole number$\}$

---

14. If $A = \{a, b, c, d\}$ and $B = \{d, c, b, a\}$ then

(1) $A \neq B$

(2) $A = B$

(3) $A \cap B = \phi$

(4) $A \cup B = \phi$

---

15. The distance between the points $(0, 0)$ and $(6, 5)$ is

(1) $\sqrt{22}$

(2) $\sqrt{61}$

(3) $\sqrt{11}$

(4) 9

---

16. The coordinates of the points of trisection of the line segment joining the points $(3, 2)$ and $(6, -4)$ are

(1) $(4, 0)$ and $(5, -2)$

(2) $(-1, 0)$ and $(-4, 2)$

(3) $\left(\frac{11}{3}, 0\right)$ and $\left(\frac{13}{3}, -2\right)$

(4) $(0, 1)$ and $(2, 3)$

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17. If A, B and C are interior angles of a triangle ABC, then $\tan\left(\frac{A+B}{2}\right) = \ldots$

(1) $\sin\left(\frac{C}{2}\right)$

(2) $\cos\left(\frac{C}{2}\right)$

(3) $\tan\left(\frac{C}{2}\right)$

(4) $\cot\left(\frac{C}{2}\right)$

18. Suppose you are shooting an arrow from the top of a building of height 6 m to a target on the ground at an angle of depression of $60°$. What is the distance between you and the object?

(1) $2\sqrt{3}$ m
(2) $8\sqrt{3}$ m
(3) 16 m
(4) $4\sqrt{3}$ m

---

19. It is observed that the top of an electric pole is at an angle of elevation of $45°$. The observation point is 8 meters away from the foot of the pole. What is the height of the electric pole?

(1) 8 m
(2) $8\sqrt{3}$ m
(3) 16 m
(4) $4\sqrt{3}$ m

---

20. A survey conducted on 20 households in a locality resulted in the following frequency table. The mode of the data is:

Family size	Number of families
1–3	6
3–5	8
5–7	2
7–9	2
9–11	2

(1) 2.5
(2) 3.5
(3) 4.5
(4) None

---

21. What is the value of 'k' for which the points $(-1, 2)$, $(1, 4)$ and $(3, k)$ are collinear?

(A) 0

(B) 2

(C) 4

(D) 6

---

22. If q is an integer, then which of the following is a positive odd integer?

(1) $4q + 1$
(2) $4q$
(3) $4q + 2$
(4) $4q + 4$

---

23. The LCM of 8, 9 and 25 is

(A) 420

(B) 1139

(C) 216

(D) 1800

---

24. What is the centroid of the triangle whose vertices are (6, 2), (2, 3) and (4, -8)?

(A) $\left(\frac{13}{3}, -1\right)$

(B) $\left(-\frac{2}{3}, \frac{5}{3}\right)$

(C) $(4,-1)$

(D) $(2,-1)$

---

25. The value of $\log_7 343$ **is**

(A) 8

(B) 5

(C) 3

(D) 6

---

26. If $\sec\theta + \tan\theta = p$**, then** $\sec\theta - \tan\theta = \ldots$

(1) p

(2) p^2

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

(4) 1

---

27. If $0^\circ < A < 90^\circ$**, then simplify** $\sqrt{\frac{1+\sin A}{1-\sin A}}$

(1) $\sec A + \tan A$

(2) $\sin A + \tan A$

(3) $\sec A + \cos A$

(4) $\cot A + \tan A$

---

28. A ladder 15 m long reaches a window 12 m above the ground. Find the distance of the foot of the ladder from the building.

(1) 5 m

(2) 9 m

(3) 12 m

(4) 15 m

---

29. $\triangle ABC \sim \triangle DEF$ **and their areas are respectively** 75 cm^2 **and** 48 cm^2**. If** $EF = 4$ **cm, then** $BC =$ _____ **cm.**

(1) 2

(2) 3

(3) 4

(4) 5

---

30. In $\triangle ABC$, $DE \parallel BC$, $\frac{AD}{DB} = \frac{2}{3}$ **and** $AC = 2.5$ **cm, then** $AE =$ _____ **cm.**

(1) 4

(2) 3

(3) 2

(4) 1

---

31. In $\triangle ABC$, $DE \parallel AB$, $AD = x + 1$, $CD = x + 3$, $BE = x + 4$ **and** $CE = x + 7$**, then the value of** x **is**

(1) 2

(2) 3

(3) 4

(4) 5

---

32. Two coins are tossed simultaneously. The probability of getting at least one tail is ...

(1) $\frac{1}{4}$

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

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

(4) $\frac{3}{8}$

---

33. One card is selected at random from a well-shuffled deck of 52 cards. What is the probability of getting a red coloured king?

(1) $\frac{1}{13}$

(2) $\frac{2}{13}$

(3) $\frac{1}{26}$

(4) $\frac{1}{52}$

---

34. Reduced and enlarged photographs of an object are

(1) congruent

(2) similar

(3) not similar

(4) none

---

35. If the ratio of corresponding sides of two similar triangles is $2:7$, then the ratio of the areas of the triangles is

(1) $\sqrt{2}:\sqrt{7}$

(2) 2 : 7

(3) 7 : 2

(4) 4 : 49

---

36. The volume of the right circular cone is

(1) $\pi r^3 h$

(2) $\frac{2}{3}\pi r^3$

(3) $\frac{4}{3}\pi r^2 h$

(4) $\frac{1}{3}\pi r^2 h$

37. A right circular cylinder has base radius 14 cm and height 21 cm then its volume is _____ cm^3.

(1) 12986

(2) 13986

(3) 13936

(4) 12936

---

38. The value of $2\tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$ is ...

(1) 0

(2) 1

(3) 2

(4) 3

---

39. A circle can have _____ parallel tangents at the most.

(1) 2

(2) 1

(3) 0

(4) infinite

---

40. The lengths of the two tangents from an external point to a circle are

(1) constant

(2) equal

(3) unequal

(4) not a constant

---

41. The length of tangent from a point 17 cm away from the centre of a circle of radius 8 cm is _____ cm.

(1) 15

(2) 20

(3) 25

(4) 30

---

42. If $3\tan A = 4 \quad (0^\circ < A < 90^\circ)$**, then the value of** $\sin A$ **is ...**

(1) $\frac{3}{5}$

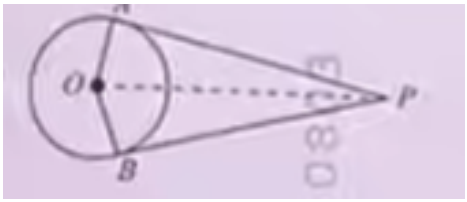
(2) $\frac{4}{5}$

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

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

---

43. In the above figure tangents PA **and** PB **from a point** P **to a circle with centre** O **are inclined to each other at an angle of** 60°**, then** $\angle POA =$



(1) 60°

(2) 70°

(3) 80°

(4) 30°

---

44. The total surface area of cuboid of length l**, breadth** b**, height** h **is**

(1) $2(lb + bh + hl)$

(2) $2h(l + b)$

(3) lbh

(4) $lb + bh + hl$

---

45. Area of the sector of a circle with radius 7 cm and the angle at the centre is 270° is _____ cm^2.

(1) 115.5

(2) 7

(3) 551.1

(4) 27

---

46. If two linear equations represent the same line, then the pair of linear equations has

(1) One solution

(2) Two solutions

(3) No solution

(4) Infinitely many solutions

---

47. The solution of the pair of linear equations $x + y = 14$ and $x - y = 4$ is

(1) $9, 5$

(2) $5, 8$

(3) $14, 4$

(4) $8, 4$

---

48. The formula for finding the roots of quadratic equation is

(1) $\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$

(2) $\frac{b - \sqrt{b^2 - 4ac}}{2a}$

(3) $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

(4) $\frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$

---

49. Which of the following forms an Arithmetic Progression?

(1) $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \ldots$

(2) $\frac{1}{2}, 1, \frac{3}{2}, 2, \ldots$

(3) $2, 5, 10, 17, \ldots$

(4) $1, 2, 6, 24, \ldots$

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50. The graphical representation of a quadratic polynomial $ax^2 + bx + c$ is a

(1) Hyperbola

(2) Circle

(3) Parabola

(4) Straight line

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51. The pair of linear equations $x - y - 1 = 0$ and $x - 2y + 2 = 0$ represents _____ lines.

(1) Coinciding

(2) Intersecting

(3) Parallel

(4) Curved

---

52. If the sum of two numbers is 8 and their difference is 2, then those two numbers are

(1) 4, 4

(2) 7, 1

(3) 5, 3

(4) 6, 2

---

53. The value of x that satisfies the equation $11(x + 2) - 5(x - 2) = 4(x + 4)$ is

(1) -8

(2) 8

(3) 4

(4) -4

---

54. The value of $\tan 48^\circ \tan 16^\circ \tan 42^\circ \tan 74^\circ$ **is**

(1) 0

(2) 1

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

(4) 2

---

55. Which of the following are roots of the quadratic equation $6x^2 - x - 2 = 0$**?**

(1) $\frac{1}{3}$ and $-\frac{2}{3}$

(2) 4 and -3

(3) $\frac{2}{3}$ and $-\frac{1}{2}$

(4) $\frac{1}{2}$ and $-\frac{2}{3}$

---

56. If α, β, γ **are the zeroes of** $4x^3 + 8x^2 - 6x - 2$**, then the value of** $\alpha\beta + \beta\gamma + \gamma\alpha$ **is**

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

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

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

(4) $-\frac{3}{2}$

---

57. The X**-axis and** Y**-axis intersect at the point**

(1) $(1, 1)$

(2) $(0, 0)$

(3) $(0, 1)$

(4) $(1, 0)$

---

58. For what values of k **does the quadratic equation** $9x^2 + kx + 1 = 0$ **have equal roots?**

(1) $6, -6$

(2) $9, -9$

(3) $2, 3$

(4) $-2, 3$

---

59. A train travels 400 km at a uniform speed. If the speed had been 10 km/h more, it would have taken 2 hours less for the same journey, then the speed of the train is

(1) 30 km/h

(2) 40 km/h

(3) 50 km/h

(4) 80 km/h

---

60. What is the nature of the roots of the quadratic equation $x^2 - 7x + 10 = 0$?

(1) Real and distinct roots

(2) Real and equal roots

(3) No real roots

(4) None of the above

---

61. According to Faraday's law, the induced E.M.F generated in a closed loop is equal to the ...

(1) magnetic flux passing through it. (2) change of magnetic flux passing through it. (3) rate of change of magnetic flux passing through it. (4) cross sectional area of the loop.

62. The number of slip rings in a simple AC generator is ...

(1) two (2) one (3) three (4) zero

---

63. When white light is incident on a glass prism, the least deviated colour is ...

(1) Red (2) Violet (3) Blue (4) Green

---

64. Choose correct option regarding magnetic lines of force.

(1) Intersect near north pole or south pole (2) Intersect at the neutral point (3) Never intersect each other (4) Intersect at the mid point of the magnet

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65. The magnetic effect due to current was discovered by ...

(1) Maxwell (2) Kirchhoff (3) Oersted (4) Henry

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66. Induction stove works on the main principle of ...

(1) Magnetic induction (2) Electrostatic induction (3) Electromagnetic induction (4) None

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67. A charge is moved from point A to a point B. The work done to move unit charge during this process is called ...

(1) potential at A (2) potential at B (3) potential difference between A and B (4) current from A to B

---

68. The magnetic flux passing through unit area perpendicular to the magnetic field is called ...

(1) Magnetic flux density (2) Magnetic flux (3) Magnetic field (4) None

---

69. The direction of magnetic lines of force inside the solenoid is from ...

(1) north to south (2) south to north (3) east to west (4) west to east

---

70. Any light ray passing through the principal axis of lens is ...

(1) deviated ray (2) undeviated ray (3) reflected ray (4) refracted ray

---

71. If a convex lens has to form the image of an object at infinity, where should the object be placed?

(1) At pole (2) At $C = 2f$ (3) At infinity (4) At focus

---

72. Which among the following quantities has the unit of Ohm-meter?

(1) Resistance

(2) Specific resistance

(3) Conductance

(4) Conductivity

---

73. Which of the following indicates lens formula?

(1) $f = \frac{1}{v} - \frac{1}{u}$

(2) $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

(3) $\frac{1}{f} = v - u$

(4) $f = \frac{1}{v-u}$

---

74. The magnetic force on a current carrying wire of length l, placed in a uniform magnetic field (B) if the wire is oriented perpendicular to magnetic field, is ...

(1) 0

(2) ILB

(3) $2ILB$

(4) $\frac{ILB}{2}$

---

75. If a convex lens is placed in water, its focal length ...

(1) increases

(2) decreases

(3) does not change

(4) None

---

76. Every lens has _____ focal points.

(1) 1
(2) 6
(3) 4
(4) 2

---

77. A conductor is moving with a speed of 10 m/s in the direction perpendicular to the direction of magnetic field of induction 0.8 T. If it induces an E.M.F. of 8 V between the ends of the conductor, the length of the conductor is ...

(1) 1 m
(2) 2 m
(3) 3 m
(4) 4 m

78. The relation between focal length and radius of curvature of a spherical mirror is ...

(1) $f = \frac{R}{2}$

(2) $f = 2R$

(3) $R = f$

(4) $R = 3f$

---

79. Which of the following is used in solar cooker?

(1) Concave lens

(2) Prism

(3) Concave mirror

(4) Convex mirror

---

80. If an incident ray passes through the center of curvature of a spherical mirror, the reflected ray will ...

(1) pass through the pole

(2) pass through the focus

(3) retrace its path

(4) be parallel to the principal axis
