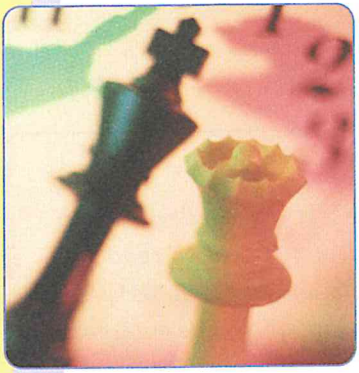

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Questions : 60 **Time : 60 minutes**

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Read all instructions carefully before attempting any question.

- Ensure that the 'Class' printed here and inside, is the same as the test you are appearing for.
- You must complete the paper within the time allotted.
- Do not open this question paper until you are permitted to.
- You are not allowed to use a calculator.
- Figures herein are not to scale. Hence, you cannot depend on the estimate of size or measurement. Use your knowledge of the subject.
- Rough work shall be carried out only in the space provided for the same throughout this booklet. No separate sheets are allowed for the same.
- Return your answer sheet to the invigilator soon after completion and before leaving the examination hall. Take the question paper with you.
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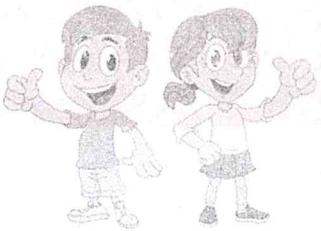


Dear student,

Ready for the test? Take a deep breath and relax. Don't forget to read the questions very carefully. Some questions that look tough, will be quite easy after you have read them properly. Do not spend too much time on any question. Go to the next question and later come back to the ones you felt were tough. Be cool, give your best and have fun. Good luck!

(Space for Rough Work)

01 The sum of LCM and HCF of $\frac{5}{12}, \frac{10}{9}, \frac{25}{6}$ is

(A) $\frac{608}{15}$ (B) $\frac{36}{5}$ (C) $\frac{605}{36}$ (D) $\frac{100}{3}$

02 In ΔABC, $AB = 4\sqrt{2}$ cm, $AC = 7$ cm and $\angle BAC = 45°$. Find area of the ΔABC.

(A) 12 cm^2 (B) 14 cm^2

(C) 16 cm^2 (D) 18 cm^2

03 Narayana and Krishna are running in a circular path of radius 14 m. Speed of them are 17.6 KMPH & 26.4 KMPH respectively. Suppose they both start at the same point and at the same time, and go in the same direction. After how many seconds will they meet again at the starting point ?

(A) 24 seconds (B) 36 seconds

(C) 48 seconds (D) 60 seconds

Space for Rough work

04 If the right circular cone is separated into three solids of volumes V_1, V_2 and V_3 by two planes which are parallel to the base and trisects the altitude, find $V_1 : V_2 : V_3$.

(A) 1 : 2 : 3 (B) 1 : 4 : 6

(C) 1 : 6 : 9 (D) 1 : 7 : 19

05 Choose the dependent system of equations from the following.

(A) $m + n = 7, 3m + 3n = 21$

(B) $3x - 2y = 5, 2x - 3y = 7$

(C) $3x - 3y = 18, x - y = 10$

(D) $2x + y = 6, 4x - 2y = 4$

Space for Rough work

06 $(1 + \cot A - \operatorname{cosec} A)(1 + \tan A + \sec A) =$ _____

(A) 0 (B) 1 (C) 2 (D) 3

07 a and b are both 4 digit numbers a > b and one obtained from the other by reversing the digits then the value of 'b', if $\frac{a+b}{5} = \frac{b-1}{2}$ is

(A) 2003 (B) 1002

(C) 2005 (D) 2015

08 If $2\left(\frac{2x+3}{x-3}\right) - 25\left(\frac{x-3}{2x+3}\right) = 5$, where $x \neq -3, x \neq \frac{-3}{2}$ then $x =$ _____

(A) 4 (B) 5 (C) 6 (D) 7

Space for Rough work

09 The point which is equidistant from the point (0, 0), (0, 8) and (4, 6) is

(A) $\left(\frac{1}{2}, -4\right)$ (B) $\left(-\frac{1}{2}, 4\right)$

(C) $\left(\frac{1}{2}, 4\right)$ (D) $\left(-\frac{1}{2}, -4\right)$

10 If $x \cot\theta + y \operatorname{cosec}\theta = z$, then $(x \operatorname{cosec}\theta + y \cot\theta)^2 =$

(A) $x^2 + y^2 + z^2$ (B) $x^2 + z^2 - y^2$

(C) $z^2 + y^2 - x^2$ (D) $x^2 + y^2 - z^2$

11 If the sum of the ages (in years) of a father and his son is 65 and twice the difference of their ages (in years) is 50, what is the age of the father ?

(A) 45 years (B) 40 years

(C) 50 years (D) 55 years

Space for Rough work

12 If α and β are the zeros of the polynomial $f(x) = x^2 + ax - b$, then the polynomial having zeroes $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ is

(A) $abx^2 + bx - a$ (B) $bx^2 - ax - 1$

(C) $abx^2 - bx + a$ (D) $x^2 - bx + a$

13 Sum of 'n' arithmetic means between a and b is

(A) $\frac{n}{2}(a+b)$ (B) $\frac{n+1}{2}(a+b)$

(C) $\frac{n+2}{2}(a+b)$ (D) $n(a+b)$

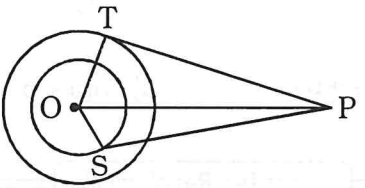
SPACE FOR ROUGH WORK

14 **The length and breadth of a rectangle are (3k – 1) cm and (2k + 1) cm respectively. Find the perimeter of the rectangle if its area is 609 cm².**

(A) 50 cm (B) 48 cm

(C) 100 cm (D) 25 cm

15 **In the given figure, O is the centre of two concentric circles of radii 5 cm and 12 cm respectively. PT and PS are tangents to the outer and inner circle resectively. If PT = 5 cm, find the length of PS (in cm)**

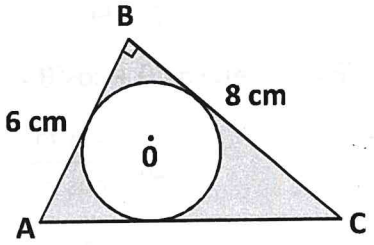


(A) 5 (B) 12

(C) 13 (D) 10

Space for Rough work

16 **In the given figure, ABC is a right-angled triangle in which $\angle ABC = 90^\circ$, AB = 6 cm and BC = 8 cm. O is the centre of the incircle.**



Find area of the shaded region. $\left(\text{Use } \pi = \frac{22}{7}\right)$

(A) 12.56 cm^2 (B) 11.43 cm^2

(C) 13.65 cm^2 (D) 10.57 cm^2

Space for Rough work

17 Given that the sum of the first 'n' terms of an arithmetic progression is $2n^2 + 3n$, find the twelfth term.

(A) 7^2 (B) 36

(C) $\sqrt{625}$ (D) 56

18 If $\sin\theta + \sin^2\theta = 1$ then $\cos^2\theta + \cos^4\theta =$ ____

(A) $\frac{\sin 45°}{\cos 30°}$ (B) $\frac{\sin 70°}{\cos 20°}$

(C) 2 (D) $\frac{\tan 30°}{\cot 30°}$

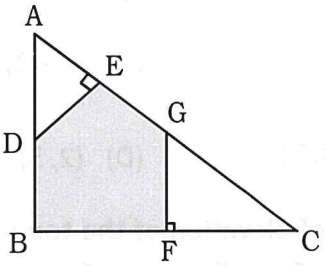
19 If A(–12, 0), B(0, –9) and (0, 0) are the vertices of ΔABC then orthocentre of ΔABC is _____

(A) (–4, –3) (B) $\left(-6, -\frac{9}{2}\right)$

(C) (0, 0) (D) $\left(0, -\frac{21}{2}\right)$

Space for Rough work

20 **In the given figure, AB ⊥ BC, DE ⊥ AC and GF ⊥ BC. Then**



(A) $\angle GFC = \angle DAE$ (B) $\Delta ADE \sim \Delta GCF$

(C) $\angle GCF = \angle ABC$ (D) $\Delta AED \sim \Delta EGF$

21 **In ΔABC, AD, BE and CF are medians.**
Then $AB^2 + BC^2 + CA^2$ = _____

(A) $\frac{3}{4}\left(AD^2 + BE^2 + CF^2\right)$ (B) $\frac{4}{3}\left(AD^2 + BE^2 + CF^2\right)$

(C) $3(AD^2 + BE^2 + CF^2)$ (D) $4(AD^2 + BE^2 + CF^2)$

Space for Rough work

22 **Find the third vertex of an equilateral triangle whose two vertices are (2,4) and (2,6).**

(A) $\left(\sqrt{3},5\right)$ (B) $\left(2\sqrt{3},5\right)$

(C) $\left(2+\sqrt{3},5\right)$ (D) (2, 5)

23 **The angles of elevation of the top of a tower from two points P and Q, at distances of a and b respectively from the base and in the same staight line with it are complementary. The height of the tower is _____**

(A) ab (B) $b\sqrt{a}$

(C) $a\sqrt{b}$ (D) $\sqrt{ab}$

Space for Rough work

24 **Sum of the roots of $x^2 - 27 = 0$ is _____**

(A) 27 (B) –27

(C) 0 (D) $\pm 3\sqrt{3}$

25 **From a 50 m tall building, the angles of depression of the top and foot of a temple are found to be 30° and 60° respectively. What is the height of the temple ?**

(A) 36 m (B) 25.3 m

(C) 33.33 m (D) 30 m

SPACE FOR ROUGH WORK

26 **Which instrument has the maximum resistance ?**

(A) Voltmeter (B) Milivoltmeter

(C) Ammeter (D) Miliammeter

27 **Which one shows the three mediums arranged in order of increasing speed through which light passes ?**

(A) Air, water, glass (B) Air, glass, water

(C) Water, air, glass (D) Glass, water, air

28 **Maximum power of eye lens is about:**

(A) 4 D (B) 20 D

(C) 44 D (D) 25 D

29 **A vertical straight conductor carries a current upward. A point P lies to the east of it at a small distance and another point Q lies to the west at the same distance. The magnetic field at P is**

(A) greater than at Q

(B) same as at Q

(C) less than at Q

(D) greater or less than at Q

Space for Rough work

30 **Which of the following statements is true ?**

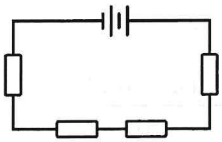
(A) An incident ray parallel to the principal axis after emerging from the converging lens will always pass through the focal point F of the lens.

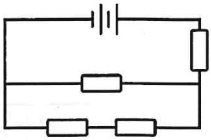
(B) An incident ray that passes through the focal point of a converging lens will travel in parallel to the principal axis after emerging from converging lens.

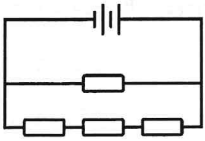
(C) A ray that passes through the optical centre of a thin converging lens will not be refracted by the lens and continues to travel along its original path.

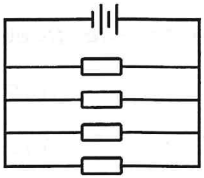
(D) All the three

31 **Four identical resistors are used in a circuit. Which of the following arrangements gives rise to the lowest effective resistance ?**

(A) 

(B) 

(C) 

(D) 

Space for Rough work

32 **Far point of a short-sighted person is 100 cm. Which type of lens should be used by him to see distant objects clearly ?**

(A) Convex (B) Concave

(C) Bifocal (D) None of the above

33 **What is immaterial for an electric fuse ?**

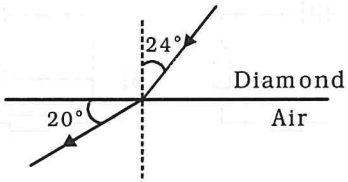
(A) Its specific resistance.

(B) Its length.

(C) Its radius.

(D) Current flowing through it.

34 **A ray of light is passing through a piece of diamond out into air. (Given that speed of light in vacuum is 3.0×10^8 m/s)**



What is the speed of light through diamond ?

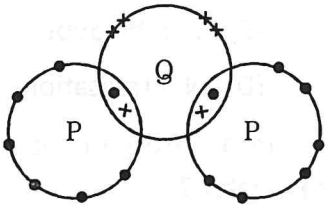
(A) 2.5×10^8 m/s (B) 3.6×10^8 m/s

(C) 1.3×10^8 m/s (D) 1.1×10^8 m/s

35 **A heater produces 2.4 kW when a 240 V mains supply is connected across it. What is the resistance of the heater ?**

(A) 10 Ω (B) 24 Ω (C) 120 Ω (D) 600 Ω

36 **The diagram given below shows the arrangement of electrons in a molecule of a compound P_2Q.**



Which pair of elements is correct ?

	Element P	Element Q
(A)	Oxygen	Sulfur
(B)	Chlorine	Oxygen
(C)	Sulfur	Chlorine
(D)	Fluorine	Nitrogen

37 **A white powder having an odour of chlorine is used to remove yellowness of white clothes in laundries. Identify the powder.**

(A) Graphite (B) Chalk

(C) Bleaching (D) Both (A) and (B)

Space for Rough work

59 **Choose the essential part of the word "School".**

(A) student (B) report card

(C) teacher (D) learning

60 **A is 25th from the right end and B is 25th from the left end of a row. If they interchange their position then A becomes 25th from the left end. How many persons are sitting in the row ?**

(A) 51 (B) 50

(C) 49 (D) Cannot be determined

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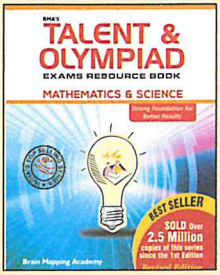

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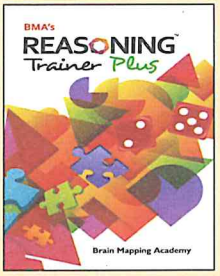

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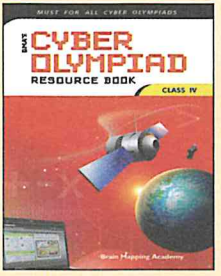

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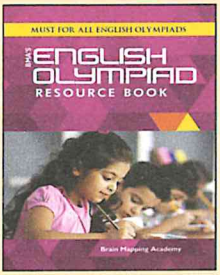

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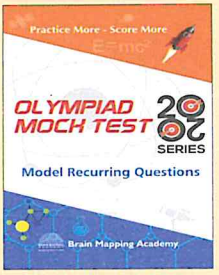

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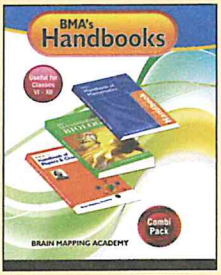

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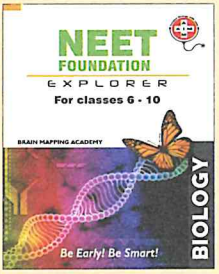

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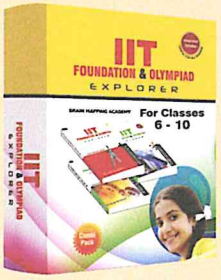

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