PART - I : PRACTICE TEST PAPER

This Section is not meant for classroom discussion. It is being given to promote self-study and self testing amongst the Resonance students.

Max. Marks : 120

Important Instructions :

- 1. The test is of 1 hour duration and max. marks 120.
- 2. The test consists 30 questions, 4 marks each.
- **3.** Only one choice is correct **1 mark** will be deducted for incorrect response. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
- 4. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instructions 3 above.

1.	The roots of $x^2 - 2$ perimeter of the triangle	x + 2 = 0 represent two s e is	sides of a triangle. If the	angle between them is the	n
	(1) 2 + 6	(2) 2 +	(3) 3 + 6	(4) 3 +	
2.	If $c^2 = a^2 + b^2$ then 4s(s (1) s ⁴	(a - a)(s - b)(s - c) is (2) b^2c^2	(3) c ² a ²	(4) a ² b ²	
3.	If $\Delta = a^2 - (b - c)^2$ where Δ is the area of triangle ABC then tan A is equal to				
	(1)	(2)	(3)	(4)	
4.	If area of triangle ABC is Δ then a ² sin 2B + b ² sin2A is equal to				
	(1) Δ	(2) 3Δ	(3) 4Δ	(4) 2Δ	
5.	Let A, B, C are angles of planes triangles and tan = , tan = then tan =				
	(1)	(2)	(3)	(4)	
6.	In a triangle ABC of wh	ich angles A, B, C satisfy	/ cosA = is		
	(1) equalilateral	(2) right angled	(3) scalane triangle	(4) isosceles	
7.	If In a triangle ΔABC 3s	$\sin A = 6 \sin B = 2 \sin \theta$	C then angle C is equal t	to	
	(1) 30°	(2) 60°	(3) 90°	(4) 120°	
8.	If radius of incircle of a triangle with its sides 3p, 5p, 6p is 4 then p is equal to				
	(1)	(2)	(3)	(A)	
		(~)	(0)	(T)	
9.	In a triangle ABC, cot	cot cot is equal			
•					

Max. Time : 1 Hr.

Solution of Triangle

10	(1) If $(c - a)^2 + ac = b^2$ then	(2) angle B is equal to	(3)	(4)	
10.	(1) 30°	(2) 60°	(3) 45°	(4) 75°	
11.	In a $\triangle ABC$ sides are in the ratio 4 : 5 : 7 then ratio circumradius to inradius				
	(1)	(2)	(3)	(4)	
12.	If length of the sides AB, BC, CA of a triangle are 5 cm, 12 cm, 13 cm then length of angle bisector of $\angle ABC$				
	(1)	(2)	(3)	(4)	
13.	In a ΔABC perimeter =	2s and	is e	qual to	
	(1) s ²	(2) 2s ²	(3) 3s ²	(4) 4s ²	
14.	if in a ΔABC then incentre is the middle point of the median AD then sinA is equal to				
	(1)	(2)	(3)	(4)	
15.	In a $\triangle ABC$ the tangent two angles. The ratio of	of half the difference of f the sides opposites the	two angle is one third th angles is	e tangent of half the sum of the	
	(1) 2 : 3	(2) 1 : 3	(3) 1 : 2	(4) 3 : 4	
16.	In a $\triangle ABC$ if median AE (1) $a^2 - c^2 = 3b^2$	D is perpendicular to the (2) $a^2 - b^2 = 3c^2$	side AB then which of th (3) $a^2 - c^2 = 2b^2$	e following is true (4) $a^2-b^2 = 2c^2$	
17.	In ∆ABC 2R + r = 4R s (1) 30°	in cos cos ther (2) 45°	n ∠A (3) 60°	(4) 90°	
18.	If in a triangle ABC 2	+ +2	= + then	the value of angle A is	
	(1)	(2)	(3)	(4)	
19.	Which of the following i	Which of the following is false			
	(1) If , , are in H.P. iff a, b, c are in A.P.				
	(2) For equilateral triangle $R = 0$, where a is side of tringle				
	(3) If = =	(3) If = = then triangle is equilateral			
	(4) If cotA + cotB + cot	C = then triangle is	equilateral		
20.	lf = then				

MATHEMATICS

Solution of Triangle

	(1) A = 90°	(2) B = 90°	(3) C = 90°	(4) None of these	
21.	In a triangle ABC $2a^2 + 9b^2 + c^2 = 6ab + 2ac$ then the numerical value of cosB is equal to				
	(1)	(2)	(3)	(4)	
22.	In a triangle ABC, ∠A =	, b = 10, c = 6, AD is	median through A then A	AD	
	(1)	(2)	(3) 7	(4)	
23.	In a ∆ABC, a = 7. b = 8	, c = 9, BD is the median	and BE is the altitudes	from vertex B then BE =	
	(1) 6	(2) 3	(3) 7	(4) 6	
24.	The angles of a triangle	e are in the ratio 1 : 5 : 6	then s is equal to		
	(1) +	(2) +	(3) 2(+2)	(4) 2 +	
25.	The sides of triangle at the smallest. Then a is	re a– 2, a, a + 2 where a equal to	a is a natural number and	d a > 1 its largest angle is twice	
	(1) 6	(2) 8	(3) 9	(4) 10	
26.	(1) isosceles	(2) Right angled	(3) obtuse angles	(4) Equilateral	
27.	If H is ortho centre of tr (1) 2R $\cos A$	iangle ABC then AH is e	qual to	(4) b cos A	
28	If Ω is circumcentre of a	a triangle ABC then perp	endicular length of from	centre to side BC is	
20.	(1) R sin A	(2) R cosA	(3) b cosA	(4) 2R cosA	
29.	In a $\triangle ABC$ length of angle bisector of $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$				
	(1) cos	(2) cosec	(3) cosec	(4) sin	
30.	Which is false?				
	(1) tan =	cot			
	(2) cot = tan				
	(3) tan tan = (4) $a + b + c = b(\cos A + \cos C) + C(\cos A + \cos B) + a(\cos B + \cos C).$				
	Practice Test (JEE-Main Pattern)				
OBJECTIVE RESPONSE SHEET (ORS)					

PART - II : PRACTICE QUESTIONS

1.	In a triangle ABC, if a ta	an A + b tan B = (a + b) t (2) equilateral	+ b) tan then triangle is		
			(5) scalarie marigie	(4) fight angled	
2.	In a $\triangle ABC$, if a, b and c	a ΔABC, if a, b and c are in A.P., then cos A.cot , cos B.cot , and cos C.cot are in			
	(1) G.P.	(2) A.P.	(3) A.G.P.	(4) H.P.	
3.	ABCD is a trapezium such that AB, DC are parallel and BC is perpendicular to them. If angle ADB = θ , BC = p and CD = q, then length of AB is equal to				
	(1)	(2)	(3)	(4)	
4 *	If in a triangle ABC	=	then triangle ABC is		
	(1) isosceles	(2) equilateral	(3) scalane triangle	(4) right angled	
5.	In a \triangle ABC, \angle C=60° and \angle A=75°. If D is a point on AC such that the area of the \triangle BAD is times the area of the \triangle BCD, then the \angle ABD is equal to			ea of the Δ BAD is times the	
	(1) 30°	(2) 45°	(3) 60°	(4) 75°	
6.	In a triangle ABC, the area of the incircle is to the area of triangle itself is,			5,	
	(1) π : tan . tan	. tan	(2) 2π : cot . cot	. cot	
	(3) 2π : tan . tan	. tan	(4) π : cot . cot	. cot .	
7.	Three circles, whose ra of contact meet in a poi	ree circles, whose radii are a, b and c, touch one another externally and the tangents at their points contact meet in a point, the distance of this point from either of their points of contact is.			
	(1)	(2)	(3)	(4)	

8. In a triangle ABC, AD is the altitude from A. Given b > c, angle $C = 23^{\circ}$ and AD =, then angle B is equal to

(1) 77° (2) 113° (3) 46° (4) 69°

9. DEF is the triangle formed by joning the points of contact of the incircle with the sides of the triangle ABC; then which of the following are true ?

(1) its sides are $2r\ cos$, $2r\ cos$ $% 2r\ cos$ and $2r\ cos$ and $2r\ cos$

(2) its angles are - , - and -

(3) its area is

(4) its area is Δ .

Comprehension #1 (Q. No. 10 to 13)

The triangle DEF which is formed by joining the feet of the altitudes of triangle ABC is called the Pedal Triangle.

Answer The Following Questions : 10. Angle of triangle DEF are (1) π – 2A, π – 2B and π – 2C (2) π + 2A, π + 2B and π + 2C (3) π – A, π – B and π – C (4) $2\pi - A$, $2\pi - B$ and $2\pi - C$ 11*. Sides of triangle DEF are (1) b cosA, a cosB, c cosC (2) a cosA, b cosB, c cosC (3) R sin 2A, R sin 2B, R sin 2C (4) a cotA, b cotB, c cotC Circumraii of the triangle PBC, PCA and PAB are respectively 12. (3) R/2, R/2, R/2 (4) 3R, 3R, 3R (1) R, R, R (2) 2R, 2R, 2R 13*. Which of the following is/are correct (1) (2) Area of $\Delta DEF = 2 \Delta \cos A \cos B \cos C$ (3) Area of $\triangle AEF = \triangle \cos^2 A$ (4) Circum-radius of $\Delta DEF =$ Comprehension # 2 (Q. 14 to 17) The triangle formed by joining the three excentres I_1 , I_2 and I_3 of Δ ABC is called the excentral or excentric triangle and in this case internal angle bisector of triangle ABC are the altitudes of triangles I₁I₂I₃ Incentre I of \triangle ABC is the of the excentral \triangle I₁ I₂ I₃. 14. (2) Orthocentre (1) Circumcentre (3) Centroid (4) None of these 15. Angles of the $\Delta~I_1\,I_2\,I_3$ are (1) and (2) and . – A. - B and – C (4) None of these (3) 16. Sides of the Δ I₁ I₂ I₃ are and Rcos and 4R cos (1) Rcos , Rcos (2) 4R cos , 4R cos (3) 2Rcos , 2Rcos and 2Rcos (4) None of these 17. Value of $II_{1^2} + I_2I_{3^2} = II_{2^2} + I_3I_{1^2} = II_{3^2} + I_1I_{2^2} =$ (1) 4R² (2) 16R² $(4) 64R^2$ (3) 32R² **PART-I** 4. 1. (2) 2. 3. (2) (2) (3) 5. 6. 7. (4) 12. 9. 10. (2) 14. 8. (4)11. (2) 13. (1) (3)16. (4) 15. 19. 20. 21. (3) 17. 18. (3) (4) (2) (3) 22. (3) 23. (2) 24. (2) 25. (4) 26. 27. 28. 29. (3) 30. **PART-II** (1) (2) (1) (1) (4) **7.** (1,2,3,4)**14.** 1. 2. 3. (3)4. (1,4)5. 6. (2)9. (1,2,3,4)**10.** (1) 11. 12. 13*. (2) 8. (2,3)

15. (1) **16.** (2) **17.** (2)