

## MATHS

# **BOOKS - VGS PUBLICATION-BRILLIANT**

# MATHEMATICS - II (B) MODEL PAPER 2

## Section A

**1.** Find the equation of the circle for which the points (4,2),

(1,5) are the end points of a diameter.

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2. Find the value of k if the points (4,2) and (k-3) are conjugate points with respect to the circle  $x^2 + y^2 - 5x + 8y + 6 = 0$ 

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3. Find the equation of radical axis of the circles  $x^2+y^2+4x+6y-7=0, 4ig(x^2+y^2ig)+8x+12y-9=0$ 



**4.** Find the equation of the tangent and normal to the parabola  $x^2 - 4x - 8y + 12 = 0$ 



7. Evaluate : 
$$\int\!\!\frac{dx}{(x+1)(x+2)}$$

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**8.** Evaluate : 
$$\int_0^1 \frac{dx}{\sqrt{3-2x}}$$

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$$9.\int_0^{\frac{\pi}{2}}\sin^6x\cos^6xdx$$

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10. Form the differential equation corresponding to  $y = cx - 2c^2$ , where c is a parameter.



**11.** If a point P is moving such that the lengths of tangents drawn from P to the circles

 $x^2+y^2-4x-6y-12=0$  and

 $x^2+y^2+6x+18y+26=0$  are the ratio 2:3, then find

the equation to the locus of P.

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### Section B

1. Find the equation of the circle passing through the

points of intersection of the circles

$$x^2+y^2-8x-6y-21=0$$
  
 $x^2+y^2-2x-15=0 \,\, {
m and} \,\, (1,2)$ 

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**2.** Find the equation of the ellipes referred to its major and minor axes as the co-ordinate axes X, Y- respectively with latus rectum of length 4 and distance between foci  $4\sqrt{2}$ .



**3.** Show that the locus of the feet of the perpendiculars drawn from the foci to any tangent of the ellipse is the auxiliary circle

**4.** Find the equation of the tangents to the hyperbola $x^2 - 4y^2 = 4$  which are

parallel and perpendicular to the line x+2y=0



5. Find the area of one of the curvilinear triangles bounded by  $y = \sin x, y = \cos x$  and X-axis.

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6. Solve : 
$$x(x-1)rac{dy}{dx}-y=x^3(x-1)^3$$

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**1.** Show that the following four points in each jof the following are concyclic and find the equation of the circle on which they lie.

 $(1,1),(\,-\,6,0),(\,-\,2,2),(\,-\,2-8)1$ 

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**2.** Find the transberes common tangents of

the circles  $x^2+y^2-4x-10y+28=0$  and  $x^2+y^2$ +4x-6y+40.



5. Obtain reduction formula for

$$I_n=\int\!\!\cos ec^n x dx, n$$
 being a positive integer,  $n\geq 2$  and deduce the value of  $\int\!\!\cos ec^5 x dx.$ 



6. Evaluate : 
$$\int_{0}^{\frac{\pi}{4}} \log(1 + \tan x) dx$$

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7. Solve 
$$\displaystyle rac{dy}{dx} = \displaystyle rac{y^2 - 2xy}{x^2 - xy}$$

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