Roll No.: 2303220528 Subject.: MATHEMATICS PAPER-II(B)

BOARD OF INTERMEDIATE EDUCATION, A.P., TADEPALLI, GUNTUR. INTERMEDIATE PUBLIC ADVANCED SUPPLEMENTARY EXAMINATIONS, MAY/JUNE - 2023

3580

PART - I

Answer Book Number	405
NAME	BACCHA VIJAYA DURGA
REGISTER NUMBER	2303220528
DATE OF EXAM	27.05.2023
SUBJECT CODE	232
SUBJECT	MATHEMATICS PAPER-II(B)
MEDIUM	ENGLISH
CENTRE NO. & NAME	03079-NARAYANA JR COLLEGE,SHANTHI NAGAR,KAKINADA

Room No. 1

Full Signature of the Invigilators

1 T. Naga [illegible]

2

Full Signature of the Student

B.Vijaya Durga

II YR

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PART II

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Q.P. Code :293

Answer Book Number 405

Serial number of Answer Book in the Bundle

1	2	3	4	5	6	~~7~~	8
9	10	11	12	13	14	15	

Signature	Number
1 Signature of Examiner: K. [illegible]	3315380
2 Signature of CE / SUB Expert	
3 Signature of Scrutinizer: V. [illegible]	3315479

Q.No.	Marks	Q.No.	Marks	Q.No.	Marks	Q.No.	Marks
1	0	11	01	21	—	31	
2	0	12	0	22	0	32	
3	0	13		23	02	33	
4		14		24	—	34	
5		15		25		35	
6	0	16		26		36	
7	0	17	01	27		37	
8	0	18	07	28		38	
9	0	19	02	29		39	
10	—	20		30		40	
TOTAL	0	TOTAL	11	TOTAL	02	TOTAL	

TOTAL MARKS

13

Signature of the Invigilator

T.Naga Devi

Sl. No. 405

Section - c

18. let the points be A[3,4] B[3,2] C[1,4]

let the circle equation be $x^2+y^2+2gx+2fy+c=0$ —①

let equation ① passes through A[3,4]

$x^2+y^2+2(3)x+2(4)y+c=0$

$x^2+y^2+6x+8y+c=0$ —②

let equation ① passes through B[3,2]

$x^2+y^2+2(3)x+2(2)y+c=0$

$x^2+y^2+6x+4y+c=0$ —③

let equation ① passes through C[1,4]

$x^2+y^2+2(1)x+2(4)y+c=0$

$x^2+y^2+2x+8y+c=0$ —④

② − ③

$x^2+y^2+6x+8y+c-x^2-y^2-6x-4y+c=0$

(By me :- B.Vijaya Durga)

VSH CACD

CD 1

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CD 2

Section - C

18 let the circle equation be $x^2+y^2+2gx+2fy+c=0$ — ①

let the Given points be A [3,4] B[3,2] C[1,4]

let eq's ① passes through A [3,4]

$\Rightarrow (3)^2+(4)^2+2g(3)+2f(4)+c=0$

$\Rightarrow 9+16+6g+8f+c=0$

$\Rightarrow 6g+8f+c+25=0$ — ②

let eq's ① passes through B [3,2]

$\Rightarrow (3)^2+(2)^2+2g(3)+2f(2)+c=0$

$\Rightarrow 9+4+6g+4f+c=0$

$\Rightarrow 6g+4f+c+13=0$ — ③

let eq's ① passes through C [1,4]

$\Rightarrow (1)^2+(4)^2+2g(1)+2f(4)+c=0$

$\Rightarrow 2g+8f+c+16+1=0$

$\Rightarrow 2g+8f+c+17=0$ — ④

equation ② − equation ③

$\Rightarrow \cancel{6g}+8f+\cancel{c}+25-\cancel{6g}-4f-\cancel{c}-13=0$

$\Rightarrow 8f-4f+25-13=0$

$\Rightarrow 4f+12=0$

$\Rightarrow 4f=-12$

$\Rightarrow f=\frac{-12}{4} = -3$

$\Rightarrow (f = (-3))$

equation ③ − equation ④

$\cancel{6g + 4f + c + 13 - 2g - 8f - c - 17 = 0}$

$\cancel{4g + 4f}$

equation ① − equation ④

$\Rightarrow 6g + 8f + c + 25 - 2g - 8f - c - 17 = 0$

$\Rightarrow 6g - 2g + 25 - 17 = 0$

$\Rightarrow 4g + 8 = 0$

$\Rightarrow 4g = -8$

$\Rightarrow g = \frac{-8}{4}$

$\Rightarrow (g = -2)$

Now, sub (g, f) values in equation ②

$\Rightarrow 6g + 8f + c + 25 = 0$

$\Rightarrow 6(-2) + 8(-3) + c + 25 = 0$

$\Rightarrow -12 - 24 + c + 25 = 0$

$\cancel{\Rightarrow -56 + c + 25 = 0}$ $\Rightarrow -36 + c + 25 = 0$

$\cancel{\Rightarrow c - 56 + 25 = 0}$ $\Rightarrow c - 36 + 25 = 0$

$\cancel{\Rightarrow c - 31 = 0}$ $\Rightarrow c - 11 = 0$

$\cancel{\Rightarrow \boxed{c = 31}}$ $\Rightarrow \boxed{c = 11}$

Now, Sub[g][c][f] values in equation ①

$\Rightarrow x^2 + y^2 + 2gx + 2fy + c = 0$

$\Rightarrow x^2 + y^2 + 2(-2)x + 2y(-3) + 11 = 0$

$\Rightarrow x^2+y^2-4x-6y+11=0$

$\therefore$ The equation of circle is $\boxed{x^2+y^2-4x-6y+11=0}$

19 Let the given circles be $x^2+y^2-6x-2y+1=0$ — ①

$x^2+y^2+2x-8y+13=0$ — ②

Let the circle equation be

$x^2+y^2+2gx+2fy+c=0$

Now, the circle equation lies on equation ①

$\Rightarrow x^2+y^2-6x-2y+1=0$

$\Rightarrow 2g=-6 \quad 2f=-2 \quad c=1$

$\Rightarrow g=-3 \quad f=-1$

$\Rightarrow g=-3 \quad f=-1$

$C_1=[-g,-f]$

$=[3,1]=[3,1]$

$r_1=\sqrt{(g^2+f^2)-c}$

$=\sqrt{(-2)^2+(-3)^2-31}$

$=\sqrt{4+9-31}$

$=\sqrt{12-31}$

$=\sqrt{19}$

$=8$

$\Rightarrow C_1=[-g,-f]$

$\Rightarrow =[3,1]$

$\Rightarrow r_1=\sqrt{(g^2+f^2)-c}$

$\Rightarrow =\sqrt{[(3)^2+(1)^2]-1}$

$\Rightarrow =\sqrt{9+1-1}$

$\Rightarrow =\sqrt{10-1}$

$\Rightarrow =\sqrt{9}$

$\Rightarrow =3$

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CD 4

Now, the circle equation lies on equation (2)

$\Rightarrow x^2+y^2+2x-8y+13=0$

$\Rightarrow 2g=2 \quad 2f=-8 \quad c=13$

$\Rightarrow g=\frac{2}{2} \quad f=\frac{-8}{2}$

$\Rightarrow g=1 \quad f=-4 \quad c=13$

$\Rightarrow C_2 = [-g, -f]$

$\Rightarrow = [-1, 4]$

$\Rightarrow r_2 = \sqrt{(g^2+f^2)-c}$

$\Rightarrow = \sqrt{[(-1)^2+(4)^2]-13}$

$\Rightarrow = \sqrt{[1+16]-13}$

$\Rightarrow = \sqrt{17-13}$

$\Rightarrow = \sqrt{4}$

$\Rightarrow = 4$

$\Rightarrow \overline{C_1C_2} = -3+(-1)+[-1][4]$

$\Rightarrow = -4-4$

$\Rightarrow = -8$

$\Rightarrow r_1+r_2 = 3+4$

$\Rightarrow = 7$

$\Rightarrow \overline{C_1C_2} \neq \overline{r_1+r_2}$

$\Rightarrow$ So, Now the point of contact of the equation of common tangent theres exterarnly and the contact internally

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22 Gvien,

$$I_n = \int \cot^n x \, dX$$

$$I_n = \int \cot^{n-2} x \cdot \cot^n x$$

$$\Rightarrow \boxed{\int uv = u\int v\,dx - \int u' [\int v\,dx]\,dx}$$

$$\Rightarrow I_n = \int \cot^{n-2} x \cdot \cot^n x - (n-1) \int \cot x \cdot \tan x \, dx$$

$$\Rightarrow I_n = \cot^{n-2} x \cdot \cot^n x - (n-1)\int \cot x \, dx - (n-1)\int \tan x$$

$$\Rightarrow I_n = \cot^{n-2} x \cdot \cot^n x - I_{n-2} - I_n$$

$$\Rightarrow I_n = \frac{\cot^{n-2} x \cdot \cot^n x}{n} - \frac{I_{n-2}}{2}$$

$$\Rightarrow \int \cot^4 x \, dx = \frac{\cot^{4-2} x \cdot \cot^4 x}{4} - \frac{I_{n-2}}{2}$$

$$\Rightarrow = \frac{\cot^3 x \cdot \cot^4 x}{4} - I_{n-2} + c$$

$$\Rightarrow \int I_{n-2} = \frac{\cot^0 x \cdot \cot^2 x}{2} + c$$

$$\Rightarrow = \cot^3 x \cdot \cot^2 x + x + c$$

Blank

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CD 6

Section-B

11. ~~Given~~

let the Given Circles be $x^2+y^2-4x-6y-12=0$ — (1)

$x^2+y^2+6x+18y+26=0$ — (2)

let the Given ratio be $2:3$

Condition:- $\Rightarrow \frac{PA}{PB} = \frac{2}{3}$

$\Rightarrow 3PA = 2PB$

~~$S_{11}=S_{22}$~~

~~$9PA^2 = 4PB^2$~~

$\Rightarrow 3[x^2+y^2-4x-6y-12] = 2[x^2+y^2+6x+18y+26]$

$\Rightarrow 3x^2+3y^2-12x-12y-36 = 2x^2+2y^2+12x+36y+52$

$\Rightarrow 3x^2+3y^2 \cancel{-3x} -12x -12y-36-2x^2-2y^2-12x-36y-52=0$

$\Rightarrow 3x^2-2x^2+3y^2-2y^2-12x-12x-12y-36y-36-52=0$

$\Rightarrow x^2+y^2-24x-48y-88=0$

$\Rightarrow x^2+y^2-6x-12y-44=0$

$\Rightarrow x^2+y^2-3x-6y-22=0$

$\therefore$ The equation of the locus of P is

$x^2+y^2-3x-6y-22=0$

A Given,

$$\Rightarrow \frac{dy}{dx} = e^{x-y} + x^2 e^{-y}$$

$$\Rightarrow \frac{dy}{dx} = e^x e^{-y} + x^2 e^{-y}$$

$$\Rightarrow \frac{dy}{dx} = e^{-y}[e^x + x^2]$$

$$\Rightarrow e^{-y}\, dy = [e^x + x^2]\, dx$$

$$\Rightarrow \int e^{-y}\, dy = \int e^x + x^2\, dx$$

$$\Rightarrow \int e^{-y} = \int e^x + x^2$$

$\therefore \frac{dy}{dx} = e^{x-y} + x^2 e^{-y}$ is $\int e^{-y} = \int e^x + x^2$

12 ~~Give~~

~~let the Give circle be $x^2+y^2-4x+2y+4=0$~~

~~let the~~

Blank

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8

12. let the circle equation be

$$x^2+y^2+2gx+2f+c=0 \quad -① $$

let the given circle equation be

$$x^2+y^2-4x+2y+4=0 \quad -② $$

let the given line be $x+y=4$

Blank

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Section-C

23 Given,

$$\Rightarrow I = \int_0^{\pi} \frac{x}{1+\sin x} dx \quad -(1)$$

$$\Rightarrow I = \int_0^{\pi} \frac{(\pi - x)}{1+\sin(\pi - x)} dx$$

$$\Rightarrow I = \int_0^{\pi} \frac{\pi - x}{1+\sin(\pi - x)} dx \quad -(1)$$

- Adding (1) and (2) we get

$$\Rightarrow 2I = \int_0^{\pi} \frac{\cancel{x} + \pi - x}{1+\sin(\pi - x)} dx$$

$$\Rightarrow 2I = \int_0^{\pi} \frac{\pi}{1+\sin(\pi - x)} dx$$

$\Rightarrow$ U.L $\Rightarrow$ If $x = \pi \Rightarrow \pi = 1/4$

$\Rightarrow$ L.L $\Rightarrow$ If $x = 0 \Rightarrow x = 0$

$$\Rightarrow 2I = \int_0^{1/4} \frac{\pi}{1+\sin(x - x)} dx$$

2

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$$\Rightarrow 2I = \int_0^{\pi/4} \frac{\cancel{\pi}\ 1}{1+\sin(\cancel{x}-\pi)}\, dx$$

$$\Rightarrow \tan\frac{x}{2} = t \qquad \Rightarrow \sin x = \frac{2t}{1+t^2}$$

$$\Rightarrow dx = \frac{2dt}{1+t^2} \qquad \Rightarrow \cos x = \frac{1-t^2}{1+t^2}$$

$$\Rightarrow 2I = \int_0^{\pi/4} \frac{1}{1+\frac{2t}{1+t^2}} \frac{2dt}{1+t^2}$$

$$\Rightarrow 2I = \int_0^{\pi/4} \frac{1}{\frac{1+t^2+2t}{\cancel{1+t^2}}} \cdot \frac{2dt}{\cancel{1+t^2}}$$

$$\Rightarrow 2I = \int_0^{\pi/4} \frac{2}{1+t^2+2t}\, dt$$

$$\Rightarrow 2I = 2\int_0^{\pi/4} \frac{1}{1+t^2}\, dt$$

$$\Rightarrow 2I = 2\left[\pi/4\right] dx$$

$$\Rightarrow 2I = \frac{\pi}{4}$$

$$\Rightarrow I = \frac{\pi}{8}$$

Section-A

9. Given,

$$\int_0^{\pi/2} \sin^6 x \cos^4 x \, dx$$

"n is even"

$$\frac{m-1}{m-n} \cdot \frac{m-3}{m-n+2} \int_0^{\pi/2} \frac{m-1}{m-n} \cdot \frac{m-3}{m+n+2}$$

$$\Rightarrow \frac{6-1}{6-4} \cdot \frac{6-3}{6-4+2} \cdots \int_0^{\pi/2} \sin^6 x \cos^4 x \, dx$$

3. Let, given circles $x^2+y^2-3x-4y+5=0$ —(1)

$3x^2+3y^2-7x+8y-11=0$ —(2)

Now, equation (1) − equation (2)

$$x^2+y^2-3x-4y+5-3x^2-3y^2+7x-8y+11=0$$

$$x^2-3x^2+y^2-3y^2-3x+7x-4y-8y+5+11=0$$

$$-2x^2-2y^2+4x-12y+16=0$$

$$2x^2+2y^2-4x+12y-16=0$$

$$x^2+y^2-2x+11y-13=0$$

∴ The equation of radical axis is

$$x^2+y^2-2x+11y-13=0$$

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CD 12

8 Given

$\Rightarrow I = \int_0^1 \frac{x^2}{x^2+1} dx$

0

7. Given,

$\Rightarrow I = \int \frac{dx}{(x+1)(x+2)}$

$\Rightarrow I = \int \frac{1}{(x+1)(x+2)} dx$

$\Rightarrow \int \frac{1}{(x+1)(x+2)} = \int \frac{A(x+2) - (Bx+C)(x+1)}{(x+1)(x+2)}$

0

$\Rightarrow \int 1 = \int A(x+2) - (Bx+C)(x+1)$

$\Rightarrow 1 = A(x+2) - (Bx+C)(x+1)$

1. Given, circle $x^2+y^2-4x+6y+c=0$

radius is 6

let the circle equation be $x^2+y^2+2gx+2fy+c=0$

0

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6. Given,

$I = \int x^3 \sin x^4 \, dx$

$= \int (\pi - x)^3 \sin (\pi - x)^4 dx$

$I = \int \pi^3 - x^3 \sin \pi^4 - x^4 \, dx$

$I = \int \pi^7 - x^7 \sin \, dx$

3. Given, circles $x^2+y^2-3x-4y+5=0$

$3(x^2+y^2)-7x+8y+11=0$

let the circles equation be $x^2+y^2+2gx+2fy+c=0$

2. let the Given circles be $S=x^2+y^2+8x+12y+15=0$ ①

let the points be $P(5,-6)$

let the circle equation be $x^2+y^2+2gx+2fy+c=0$

from ① $2g=8$

$g=$

— The end —

T.N.R

27/5/23

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Board of Intermediate Education

Andhra Pradesh,Tadepalli, Guntur-522501.

IPASE June 2023 Re - Verification Marks

Roll No. : 2303220528

Subject : MATHEMATICS PAPER-II(B)

Qno	Marks							
	M	A	B	C	D	E	F	Tot
1	0							0
2	0							0
3	0							0
4	NA							0
5	NA							0
6	0							0
7	0							0
8	0							0
9	0							0
10	NA							0
11	1							1
12	0							0
13	NA							0
14	NA							0
15	NA							0
16	NA							0
17	1							1
18	7							7
19	2							2
20	NA							0
21	NA							0
22	0							0
23	2							2
24	NA							0
Grand Total								13

From
Controller Of Examination
Board of Intermediate Education
Andhra Pradesh
Tadepalli, Guntur-522501.

To
BACCHA VIJAYA DURGA

Roll Number: 2303220528

This is to inform you that your request for **Re-Verification cum supply of photo Copy** in **MATHEMATICS PAPER-II(B) of IPASE June 2023** has been processed under the following provisions Viz.,

1) Verified Posting and totalling of marks
2) Verified whether marks are awarded and posted for all correct answers.
3) Verified those answers which were not awarded marks.
4) Verified those answers which were awarded ZERO marks for correct answers.

It is informed that there is **no** provision for **Re-valuation**

After the above process it is found that there is **No Change** in your marks in **MATHEMATICS PAPER-II(B)**

Controller of Examinations