

* C14-A-301/C14-AA-301/C14-AEI- 301/C14-BM-301/
C14-C-301/C14-CH-301/C14-CHOT -301/C14-CHPC -301/
C14-CHPP-301/C14-CHST-301/C14-CM-301/
C14-EC- 301/C14-EE- 301/C14-IT-301/C14-M- 301/
C14-MET-301/C14-MNG-301/C14-PCT - 301/C14-PET-301/
C14-RAC- 301/C14-TT-**301**

4201

BOARD DIPLOMA EXAMINATION, (C-14)
MARCH /APRIL-2019
THIRD SEMESTER(COMMON) EXAMINATION
ENGINEERING MATHEMATICS-II

Time: 3 hours

Max.Marks: 80

PART-A

10x3=30M

- Instructions:** 1) Answer all questions.
2) Each question carries three marks.
3) Answers should be brief and straight to the point and shall not exceed five simple Sentences.

1. Evaluate $\int \sin\left(\frac{n\pi x}{3}\right) dx$

2. Evaluate $\int \frac{1}{1+\cos x} dx$

* 3. Evaluate $\int \frac{\sin x}{3+4\cos x} dx$

4. Evaluate $\int_1^{\sqrt{5}} \frac{1}{1+x^2} dx$.

- * 5. Find the area bounded by the parabola $y^2 = 8x$, y-axis and the lines $y=2$ and $y=6$.

- * 6. Solve $\frac{dy}{dx} = e^{-x+y} + x^3 e^y$
7. Find the differential equation of family of parabolas $y^2=4ax$.
8. Solve $(x^3+y) dx+(y^4+x)dy=0$.
9. Find the mean deviation from the mean of the following data:
36, 72, 46, 42, 60, 45, 53, 46, 51, 49, 45.
10. Calculate the variance of 1,5,6.

PART-B

Instructions: 1) Answer any FIVE questions.

10x5=50M

2) Each question carries ten marks.

11. (a) Evaluate $\int \frac{x}{x^2+7x+12} dx$

(b) Evaluate $\int x^3(e^{-x}+e^x)dx$

12. (a) Evaluate $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx$.

(b) Evaluate $\int \frac{1}{\sqrt{x+1}+\sqrt{x+2}} dx$

13. (a) Evaluate $\int \frac{1}{4+3\sin x} dx$

(b) Given $e^0 = 1, e = 2.72, e^2 = 7.39, e^3 = 20.09, e^4 = 54.60$, evaluate

$\int_0^4 e^x dx$ Approximately using Simpson's rule.

* 14. (a) Find the volume of the solid generated by revolving the area bounded by the ellipse $25x^2+16y^2=400$ about its major axis

(b) Find the R.M.S. value of the current $I = a \sin \theta$ over a complete cycle.

*15. (a) Evaluate $\int_0^{\frac{\pi}{2}} \sin 2x \log(\tan x) dx$

(b) Find the area bounded by the curve $y = \sin x$, the x-axis and the lines $x=0$ and $x=2\pi$

16. Solve $(x^2 - 2xy)dy = (y^2 - 2xy) dx$

17. (a) Solve $x \frac{dy}{dx} + 2y = \log x$

(b) Solve $(y \cos x + \sin y + y) dx + (\sin x + x \cos y + x) dy = 0$

18. Calculate the correlation coefficient between the marks in English and Mathematics obtained by 10 students.

Marks in English	10	25	13	25	22	11	12	25	21	20
Marks in Maths	12	22	16	15	18	18	17	23	24	17

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