C-16-A/AA/AEI/BM/CH/
CHST/MET/MNG/TT-301

6201

BOARD DIPLOMA EXAMINATIONS

DMET-THIRD SEMESTER

SEPTEMBER/OCTOBER - 2020

ENGINEERING MATHEMATICS - II

Time: 3 hours Max. Marks: 80

PART – A **3 X 10 = 30**

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed Five simple sentences.

1. Evaluate $\int$

2. Evaluate $\int$

3. Evaluate $\int$ ——

4. Find the mean value of $f(x) = x^2 + 3$ on the interval [0,4]

5. Find the Laplace Transform of the function $7e^{2t} – 5t^4 + 6$

6. Find $L^{-1}\{——\}$

7. Find the value of a_0 in the Fourier Series expansion of $f(x) = |x|$ in –

8. find the order and degree of the Differential Equation —— ={ y + —

[Cont..,

9. Solve + y^5 =

10. Solve —— - 5— + 6y =

PART – B **5 X 10 = 50**

Instructions: *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and a criterion for valuation is the content but not the length of the answer.

11. a) Evaluate ∫

b) Evaluate ∫ ————

12. a) Evaluate ∫

b) Evaluate $\int_0 x\sqrt{\quad}$

13. a) Find the area bounded by the Parabola $y = x^2$, x-axis and the ordinate x = 3

b) Find the volume generated by revolving the area bounded by curve $y = x^3$ about y-axis, between the lines y = 0 and y = 8.

14. a) Evaluate ∫ using Simpson's rule by taking n = 4.

b) Find L{t cos 3t}

15. a) Find $L^{-1}\{\text{———}\}$

b) using Convolution theorem Find $L^{-1}\{\text{———}\}$

[Cont..,

16. Find the Fourier series for $f(x) = x^2$ in – and hence deduce that

—+— —+ ……..∞ = —

17. a) Solve — = $(x+y)^2$

b) Solve — + – = 1

18. Solve the following differential equations

a) ($D^3 + D^2 + 4D + 4$) y = 0, Where D = —

b) ($D^2 + 3D + 2$) y = x, Where D = —