

C16-C-301/C16-CM-301/C16-IT-301

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OCT/NOV—2018 DCE—THIRD SEMESTER EXAMINATION ENGINEERING MAGNETICATION THE PROPERTY OF THE P

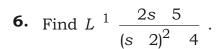
Time: 3 hours]

[Total Marks: 80

 $3 \times 10 = 30$

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 $\sqrt{1}$ Sin 2x. dx.
- **3.** Evaluate $\sin^2 x \cdot dx$.
- **4.** Find the RMS value of $\sqrt{27}$ x^2 over the interval (0, 3).
- **5.** Find $L(t^2)^2$.



- 7. Find a_0 in the Fourier series expansion of $F(x) = e^x$ in the interval (,).
- **8.** Solve $(e^x \ 1) \sin y \ dy + e^x \cos y dx = 0$.
- **9.** Solve $(D^2 \ 3D \ 5)y \ 0$.

 $10 \times 5 = 50$

- PART—B

 Instructions: (1) Answer any five questions.

 (2) Each question carries to criter. (3) The answers should be comprehensive and the criterion for valuation is the content but not the

11. (a) Evaluate
$$\sin 5x \cos 7x \cdot dx$$
.
(b) Evaluate $\frac{1}{5} + 4\cos x dx$.
12. (a) Evaluate $x^3 e^{5x} dx$.
(b) Evaluate $\frac{1}{2} = \frac{\sin^{12} x}{\sin^{12} x \cos^{12} x} dx$.

- **13.** (a) Find the area bounded between the parabolas y^2 16x and x^2 16*y*.
 - (b) Find the volume of the solid generated when the region of the circle x^2 y^2 16 is revolved about a diameter.

14. (a) A curve is drawn to pass through the points given by the following table:

x	1	1.5	2	2.5	3	3.5	4
y	3	3.4	3.7	2.8	2.7	2.6	2.1

Calculate the area bounded by the curve, x-axis and the lines $x \geqslant 1$ x = 4 using trapezoidal rule.

- (b) Find $L\{t.e^{-2t}\sin 3t\}$.
- **15.** (a) Find $L \frac{e^{2t} e^{3t}}{t}$.
 - (b) Find $L^{1} = \frac{s}{s^{2}}$.
- 16. Obtain the Fourier half range Cosine series and Sine series for f(x) = x in the interval (0,).
- 17. (a) Solve $x \frac{dy}{dx}$ 2y $x^2 \log x$. (b) Solve $(x^2 \ y^2 \ a^2)x \, dx \ (x^2 \ y^2 \ b^2)y \, dy$ 0. 18. (a) Solve $(D^2 \ 3D \ 2)y \ \cos 3x, where D \ \frac{d}{dx}$.
 - (b) Solve $(D^2 \ 3D \ 2)y \ x^2$, where $D \ \frac{d}{dx}$.