4455

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH /APRIL-2019

DECE-FOURTH SEMESTER EXAMINATION

ENGINEERING MATHEMATICS-III

Time: 3 Hours Max.Marks: 80

PART-A

10x3=30M

Intstructions: 1) Answer all questions. Each question carries Three marks
2) Answer should be brief and straight to the point and shall not exceed five simple sentences.

1) Solve $(D^2 + 5D + 6)y = 0$
2) Solve $(4D^3 + 4D^2 + D)y = 0$
3) Find the particular integral of $(D^2 - 3D + 2)y = e^{4x}$
4) Find L $\{4e^t + 6t^3 - 3\sin 4t\}$
5) Find L $\{\cos 5t . \cos 2t\}$
6) Find $L^{-1}\left\{\frac{s^2+2s+3}{s^3}\right\}$
7) Find $L^{-1}\left\{\frac{2}{s-4}+\frac{3}{s+9}\right\}$
8) List Euler's formulae for function f(x) in the interval $(c, c+2\pi)$
9) Find the Fourier sine series, if f(x) = k in $(0, \pi)$ for any constant k.
10) When two dice are thrown find the probability of obtaining total score seven.

PART-B

10x5=50M

Instructions: 1) Answer any five questions.
2) Each question carries 10 marks
3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the Answer.

11) a) Solve $(D^2-D+6)y = e^{-2X}$

b) Solve $(D^2-4D + 4)y = \cos 2x$

12) a) Solve $(D^2 + 3D + 2)y = e^{-x}+\sin x + x^2$

13) a) Find L $\{e^{4t}.\sin 2t.\cos t\}$

b) Find L $\left\{\frac{1-\cos t}{t}\right\}$

14) a) Find $L^{-1}\left\{\frac{s}{s^2-4s+5}\right\}$

b) Find $L^{-1}\left\{\frac{1}{(s-1).(s-3)}\right\}$

15) Expand the function $f(x)=x^2$ as a Fourier series in $(-\pi, \pi)$

16) Obtain Fourier series for the function $f(x) = e^x$ in $(0, 2\pi)$

17) a) A bag contains 6 red, 7 black and 8 blue balls. What is the probability that two balls drawn simultaneously are one red one black.

b) A car is drawn from a pack of cards and find the probability that it is a spade or a king.

18) Two members A and B appears for an interviwe for the same posts of two vacancies. The probability of A selection is $\frac{1}{7}$ and that of B selection is $\frac{1}{5}$, what is the probability that .

a) Both are selected b) Only one is selected c) none is selected.

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