CD-500

M.A./M.Sc. IVth Semester (Reg./Pvt./ATKT) Examination, 2021

Mathematics

Paper - I

Partial Differential Equations-II

[Maximum Marks : Reg. 85
Pvt. 100

Note :- All questions from each section carry equal marks. All questions are compulsory and answer limit are approximately 250 words. Start the answer of each section from new page. Maximum limit of pages of answer booklet are approximately 16 pages. Answer should be written by the student in his/her own handwriting mandatory. The first page of answersheet should be download by the student from university website www.bubhopal.ac.in is mandatory.

1. Use Duhamel's principle to solve the heat equation problem described by

$u_t(x,t) = k\ u_{xx}(x,t) + f(x,t),\ -\infty < x < \infty, t > 0$

u (x, 0) = 0, $-\infty < x < \infty$

2. Find the laplace transform of cos at

3. Find the Laplace transform of J_0 (t)

4. Obtain the fourier sine integral representation.

5. If $f(\alpha)$ is the fourier transform of f(x), then prove that the fourier transform of f(ax) is $\frac{1}{a}F\left(\frac{\alpha}{a}\right)$

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