

ANDHRA UNIVERSITY

Telegrams: UNIVERSITY
Telephone: 284 4000
Fax: 0891-2755324



All Official letters,
packages etc, should be
addressed to the Registrar
by designation and not by
name.

No. LI (2)/U.G. Courses/Mathematics/MQP/2021

Visakhapatnam,
Dt: 22-06-2021

From: **THE REGISTRAR**

To

Dr. Ch. Srinivasa Rao,
Chairman,
Board of Studies in Mathematics (U.G.),
Mrs. A.V.N. College,
Visakhapatnam.

Sir,

Sub: Approval of Model Question Papers – Reg.

Ref: Email dated 7-6-2021 along with Model Question Papers.

With reference to the above, I am by direction to inform that the Revised Choice Based Credit System, U.G. Courses (w.e.f. 2020-2021) I-Semester Model Question Paper of Course-I, Differential Equations has been approved.

Hence, I request to arrange to circulate the same among the Teaching Staff and Students concerned and placed in A.U. website.

Yours faithfully,

(M. HEMA NAIK)
DEPUTY REGISTRAR (ACADEMIC)

Copies to:

1. The Dean of Academic Affairs, A.U., VSP.
2. The Dean, U.G. & P.G, Professional Courses, A.U., Vsp.
3. The Dean, CDC, A.U., Vsp.
4. The Dean, Confidential, A.U., Vsp.
5. All Principals, A.U. Affiliated Colleges Offered in U.G. courses.
6. The Controller of Examinations, A.U., Vsp.
7. The Superintendent S.I Section for taking necessary further action.
8. The Secretary to V.C., Rector Table, P.A. to Registrar, A.U., Vsp.
9. The Director, Computer Centre, A.U., Vsp.
10. O.C. & O.O.F.

Mathematics model question paper

Inbox

Srinivasa Rao Chindirala

Mon, Jun 7, 3:28 PM
(19 hours ago)

to Supdt4041

Attachments area

Visakhapatnam,
Date 4/06/2021.

From: Prof. Ch. SRINIVASA RAO
Head, Dept of Mathematics & Statistics,
Chairman, Board of Studies (U.G.)
Mrs AVN College, Visakhapatnam
530 001.

To,

The Registrar,
Andhra University,
Visakhapatnam.

Sir,

This is to inform you that I, Prof. Ch. Srinivasa Rao,
am here with enclosing the model question paper of
B.A/B.Sc first year, first semester, Admitted Batch (2020-20)
Course - I, "Differential Equations" for your reference.

Thanking you.

Yours faithfully
(Ch. Srinivasa Rao)
Ch. S.

Andhra University: Visakhapatnam.

CBCS / Semester System

(W. e. f 2020 - 2021, Admitted Batch)

First year - First Semester

B.A. / B.Sc. Mathematics

Course - I, Differential Equations

Mathematics Model Paper.

Time: 3 hours

Max Marks: 75

SECTION A

Answer any five questions. Each question carries five marks

5x5m = 25m

1. ^{Solve} $x \frac{dy}{dx} = y + x e^{y/x}$

$x \frac{dy}{dx} = y + x e^{y/x}$ ను సాధించండి.

2. Solve $(e^y + 1) \cos x dx + e^y \sin x dy = 0$.

$(e^y + 1) \cos x dx + e^y \sin x dy = 0$ ను సాధించండి.

3. Solve $\frac{d^2y}{dx^2} = \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$

$\frac{d^2y}{dx^2} = \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$ ను సాధించండి.

4. Solve $x = y + p^2$.

$x = y + p^2$ ను సరిదిద్దండి.

5. Solve $\frac{d^2y}{dx^2} - a^2y = 0$ where $a \neq 0$.

$\frac{d^2y}{dx^2} - a^2y = 0$ ను సరిదిద్దండి.

6. Solve $(D^2 - 4D + 3)y = \sin 3x \cos 2x$.

$(D^2 - 4D + 3)y = \sin 3x \cos 2x$ ను సరిదిద్దండి.

7. Solve $(D^2 - 4D + 4)y = 8x^2 e^{2x} \sin 2x$.

$(D^2 - 4D + 4)y = 8x^2 e^{2x} \sin 2x$ ను సరిదిద్దండి.

8. Solve $(x^2 D^2 + 2xD - 12)y = \frac{3}{x} \log x$.

$(x^2 D^2 + 2xD - 12)y = \frac{3}{x} \log x$ ను సరిదిద్దండి.

SECTION B

Answer all questions, Each question carries Ten marks

5x10=

9(a) Solve $(x+y+1) \frac{dy}{dx} = 1$.

$(x+y+1) \frac{dy}{dx} = 1$ ను సరిదిద్దండి.

Or

(b) Solve $\left(y + \frac{y^3}{3} + \frac{x^2}{2}\right) dx + \frac{1}{4}(x + xy^2) dy = 0$

$\left(y + \frac{y^3}{3} + \frac{x^2}{2}\right) dx + \frac{1}{4}(x + xy^2) dy = 0$ సుతాథింపండి.

10. (a) Solve $y^2 \log y = xpy + p^2$

$y^2 \log y = xpy + p^2$ సుతాథింపండి.

(Or)

(b) Solve $e^y = p^3 + p$.

$e^y = p^3 + p$ సుతాథింపండి.

11. (a) Solve $(D^2 + 2)y = x^2 e^{3x} + e^x \cos 2x$

$(D^2 + 2)y = x^2 e^{3x} + e^x \cos 2x$ సుతాథింపండి

(Or)

(b) Solve $(D^3 + 2D^2 + D)y = e^{2x} + x^2 + x$.

$(D^3 + 2D^2 + D)y = e^{2x} + x^2 + x$ సుతాథింపండి.

12 (a) Solve $\frac{d^2 y}{dx^2} + 3 \frac{dy}{dx} + 2y = x e^x \sin x$

$\frac{d^2 y}{dx^2} + 3 \frac{dy}{dx} + 2y = x e^x \sin x$ సుతాథింపండి.

(Or)

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

$(D^2 - 4)y = x \sinh x$ సుతాథింపండి.

13

(a) Solve $y'' - 2y' + y = e^x \log x$ by the method of variation of parameter

ಅನುಪರೀಕ್ಷಾ ವಿಧಾನದಿಂದ $y'' - 2y' + y = e^x \log x$ ಸುಲಭವಾಗಿ.

(or)

(b) Solve $[(1+x)^2 D^2 + (1+x)D + 1]y = 4 \cos \log(1+x)$

$[(1+x)^2 D^2 + (1+x)D + 1]y = 4 \cos \log(1+x)$ ಸುಲಭವಾಗಿ.

by.

Ch. Srinivasa Rao
4/6/21.

Prof. Ch. Srinivasa Rao.

Head, Dept of Mathematics & Stats
Chairman, Board of Studies (M.C)
Hrs AVN College, Vidakhapatnam.