SRI BHARATHI

ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai -622 303

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NAAC DOCUMENTS

Quality Indicator Frame Work

Criterion – 2

Teaching-Learning and Evaluation

Submitted by

IQAC

Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator- 2.3. Teaching- Learning Process (40)

2019-2020

SCIENCE AND HUMANITIES

PROBLEM SOLVING

Activity	Number of Students Attended	Page No.
Tutorial	52	3
TOTAL STUDENTS ATTENDED	52	-

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Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator- 2.3. Teaching- Learning Process (40)

2019-2020

SCIENCE AND HUMANITIES

PROBLEM SOLVING

TUTORIAL

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DEPARTMENT OF SCIENCE AND HUMANITIES
ACEDEMIC YEAR (2019-2020)-ODD SEMESTER
PROBLEM SOLVING METHOD

SL.NO	REG.NO	NAME	YEAR/SEC	LEARNING METHOD
1.	912619104001	ANNAPOORANI M	I/A	PROBLEM SOLVING METHOD-TUTORIAL MA8151-ENGINEERING MATHEMATICS-I
2.	912619104002	ANUSUYA S	I/A	
3.	912619104003	ARUNNAVAMEENA A	I/A	
4.	912619104004	DAYANA P	I/A	
5.	912619104005	DHARSHINI D	I/A	
6.	912619104006	FAHIMA F	I/A	
7.	912619104007	FAHMIDHA B	I/A	
8.	912619104009	GULNAS FATHIMA S	I/A	
9.	912619104010	HELAN J	I/A	
10.	912619104011	KEERTHANA R	I/A	
11.	912619104012	MUTHULAKSHMI G	I/A	
12.	912619104013	MUTHU MEENAKSHI M	I/A	
13.	912619104014	NIROSHIKA R	I/A	
14.	912619104016	NITHYA M	I/A	
15.	912619104017	PARAMESHWARI S	I/A	
16.	912619104019	RANJANI K	I/A	
17.	912619104020	RILWANA PARVEEN J	I/A	
18.	912619104021	ROOPINA R	I/A	
19.	912619104022	SANDHIYA B	I/A	
20.	912619104023	SANTHI D	I/A	
21.	912619104024	SARANYA C	I/A	
22.	912619104027	SNEHA R	I/A	
23.	912619104029	SURIYA JOTHI S	I/A	
24.	912619103001	AJITHA T	I/B	
25.	912619103002	ARULJENIFAR C	I/B	
26.	912619103003	DIVYA V	I/B	
27.	912619103004	MANGAIYARKARASI G	I/B	
28.	912619103005	MUTHULAKSHMI S	I/B	
29.	912619103006	PRAVEENA S	I/B	
30.	912619103007	PRIYADHARSHINI K	I/B	
31.	912619103009	RAGAVI V	I/B	
32.	912619103010	RAJATHI T	I/B	
33.	912619106001	AASHIMA M	I/B	
34.	912619106002	ANANTHI P	I/B	
35.	912619106004	JAFFARNISHA R	I/B	
36.	912619106005	MAHESWARI K	I/B	
37.	912619106006	MANISHA S	I/B	
38.	912619106007	MEGAVADHANA A	I/B	
39.	912619106008	PRIYANGA R	I/B	
40.	912619106009	RAGAVI V	I/B	
41.	912619106010	RAJAPRABA M	I/B	
42.	912619106011	SASIKA K	I/B	
43.	912619105001	AASHIKA R	I/B	
44.	912619105002	ABINAYA S	I/B	
45.	912619105003	ABITHA P	I/B	

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46.	912619105004	ARTHY N	I/B	**PROBLEM SOLVING METHOD-TUTORIAL MA8151-**ENGINEERING MATHEMATICS-I
47.	912619105005	DEEPIKA R	I/B	
48.	912619105006	KOGULA PRIYA R	I/B	
49.	912619105007	NISHA S	I/B	
50.	912619105008	PAVITHRA M	I/B	
51.	912619105009	PRAGADEESHWARI A	I/B	
52.	912619105010	SIVARANJANI S	I/B	

Name and signature of the faculty Incharge

HoD/S&H

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ACADEMIC YEAR 2019 – 2020(ODD SEMESTER)
DEPARTMENT OF SCIENCE AND HUMANITIES

Tutorial Question Paper

Tutorial – 01			Date of Issue:	06.09.2019	Marks	10
Course code	MA8151	Course Title	Engineering mathematics-I			
Year	I	Semester/Section	I / B	Date of Submission:	09.09.2019	

Q.No	Questions	CO
1	If $u = e^{x^3+y^3}$ then prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 3u\,logu.$	C102.1
2	Verify Euler's theorem for the function $u = x^3+y^3 + z^3 + 3xyz.$	C102.1
3	If $u = x^2y^3, x = logt, y = e^t$ find $\frac{du}{dt}$.	C102.1
4	Find the total derivative of $u = xyz + (xyz)^{-1}$.	C102.1

Name and Signature of the Faculty Incharge N.Vithya

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DEPARTMENT OF SCIENCE AND HUMANITIES

Tutorial Answer Sheet

Name of the Student : V. Divya

AU Register Number: 912619103 03

Tutorial – 01			Date of Issue:	06.09.2019	Marks	10
Course code	MA8151	Course Title	Engineering mathematics-I			
Year	I	Semester/Section	I/B	Date of Submission:	09.09.2019	

Q.No	Questions	CO
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2	Verify Euler's theorem for the function $u = x^3+y^3 + z^3 + 3xyz.$	C102.1
3	If $u = x^2y^3, x = logt, y = e^t$ find $\frac{du}{dt}$.	C102.1
4	Find the total derivative of $u = xyz + (xyz)^{-1}$.	C102.1

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Problem solving approach	6	4
Correctness of Answer	2	2
Timely submission	2	2
Total marks	10	8

Name and Signature of the Faculty Incharge N. Vathsala [N. Vathsala]

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1. Verify Euler's theorem for the function

$u = x^3 + y^3 + z^3 + 3xyz$

Soln:

Given

$$u = x^3 + y^3 + z^3 + 3xyz$$

this is a homogeneous function of degree 3

$$\frac{\partial u}{\partial x} = 3x^2 + 3yz$$

$$x\frac{\partial u}{\partial x} = 3x^3 + 3xyz \longrightarrow (1)$$

$$\frac{\partial u}{\partial y} = 3y^2 + 3xz$$

$$y\frac{\partial u}{\partial y} = 3y^3 + 3xyz \longrightarrow (2)$$

$$\frac{\partial u}{\partial z} = 3z^2 + 3xy$$

$$z\frac{\partial u}{\partial z} = 3z^3 + 3xyz \longrightarrow (3)$$

Adding (1), (2) and (3) we get

$$x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} + z\frac{\partial u}{\partial z} = 3(x^3 + y^3 + z^3 + 3xyz)$$

$$= 3u$$

Hence Euler's theorem is verified

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2. If $u = e^{x^3+y^3}$ then prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 3u \log u$

Soln:

$$u = e^{x^3+y^3}$$

$$\log u = x^3 + y^3$$

$$= x^3\left[1 + \left(\frac{y}{x}\right)^3\right]$$

$$= x^3 f\left(\frac{y}{x}\right)$$

$\therefore \log u$ is a homogenous function of degree 3

By Euler's theorem

$$x\frac{\partial(\log u)}{\partial x} + y\frac{\partial(\log u)}{\partial y} = 3\log u$$

$$x\frac{1}{u}\cdot\frac{\partial u}{\partial x} + y\frac{1}{u}\cdot\frac{\partial u}{\partial y} = 3\log u$$

$$\frac{1}{u}\left[x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}\right] = 3\log u$$

$$x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 3u\log u$$

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2. If $u = x^2 y^3$, $x = \log t$ & $y = e^t$ find $\frac{du}{dt}$

Soln:

$u = x^2 y^3$	$x = \log t$	$y = e^t$
$\frac{\partial u}{\partial x} = 2xy^3$ $\frac{\partial u}{\partial y} = 3x^2 y^2$	$\frac{dx}{dt} = \frac{1}{t}$	$\frac{dy}{dt} = e^t$

$$\frac{du}{dt} = \frac{\partial u}{\partial x} \cdot \frac{dx}{dt} + \frac{\partial u}{\partial y} \cdot \frac{dy}{dt}$$

$$= 2x y^3 \cdot \frac{1}{t} + 3 x^2 y^2 \cdot e^t$$

$$= 2 \log t \cdot e^{3t} \cdot \frac{1}{t} + 3 (\log t)^2 e^{2t} \cdot e^t$$

$$= \frac{2 \log t e^{3t}}{t} + 3 (\log t)^2 e^{3t}$$

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