MANIPAL UNIVERSITY
JAIPUR
(University under Section 2(f) of the UGC Act)

FIRST STATE PRIVATE UNIVERSITY IN RAJASTHAN
A+ NAAC
3.28 SCORE

B.TECH SECOND YEAR

ACADEMIC YEAR: 2020-2021

COURSE NAME: ENGINEERING MATHEMATICS-III

COURSE CODE : MA 2101

LECTURE SERIES NO : 30 (THIRTY)

CREDITS : 3

MODE OF DELIVERY : ONLINE (POWER POINT PRESENTATION)

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PROPOSED DATE OF DELIVERY: 16 OCTOBER 2020

MANIPAL UNIVERSITY
JAIPUR

VISION
Global Leadership in Higher Education and Human Development

MISSION
- Be the most preferred University for innovative and interdisciplinary learning
- Foster academic, research and professional excellence in all domains
- Transform young minds into competent professionals with good human values

VALUES
Integrity, Transparency, Quality,
Team Work, Execution with Passion, Humane Touch

SESSION OUTCOME

"UNDERSTAND THE CONCEPT OF PREDICATES AND THEIR USES TO EXPRESS SENTENCES"

ASSIGNMENT

QUIZ

MID TERM EXAMINATION –I & II

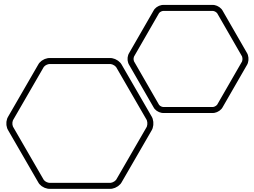
END TERM EXAMINATION

ASSESSMENT CRITERIA'S

PROGRAM OUTCOMES MAPPING WITH CO5

PO1

ENGINEERING KNOWLEDGE: APPLY THE KNOWLEDGE OF MATHEMATICS, SCIENCE, ENGINEERING FUNDAMENTALS, AND AN ENGINEERING SPECIALIZATION TO THE SOLUTION OF COMPLEX ENGINEERING PROBLEMS.



Predicate Calculus

Predicates

Let us consider two propositions

Ram is a bachelor.

Sachin is a bachelor.

Both Ram and Sachin has the same property of being bachelor. In the propositional calculus, there is no symbolic presentation of “is a bachelor”, as it is not a sentence. The two propositions can be replaced by a single proposition “x is a bachelor”. Then, by replacing x with Ram, Sachin or any other name, we get many propositions.

Predicates (cont'd)

In logic, predicates can be obtained by removing any nouns from the statement. A predicate is symbolized by capital letter and the names of individuals or objects are in general by small letters.

The sentence "x is a bachelor" is symbolized as $P(x)$, where x is a predicate variable. When concrete values are substituted in place of predicate variable, a statement results.

$P(x)$ is also called a propositional function, as each choice of x produces a proposition which may be true or false.

Thus a ***predicate*** is a sentence that contains a finite number of variables and becomes a proposition when specific values are substituted for the variables.

Universe of Discourse or Domain of a Predicate Variable

The domain of a predicate variable (also known as Universe of discourse) is the set of all possible values that may be substituted in place of variables.

For the previous example, the Universe of discourse for

P(x): “x is a bachelor” can be taken as the set of all human names.

In this example, x is the predicate variable and “is a bachelor” is a predicate.

Ex. Let P(x) denotes the statement “x > 3”, what are the truth values of P(2) and P(4)?

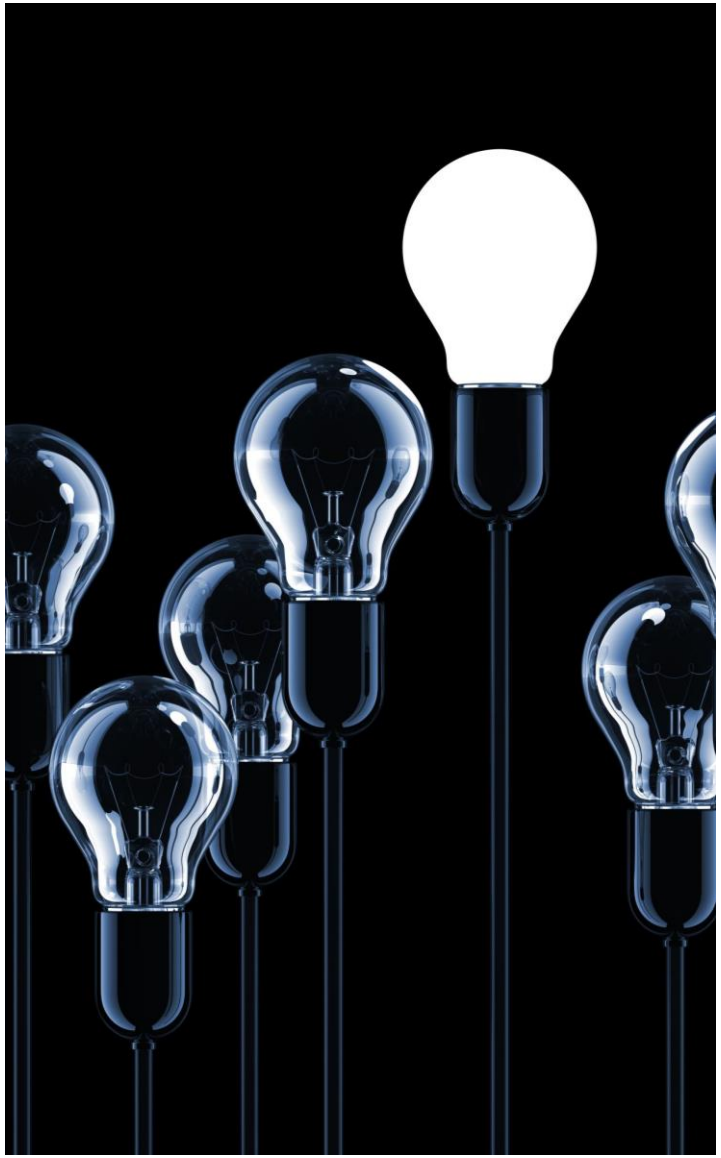
Sol. The statement P(2) denotes 2 > 3, which is False.

The statement P(4) denotes 4 > 3, which is True.

Ex. Let Q(x, y) be the statement “x = y + 3”, what are the truth values of the statements Q(1,2) and Q(3,0)?

Sol. Q(1,2) denotes 1 = 2 + 3, which is False.

Q(3,0) denotes 3 = 0 + 3, which is True.



Thanks for your attention!!