**Gamma function and Beta function**

**Gamma function**

The integral knows as the second

Eulerian , is called the gamma function of *n* and is denoted by

i, e

**Properties**

1. =



, if  *n* is an integer

**Different forms of**

1. put then

1. put then

1. put then

**Prove that and**

Proof. put

Let

–---(1)

put

then r varies from

and varies from . so (1) becomes

∴

**Beta function**

The integral knows as the first

Eulerian integral , is called the Beta function of *m* and *n* and is

denoted by

i, e

**Property**

**Different forms of**

1. put then

1. put then

1. put then

**Relation between Gamma and Beta functions**

**Proof :**

We know that

and

--------------(1)

put

then r varies from

and varies from . so (1) becomes

=

Prove that

Proof:

-------(1)

Again

---------(2)

From (1) and (2) we get

proved

Prove that

Proof:

We have

Put

**Example Evaluate:**

Soln we know that

Put , we get

**Example Evaluate:**

Soln we know that

Put , we get

**Example Evaluate:**

Soln: Let

Evaluate

Soln:

Put dx=cosd

When

**Evaluate**

Soln:

Put

**Evaluate** ,

Soln:

Put x= ,