30/11/19 M

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7279 **J**

Unique Paper Code : 32353301

Name of the Paper : Latex and HTML

Name of the Course : **B.Sc. (Hons.) Mathematics**

Semester : III

Duration : 2 Hours Maximum Marks : 38

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **All** questions are compulsory.

1. Fill in the blanks **(Any 4)** : (4×½=2)

   (i) To create a hyperlink in HTML ..... element is used.

   (ii) LaTeX is a ..... language.

   (iii) The command ..... draws a circle with center (2,2) and radius 1.

(iv) Boldface text on a webpage is obtained with the ..... element.

(v) The command to produce name of institute in a beamer presentation is .....

2. Answer any **eight** parts from the following : (8×2=16)

(i) Describe three different ways in LaTeX to write in math mode.

(ii) What is wrong with the following input:

$\$theta = pi\$$, then $\$ \sin theta = 0\$$.

(iii) What is the output of the following command :

\[\left(\frac{a+b}{x+y}\right)^{1/3}\]

(iv) Make the following equation in LaTex:

$$R_\theta = \begin{bmatrix} cos\theta & -sin\theta \\ sin\theta & cos\theta \end{bmatrix}$$

(v) Give any two attributes of the img tag in HTML.

(vi) Typeset a code in LaTeX for the following :

$$\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$$

(vii) Give the output of the command

\psarc(1,1){3}{0}{50}

(viii) Write a LaTeX code to produce $p^q + q^p + z^z$ as the output.

(ix) Write the output of the following HTML code :

<h3> Ordered list with Arabic numerals </h3>

<o1 type = "1">

 Analysis

 Algebra

</o1>

(x) Write the postfix notation in standard form: x sin 1 add 2 exp 1 x sub div.

3. Answer any **five** parts from the following : (5×4=20)

(i) Write a code in LaTeX for typesetting the following expression:

$$A_n = \begin{bmatrix} n & n^2 & n^3 \\ 3 & 9 & 27 \\ 4 & 16 & 64 \\ 11 & 121 & 1331 \end{bmatrix}$$

P.T.O.

(ii) Find the errors in the following LaTeX source, write a corrected version and write its output :

```
\documentclass{article}
\usepackage{amsmath}
\title{My Document}
\author{ABC}
\date{today}
\maketitle
\begin{document}
\[ lim_{n \rightarrow infinity} \frac{sin 2 x}{x} \]
\end{document}
```

(iii) Write the code in LaTeX to plot the functions $y = \sqrt{x}$ and $y = x^2$ on the same coordinate system, for $0 \leq x \leq 1$. Show the sine function as a solid curve and the cosine function as a dotted curve.

(iv) Write a code in LaTeX for typesetting the following expression :

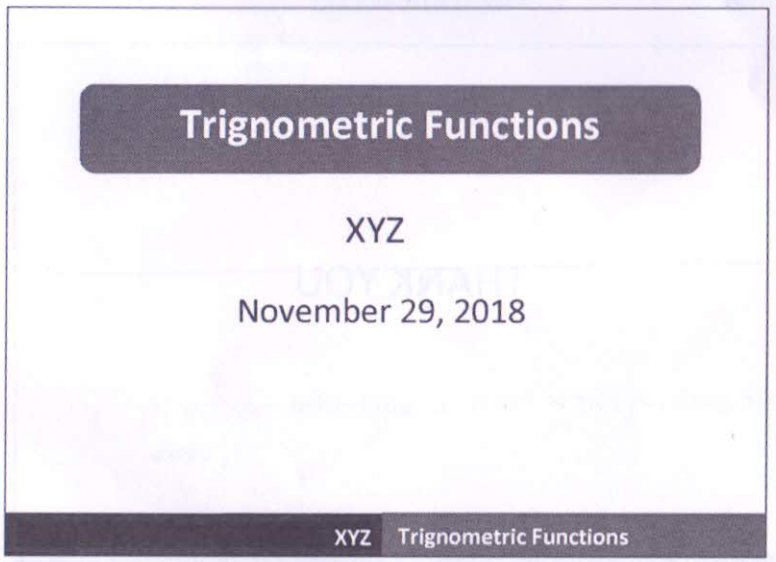
$$e^{x} = \frac{x^0}{0!}+\frac{x^1}{1!}+\frac{x^2}{2!}+\frac{x^3}{3!}+\cdots$$

$$e^{-1} = \frac{(-1)^0}{0!}+\frac{(-1)^1}{1!}+\frac{(-1)^2}{2!}+\frac{(-1)^3}{3!}+\cdots$$

$$= \frac{1}{0!}-\frac{1}{1!}+\frac{1}{2!}-\frac{1}{3!}+\cdots$$

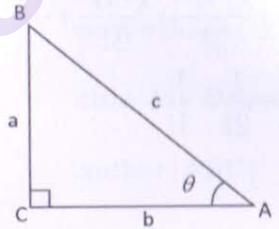
(v) Write LaTeX code in beamer to prepare the following presentation :

Slide 1:



Slide 2:

Trignometric Functions



$$\sin\theta = \frac{a}{c}, \cos\theta = \frac{b}{c}$$

XYZ Trignometric Functions

Slide 3:

THANK YOU

XYZ Trignometric Functions

(vi) Write an HTML code to generate the following web page:

University of Delhi

Department of Mathematics

The list of options for DSE papers offered in B.Sc.(H)-Mathematics:

1. Vth Semester
   a. DSE-1
      i. Numerical Methods
      ii. Mathematical Modelling and Graph Theory
   b. DSE-2
      i. Mathematical Finance
      ii. Discrete Mathematics
2. VIth Semester
   a. DSE-3
      i. Probability Theory & Statistics
      ii. Mechanics

Keep the following in mind while writing the code :

(i) Font face of the text should be Arial.

(ii) Text color of the main heading should be purple.