Sr. No. 8166 (R...)　　　　　　　　　　　　　　　　　　　　　　　　　Roll no.________________

**B.SC. (HONS.) MATHEMATICS-1$^{ST}$ SEMESTER RE-APPEAR EXAMINATIONS; DEC.-2017**
**(SUB: ALGEBRA; PAPER CODE 09050101)**

**TIME: 03:00 Hrs.**　　　　　　　　　　　　　　　　　　　　　　　　　　**Max.Marks:75**

**Instructions: -**

1. Write your roll no. on the question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regard, if any should be made within 15 minutes of the commencement of exam. No complaint(s) will be entertained thereafter.
3. Attempt five (5) questions in all and Question No. 1 is compulsory.Students are required to attempt four questions selecting one question from each unit. Marks are indicated against each question.
4. Draw Diagram wherever required.

**Q.1 Answer all the following questions:-** **(5x3=15)**

**a)** Define Inverse of a matrix.
**b)** Define Minor of a matrix with an example.
**c)** Define Skew symmetric matrix with an example.
**d)** Define consistency and inconsistency of a system of equations.
**e)** Solve the equation $x^3-7x^2+7x-2=0$, the roots being in GP.

## UNIT-I

**Q.2 a)** Show that the matrix $B'AB$ is symmetric or skew-symmetric according as $A$ is symmetric or skew-symmetric. **(7)**

**b)** Express the matrix $A=\begin{pmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{pmatrix}$ as the sum of symmetric and skew-symmetric matrix. **(8)**

**Q.3 a)** Find out the rank of the matrix $\begin{pmatrix} 1 & 1 & 1 & 1 \\ 3 & 4 & 5 & 2 \\ 2 & 3 & 4 & 0 \end{pmatrix}$ using Normal form. **(7)**

**b)** Find out the inverse of the matrix $A=\begin{pmatrix} 1 & 2 & -1 \\ -1 & 1 & 2 \\ 2 & -1 & 1 \end{pmatrix}$ using Caley-Hamilton theorem. **(8)**

## UNIT-II

**Q.4 a)** By using matrix method, show that the system of equations $x-4y+7z=8,\ 3x+8y-2z=6,\ \ 7x-8y+26z=31$ has no solution and hence the system is inconsistent. **(7)**

**b)** For what values of $\lambda,\ \mu$ the equations $x+y+z=6,\ x+2y+3z=10, x+2y+\lambda z=\mu$ have (i) No solution, (ii) a unique solution, (iii) an infinite no. of solutions. **(8)**

**Q.5 a)** Write the quadratic form corresponding to the symmetric matrix $\begin{pmatrix} 1 & 3 & 4 \\ 3 & 1 & 7/2 \\ 4 & 7/2 & 1 \end{pmatrix}$. **(7)**

**b)** Diagonalize the quadratic form $6x^2+25y^2+61z^2-24xy-36xz+76yz$. Also find the rank and Index of the quadratic form. **(8)**

## UNIT-III

**Q.6** **a)** Solve the equation $2x^3 + x^2 - 7x - 6 = 0$. Given that the difference of two of its roots is 3. **(7)**

**b)** If $\alpha, \beta, \gamma$ are the roots of $x^3 - px^2 + qx - r = 0$, find the value of $\sum \alpha^2$ and $\sum \alpha^2 \beta^2$. **(8)**

**Q.7** **a)** Find the equation whose roots of $4x^5 - 2x^3 + 7x - 3 = 0$, each increased by 2. **(7)**

**b)** Remove the second term of the equation $x^3 - 6x^2 + 4x - 7 = 0$. **(8)**

## UNIT-IV

**Q.8** **a)** Solve the equation $x^3 - 15x - 126 = 0$ by Cardan's method. **(7)**

**b)** Use Descarte's method rule of sign to discuss the nature of the roots of the equation $x^6 - 3x^2 - x + 1 = 0$. **(8)**

**Q.9** **a)** Show that the equation $2x^7 - 5x^4 + 3x^3 - 1 = 0$ has at least 4 imaginary roots. **(7)**

**b)** Use Cardan's method to solve the cubic equation $28x^3 - 9x^2 + 1 = 0$. **(8)**

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Sr. No. 8107-(R4)                                                                                   Roll no.________

**B.SC. (HONS.) MATHEMATICS-1ST SEMESTER RE-APPEAR EXAMINATIONS; DEC.-2017**
**(SUB: CALCULUS; PAPER CODE 09050102)**

**TIME: 03:00 Hrs.**                                                                                   **Max.Marks:75**

**Instructions: -**

1. Write your roll no. on the question paper.
2. Candidate should ensure that they have been provided with the correct questionpaper. Complaints in this regard, if any should be made within 15 minutes of the commencement of exam. No complaint(s) will be entertained thereafter.
3. Attempt five (5) questions in all and Question No. 1 is compulsory.
   Students are required to attempt four questions selecting one question from each unit. Marks are indicated against each question.
4. Draw Diagram wherever required.

**Q.1 Answer all the following questions:-** **(5x3=15)**

**a)** Find $\lim_{x \to o} \frac{[x]}{x}$, where [x] denotes the greatest integer not greater than x.

**b)** Find the asymptotes of $y = x\frac{e^x - e^{-x}}{e^x + e^{-x}}$

**c)** Evaluate $\int_0^{-\infty} x^n e^{-x}\, dx$,where n is a positive integer.

**d)** Show that the radius of curvature for the curve r = a(1-cos$\theta$) is $\frac{2}{3}\sqrt{2ar}$

**e)** Find the length of the arc of circle $x^2 + y^2 = 4$ in the first quadrant.

## UNIT-I

**Q.2 a)** State and prove Leibnitz theorem for nth derivative of product of two functions. **(8)**

**b)** Show that the function $f(x) = \begin{cases} \sin\frac{1}{x} & x \neq 0 \\ 0 & x = 0 \end{cases}$ is discontinuous at x=0 and has discontinuity of second kind. **(7)**

**Q.3 a)** If y = tan-1x, prove that (1+x2) yn+1 + 2nxyn +n(n-1)yn-1= 0 and hence determine the value of yn (0). **(7)**

**b)** State and prove Taylor's theorem with Lagrange's form of remainder after 'n' terms. **(8)**

## UNIT-II

**Q.4 a)** Find the asymptotes for the curve 2x3-x2y-2xy2+y3+2x2 -7xy+3y2 2x+2y+1=0. **(9)**

**b)** Find the position and nature of double points on the curve (y-x)2 + x7 =0. **(6)**

**Q.5 Find the radius of curvature for the following curves:-** **(3x5=15)**

**a)** rn = an cos nθ

**b)** x=a cos3θ, y = a sin3θ

**c)** x2y = a (x2+ y2) ,at the point (-2a,2a)

## UNIT-III

**Q.6 a)** Trace the curve x2(x2 + y2 ) = a2 (x2 - y2) **(10)**

**b)** Obtain a reduction formula for the integral $\int_0^{\pi/2} \sin^n x\; dx$ **(5)**

**Q.7 a)** Trace the curve r = a sin 2θ **(6)**

**b)** Evaluate $\int_0^{\pi/2} \sin^m x \cos^n x\, dx$ in terms of the integral $\int_0^{\pi/2} \sin^{m-2} x \cos^n x\, dx$ where m and n are positive integers and hence find the value of the integral $\int_0^{\pi/2} \sin^5 x \cos^4 x\, dx$. **(9)**

## UNIT-IV

**Q.8 a)** Find the total area of the loop of the curve $r = a \cos 2\theta$ (7)

**b)** Find the whole length of the asteroid $x2/3 + y2/3 = a2/3$ (8)

**Q.9 a)** The circle $x2 + y2 = 9$ is revolved about x-axis. Find the volume of the sphere so formed. (7)

**b)** Find the area common to the parabola $y2 = ax$ and the circle $x2 + y2 = 4ax$. (8)

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Sr. No. 8107-(R1)    Roll no.________

**B.SC. (HONS.) MATHEMATICS-1ST SEMESTER RE-APPEAR EXAMINATIONS; DEC.-2017**
**(SUB: CALCULUS; PAPER CODE 09050102)**

**TIME: 03:00 Hrs.**    **Max.Marks:75**

**Instructions: -**

1. Write your roll no. on the question paper.
2. Candidate should ensure that they have been provided with the correct questionpaper. Complaints in this regard, if any should be made within 15 minutes of the commencement of exam. No complaint(s) will be entertained thereafter.
3. Attempt five (5) questions in all and Question No. 1 is compulsory.
   Students are required to attempt four questions selecting one question from each unit. Marks are indicated against each question.
4. Draw Diagram wherever required.

**Q.1 Answer all the following questions:-** **(5x3=15)**

**a)** Find $\lim_{x\to o}\frac{[x]}{x}$, where [x] denotes the greatest integer not greater than x.

**b)** Find the asymptotes of $y = x\frac{e^x - e^{-x}}{e^x + e^{-x}}$

**c)** Evaluate $\int_0^{-\infty} x^n e^{-x}\,dx$,where n is a positive integer.

**d)** Show that the radius of curvature for the curve r = a(1-cos$\theta$) is $\frac{2}{3}\sqrt{2ar}$

**e)** Find the length of the arc of circle $x^2 + y^2 = 4$ in the first quadrant.

## UNIT-I

**Q.2 a)** State and prove Leibnitz theorem for nth derivative of product of two functions. **(8)**

**b)** Show that the function $f(x) = \begin{cases} \sin\frac{1}{x} & x \neq 0 \\ 0 & x = 0 \end{cases}$ is discontinuous at x=0 and has discontinuity of second kind. **(7)**

**Q.3 a)** If y = tan-1x, prove that (1+x2) yn+1 + 2nxyn +n(n-1)yn-1= 0 and hence determine the value of yn (0). **(7)**

**b)** State and prove Taylor's theorem with Lagrange's form of remainder after 'n' terms. **(8)**

## UNIT-II

**Q.4 a)** Find the asymptotes for the curve 2x3-x2y-2xy2+y3+2x2 -7xy+3y2 2x+2y+1=0. **(9)**

**b)** Find the position and nature of double points on the curve (y-x)2 + x7 =0. **(6)**

**Q.5 Find the radius of curvature for the following curves:-** **(3x5=15)**

**a)** rn = an cos nθ

**b)** x=a cos3θ, y = a sin3θ

**c)** x2y = a (x2+ y2) ,at the point (-2a,2a)

## UNIT-III

**Q.6 a)** Trace the curve x2(x2 + y2 ) = a2 (x2 - y2) **(10)**

**b)** Obtain a reduction formula for the integral $\int_0^{\pi/2} sin^n x\ dx$ **(5)**

**Q.7 a)** Trace the curve r = a sin 2θ **(6)**

**b)** Evaluate $\int_0^{\pi/2} \sin^m x \cos^n x\,dx$ in terms of the integral $\int_0^{\pi/2} \sin^{m-2} x \cos^n x\,dx$ where m and n are positive integers and hence find the value of the integral $\int_0^{\pi/2} \sin^5 x \cos^4 x\,dx$. **(9)**

## UNIT-IV

**Q.8 a)** Find the total area of the loop of the curve $r = a \cos 2\theta$ **(7)**

**b)** Find the whole length of the asteroid x2/3 + y2/3 = a2/3 **(8)**

**Q.9 a)** The circle x2 + y2 =9 is revolved about x-axis. Find the volume of the sphere so formed. **(7)**

**b)** Find the area common to the parabola y2 = ax and the circle x2 + y2 = 4ax. **(8)**

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Sr. No 8108 (RE)

Roll No. _________

**B.SC. (HONS.) MATHEMATICS – 1ST SEMESTER EXAMINATIONS, DECEMBER.-2017**

## (SUBJECT- SOLID GEOMETRY; PAPER CODE- 09050103)

**Time : 03:00 Hours** **Maximum Marks –75**

**Instruction :**

1. Write your Roll No. on the question paper.
2. Candidate should ensure that they have been provided with correct question paper. Complaints in this regard, if any, should be reported to the invigilator on duty in the examination hall within 15 minutes of the commencement of the exams. No complaints shall be entertained thereafter.
3. Attempt five (05) questions in all, Q1. is compulsory. Students are required to attempt four (04) question Selecting one Question from each unit . Marks are indicated against each question.
4. Draw diagram wherever required.

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**Q1** Answer all the following questions. **(5x3=15)**

a) Write the condition of orthogonality of two spheres. **(3)**

b) Define cone. **(3)**

c) Find the equation of the sphere whose centre is (1,2,3) and radius 4. **(3)**

d) Write the equation of the confocal conics. **(3)**

e) Write the equation of Paraboloid. **(3)**

### UNIT- I

**Q2** a) Show that in a conic, the semi latus rectum is the harmonic mean between the segments of a focal chord. **(8)**

b) Find the polar equation of a conic with focus at a pole. **(7)**

**Q3** . a) Prove that two confocal cuts at right angle. **(8)**

b) The differences of the squares of the perpendiculars drawn from the centre on any two parallel tangents to two given confocals is constant. **(7)**

### UNIT- II

**Q4** . a) Find the equation of the sphere having the circle $x^2 + y^2 + z^2 = 9$, $x - 2y + 2z = 5$ as a great Circle find its centre and radius. **(8)**

b) Find the equation of the right circular cylinder of radius 2 and axis as the line $\frac{x-1}{2} = \frac{y-2}{1} = \frac{z-3}{2}$. **(7)**

**Q5.** a) A sphere of constant radius k passes through the origin O and meets the axes in A,B,C Prove that the centroid of the triangle ABC lines on the sphere $9(x^2 + y^2 + z^2) = 4k^2$. **(8)**

b) A plane passes through a fixed point (a,b,c) and cuts axes in A,B,C. Show that the locus of the centre of the sphere OABC is $\frac{a}{x} + \frac{b}{y} + \frac{c}{z} = 2$ **(7)**

**P.T.O**

## UNIT- III

**Q6.** a) Prove that the locus of the foot of the perpendicular drawn from the centre of the ellipsoid $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}=1$ to any of its tangent planes is $a^2x^2+b^2y^2+c^2z^2=(x^2+y^2+z^2)^2$ **(8)**

b) Find the condition that the plane $lx+my+nz=p$ may touch the central conicoid $ax^2+by^2+cz^2=1$ if $lx+my+nz=\pm\sqrt{\frac{l^2}{a}+\frac{m^2}{b}+\frac{n^2}{c}}$ **(7)**

**Q7.** a) Define the polar plane. Prove that the pole of the Plane $lx+my+nz=p$ w.r.t. the conicoid $ax^2+by^2+cz^2=1$ is $\left(\frac{l}{ap},\frac{m}{bp},\frac{n}{cp}\right)$. **(8)**

b) Show that the plane $2x-4y-z+3=0$ touches the Paraboloid $x^2-2y^2=3z$. Also find the point of contact. **(7)**

## UNIT- IV

**Q8.** Show that the two confocal paraboloids cut everywhere at right angles. **(15)**

**Q9.** a) Prove that the surface whose equation is $3x^2+6yz-y^2-z^2-6x+6y-2z-2=0$ represents hyperboloid of one sheet. **(8)**

b) A given plane and parallel tangent plane to a conicoid are at a distance $p$ and $p_0$ from the centre. Prove that the parameter of confocal conicoid which touches the plane is $(p_0^2-p^2)$. **(7)**

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Sr. No. ____________ Roll No__________

**B.Sc. (HONS.) MATHEMATICS – 1st SEM. RE-APPEAR EXAMS.; DECEMBER 2017**
**(SUB.: DISCRETE MATHEMATICS; PAPER CODE: 09050104)**

**TIME: 03:00 Hrs.** **Max. Marks: 75**

**Instructions:-**

1. Write your Roll no. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards. If any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Attempt FIVE questions in all. Q.1 is compulsory. Students are required to attempt FOUR questions selecting one question from each Unit in addition to Q.No. 1. Marks are indicated against each question. All question carry equal marks.
4. Draw Diagram wherever required.

**Q.1.** Answer the following questions: **(5x3=15)**

a) Define a statement with example.
b) Define a relation with example.
c) Define a conditional statement.
d) Define a simple Graph with example.
e) Define a Tautology. Show that the statement $[p \wedge (p \rightarrow q)] \rightarrow q$ is a tautology.

**UNIT-I**

**Q.2.** a) Let $A = \{1, 2, ..., 12\}$. Define a relation $R$ on $A$ such that $aRb$ if and only if $a$ divides $b$. **(7)**

b) Let $A = \{1, 5, 7, 11\}$. Prepare a composition table w.r.to multiplication module 12. **(8)**

**Q.3.** a) Let $I$ be the set of integers. Show that the relation $R$ on $I$ such that $xRy$ if and only if $x - y$ is divisible by 5 $\forall x, y \in I$ is an equivalence relation. **(7)**

b) For any finite sets $A$, $B$, $C$ show that:- **(8)**

$$|A \cup B \cup C| = |A| + |B| + |C| - |A \cap B| - |B \cap C| - |A \cap C| + |A \cap B \cap C|$$

**UNIT-II**

**Q.4.** a) Using truth table, show the equality of the statements $p \rightarrow (q \rightarrow r)$ and $(p \wedge q) \rightarrow r$. **(7)**

b) Show that the statement $[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$ is a tautology. **(8)**

**Q.5.** a) Define Universal Quantifier and Existential Quantifier with suitable example. **(7)**

b) Without using truth table shows that the argument $f = [p \wedge (p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow r$ is valid. **(8)**

**UNIT-III**

**Q.6.** a) In how many ways can a committee of 5 persons be formed from 6 man and 4 women so as to include at least 2 women. **(7)**

b) Find the number of integers between 1 and 250 that are divisible by any of the integers 2, 3 and 7. **(8)**

**Q.7.** a) Define a graph Show that the number of odd vertices in a graph is always even. **(7)**

b) Find the probability that at most 5 defective fuses will be found in a box of 200 fuses if experience shows that 2 percent of such fuses are defective. **(8)**

## UNIT-IV

**Q.8.** a) Evaluate the sum $1^2+2^2+3^2+...+r^2$ using generating functions. **(7)**

b) Use generating function to solve the following simultaneous recurrence relations $a_r=3a_{r-1}+2b_{r-1}$, $b_r=a_{r-1}+b_{r-1}$, *with* $a_0=1$ *and* $b_0=0$. **(8)**

**Q.9.** a) Use generating function to solve the recurrence relation $a_n=a_{n-1}+n$, $a_0=1$. **(7)**

b) Determine the discrete numeric function corresponding the following generating functions:- **(8)**

i) $A(z)=(1+z)^n+(1-z)^n$ where $n$ is a positive integer.

ii) $A(z)=\dfrac{(1+z)^2}{(1-z)^4}$

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Sr. No 8110(RE)

Roll No. ________

B.SC. (HONS.) MATHEMATICS – 1ST SEMESTER EXAMINATIONS, DECEMBER.-2017

# (SUBJECT- DESCRIPTIVE STATISTICS; PAPER CODE- 09050105)

**Time : 03:00 Hours** **Maximum Marks –75**

**Instruction :**

1. Write your Roll No. on the question paper.
2. Candidate should ensure that they have been provided with correct question paper. Complaints in this regard, if any, should be reported to the invigilator on duty in the examination hall within 15 minutes of the commencement of the exams. No complaints shall be entertained thereafter.
3. Attempt five (05) questions in all, Q1. Is compulsory. Students are required to attempt four (04) question Selecting on Questions from each unit . Marks are indicated against each question.
4. Draw diagram wherever required.

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**Q1** a) Explain primary and secondary data. **(3x5=15)**

b) Discuss grouping error and Sheppard's correction for moments in the presence of grouping error.

c) For a fairly symmetrical data, the value of mean is 35 and mode is 32. Find the value of median.

d) The average salary of workers in a firm is Rs. 5000. The average salary of male workers in the firm is Rs. 5400 and the average salary of female workers in the firm is Rs. 4200. Find the proportions of male female workers in the firm.

e) For a dichotomous data set, the following information is given: $N=150, (A)=90, (B)=60, (AB)=40$. Calculate $(\alpha)$, $(\beta)$, $(\alpha\beta)$ and $(A\beta)$. Where symbols have their usual meaning.

**Q2** i) Describe the main components of a table. **(8)**

ii) Draw a histogram and frequency curve for the following data. **(7)**

| Marks | 0-10 | 10 20 | 20 30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|---|---|---|---|---|---|---|---|---|
| No. of students | 5 | 9 | 12 | 24 | 21 | 14 | 8 | 4 |

**OR**

i) Explain pie chart in brief. Draw a pie chart for the following data. **(7)**

**India's export from various sources in % (2009-10)**

| USA | Japan | USSR | OPEC | OECD | UK | Germany | Others |
|---|---|---|---|---|---|---|---|
| 10.6 | 7.3 | 11 | 17.1 | 7.3 | 6.3 | 7.8 | 30.3 |

ii) Discuss stem and leaf plot and box plot with suitable examples. **(8)**

**Q3.** i) Explain geometric mean of a data. Let $G_1$ and $G_2$ be the geometric mean of two data set of sizes $n_1$ and $n_2$ respectively. Obtain the formula for combined geometric mean. **(7)**

ii) Calculate the mean deviation about median for the following data. **(8)**

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|---|---|---|---|---|---|---|---|
| No. of students | 15 | 19 | 23 | 34 | 31 | 14 | 7 |

P.T.O.

**OR**

i) Obtain the quartile deviation for the following data. (8)

| Height (in cm) | 135-145 | 145-155 | 155-165 | 165-175 | 175-185 | 185-195 |
|---|---|---|---|---|---|---|
| No. of students | 4 | 14 | 23 | 30 | 11 | 2 |

ii) Define raw moments and central moments. Obtain the expression for $\mu_2$ and $\mu_3$ in term of raw moments. (7)

**Q4.** i) What do you understand by the independence of attributes? Check whether the attributes (A) and (B) is independent in the following case. $N = 1000$, $(A) = 470$, $(B) = 620$, $(AB) = 320$. (7)

ii) What do you understand by the consistency of attributes? Obtain the necessary condition for consistency of three attributes. (8)

**OR**

i) Prove that Spearman Correlation coefficient lies between-1 to + 1. (15)

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Sr. No. 8111-(R2)   Roll no.________

**B.SC. (HONS.) MATHEMATICS-1$^{ST}$ SEMESTER RE-APPEAR EXAMINATIONS; DEC.-2017**
**(SUB: COMPUTER PROGRAMMING & MS OFFICE; PAPER CODE 09050107)**

**TIME: 03:00 Hrs.**   **Max.Marks:75**

**Instructions: -**

1. Write your roll no. on the question paper.
2. Candidate should ensure that they have been provided with the correct questionpaper. Complaints in this regard, if any should be made within 15 minutes of the commencement of exam. No complaint(s) will be entertained thereafter.
3. Attempt five (5) questions in all and Question No. 1 is compulsory. Students are required to attempt four questions selecting one question from each unit. Marks are indicated against each question.
4. Draw Diagram wherever required.

**Q.1 Answer all the following questions:-** (5x3 15)
a) Define Digital computer..
b) What do you mean by RAM and ROM?
c) What is time sharing? What are its roles?
d) Define pivot table.
e) What is difference between hardware and software?

## UNIT-I

**Q.2** **(a)** What are the various application of MS-Excel. (8)
**(b)** What do you understand by memory hierarchy Explain it. (7)

**OR**

**Q.3** **(a)** What do you mean by setting a slide show. (7)
**(b)** What do you mean by window? Illustrate the role of the following in windows:- (8)
**(i)** Clip Board
**(ii)** Paintbrush

## UNIT-II

**Q.4** **(a)** What are the different types of Menus available in Windows? (5)
**(b)** What do you understand by MS-Power point? Chart all the features of MS-Power point and Explain their use through suitable examples. (10)

**OR**

**Q.5** Draw a block diagram of computer and describe various generations of computer. (15)

## UNIT-III

**Q.6** **(a)** What do you mean by Ms-Excel? Explain the various application of MS-Excel. (7)
**(b)** How to apply animation to text in MS-Word? (8)

**OR**

**Q.7** **Write a short note on:-**
**(i)** cache memory (5)
**(ii)** mail merge (5)
**(iii)**Control panel (5)

## UNIT-IV

**Q.8** What do you mean by computer? Explain in detail all its input and output devices. (15)

**OR**

**Q.9** **(a)** What do you mean by MS-Word? State features of MS-Word. (10)
**(b)** Describe the objective of multiprogramming. (5)

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