# UG-330

#### BMC-13

# B.Sc. DEGREE EXAMINATION – JUNE 2008.

# (AY 2007-08 onwards)

First Year

### Mathematics with Computer Applications

### COMPUTER FUNDAMENTALS AND PC SOFTWARE

Time : 3 hours

Maximum marks : 75

SECTION A —  $(5 \times 5 = 25 \text{ marks})$ 

Answer any FIVE questions.

- 1. How communication is happen inside computer.
- 2. Describe pipelining.
- 3. Write a brief history about Evolution of operating system.
- 4. Explain the communication mode.
- 5. What are the uses of Task Bar features?
- 6. How to create a user profile?
- 7. How to protecting a document?
- 8. Explain the Clip art in Power Point.

SECTION B —  $(5 \times 10 = 50 \text{ marks})$ 

#### Answer any FIVE questions.

- 9. Discuss the Parallel Processing.
- 10. Discuss the synchronous and asynchronous transmission.
- 11. Discuss the Disk Drive Utilities.
- 12. Briefly explain about WordPad.
- 13. Discuss the Folders operations.

- 14. Discuss the Recycle Bin.
- 15. Explain the proofing tools in Word.
- 16. Discuss the drawing in PowerPoint.

# UG-450

BMC-13

# B.Sc. DEGREE EXAMINATION – JULY 2008.

# First Year

Mathematics with Computer Applications

#### COMPUTER FUNDAMENTALS AND PC SOFTWARE

Time : 3 hours

Maximum marks: 75

PART A —  $(5 \times 5 = 25 \text{ marks})$ 

Answer any FIVE questions.

- 17. Define classification of computer.
- 18. Describe any four input devices with examples.
- 19. Explain the four types of languages.
- 20. Explain ASCII code.
- 21. How to set a desktop themes in Win98?
- 22. Explain How to hide and display the files.
- 23. How to insert and delete a column in a table?
- 24. How to preview a slide in a power point?

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

- 25. Explain the Magnetic memory with examples.
- 26. Define ISDN. Explain the principles of ISDN.
- 27. Explain the Elements of Windows.
- 28. Explain briefly about backups in Win98.
- 29. Explain the principles of Shortcuts.
- 30. How Internet connection is made using dial-up networking?
- 31. Explain the text formatting in MS-Word.
- 32. Explain how charts and graphs are working in PowerPoint.

# UG-324 BMS-11/BMC-11

# B.Sc. DEGREE EXAMINATION – JUNE 2008.

(BMS-11 : AY 2006-2007 onwards BMC-11 : AY 2007-2008 onwards)

First Year

#### Mathematics/Mathematics with Computer Applications

### ELEMENTS OF CALCULUS

Time : 3 hours

Maximum marks: 75

SECTION A —  $(5 \times 5 = 25 \text{ marks})$ 

#### Answer any FIVE questions.

- 33. Find the  $n^{\text{th}}$  derivative of  $\cos^4 x$ .
- 34. If  $u = \log (x^2 + y^2 + z^2)$ , prove that

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = \frac{4}{x^2 + y^2 + z^2} \,.$$

35. Find the envelope of the family of straight lines  $y = mx - 2am - am^3$ , where *m* is the parameter.

36. Evaluate  $\int x^2 \sin 2x dx$  by using Bernoulli's formula.

37. Evaluate 
$$\int_{0}^{1} \int_{x}^{\sqrt{x}} xy (x+y) dy dx.$$

38. Define :

- (a) Limit of a sequence
- (b) Divergent sequence.

39. Show that the sequence  $\{f_n\}$  where  $f_n = \frac{3n-1}{4n+5}$  converges to  $\frac{3}{4}$ .

40. Discuss the convergence of the series

$$\sum_{n=1}^{\infty} \left(\frac{n}{n+1}\right)^{n^2} \, .$$

SECTION B —  $(5 \times 10 = 50 \text{ marks})$ 

Answer any FIVE questions.

41. If 
$$y = \sin^{-1} x$$
, prove that

(a) 
$$(1-x^2)y_2 - xy_1 = 0$$
 and

(b) 
$$(1-x^2) y_{n+2} - x(2n+1) y_{n+1} - n^2 y_n = 0.$$

42. Investigate the maxima of the function

$$f(x, y) = x^{3}y^{2}(1-x-y).$$

- 43. Find the radius of curvature at the point  $\left(\frac{3a}{2}, \frac{3a}{2}\right)$  on the curve  $x^3 + y^3 = 3axy$ .
- 44. If  $I_n = \int \cos^n x \, dx$  then show that

$$I_n = \frac{\cos^{n-1} x \sin x}{n} + \frac{n-1}{n} I_{n-2} \,.$$

Also evaluate  $\int \cos^7 x \, dx$ .

- 45. Find the area bounded by the parabolas  $y^2 = x$  and  $x^2 = y$ .
- 46. Prove that in a convergent sequence the limit is unique.
- 47. Show that every Cauchy sequence is convergent.
- 48. Test the convergence for the following series :

(a) 
$$\sum \frac{(-1)^{n+1}}{\sqrt{n}}$$
  
(b)  $\sum_{n=1}^{\infty} \frac{n^2 + 1}{5^n}$ .