Third Year B.B.M Degree Examinations

October / November 2014

(Directorate of Distance Education)

COMMERCE

DBC 220: MATHEMATICS FOR MANAGERS

Time: 3hrs.] *[Max. Marks: 70/80*

Instructions to candidates:
«zÁåyðUÀ½UÉ ¸ÀÆZÀ£ÉUÀ¼ÀÄ:

1. *Students who have attended 30 Marks Internal Assessment scheme will have to answer for total of 70 Marks.*
   30 CAPÀUÀ¼À DAvÀjPÀ ¥ÀjÃPÁë AiÉÆÃd£ÉUÉ ºÁdgÁzÀ «zÁåyðUÀ¼ÀÄ 70 CAPÀUÀ½UÉ GvÀÛj¸À̈ ÉÃPÀÄ.
2. *Students who have attended 20 Marks Internal Assessment scheme will have to answer for total of 80 Marks.*
   20 CAPÀUÀ¼À DAvÀjPÀ ¥ÀjÃPÁë AiÉÆÃd£ÉUÉ ºÁdgÁzÀ «zÁåyðUÀ¼ÀÄ 80 CAPÀUÀ½UÉ GvÀÛj¸À̈ ÉÃPÀÄ.

SECTION – A
«¨sÁUÀ - J

I. Answer any TWO of the following questions. 5 marks each : 2 x 5 = 10 Marks
AiÀÄÁªÀÅzÁzÀgÀÆ JgÀqÀÄ ¥Àæ±ÉßUÀ½UÉ GvÀÛj¹. vÀ¯Á 5 CAPÀUÀ¼ÀÄ:

1. Find the value of $\frac{(4a^2)^3}{(2a^3)^2}+\frac{(6a^3)^2}{(3a^2)^3}$
   Ezg ¨É¯ÉAiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj.

2. Find the value by using log table
   ¯ÁUÀïmÉÃ§¯ï §¼À¹ Ezg ¨É¯ÉAiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj

   $$\sqrt[4]{\frac{17.2\times 13.92}{21.62\times 4.9}}$$

3. Find the root of the equation $x^2-3x-10=0$. x ¨É¯ÉAiÀÄ£ÀÄß PÀAqÀÄ »r¬Äj.

4. Two numbers are in the ratio 25: 37. How much to be added to each, to bring the ratio 5: 6.
   JgÀqÀÄ ¸ÀASÉåUÀ¼ÀÄ 25: 37 C£ÀÄ¥ÁvÀzÀ°ªÉ. D JgÀqÀÄ ¸ÀASÉåUÀ¼À C£ÀÄ¥ÁvÀªÀ£ÀÄß 5: 6PÉÌ vg®Ä JµÀÄÖ ¸ÉÃj¸À̈ ÉÃPÀÄ.

SECTION – B
«¨ÁU - ©

II. ***Answer any THREE of the following questions. 10 marks each:*** 3 x 10 = 30 Marks
AiiÁªÁzÁzgÀÆ ªÀÄÆgÀ ¥±ÉßUÀ½UÉ GvÀÛj¹j. vÀ Á 10 CAPÀ¼ÀÄ:

5. a) Find the compound interest on ` 10,000 for 2 years at 4% p.a. Payable half yearly.
` 10,000 UÀ½UÉ JgqÀÄ ªµðPÀ ±ÃÀ. 4gÀAv ½ ªµðPÀÆªÀÄ §rÀ ¥ÁªÀw¸ ¨ÃPÁz°, DUÀª ZP§rAiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj.

b) Find the value of $10P_5$ and $10C_5$
$10P_5$ ªÀÄvÀÄ $10C_5$£ ¨¯AiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj.

6. a) If $x:y=5:3,\ y:z=5:6$ DzÀg find $x{:}y{:}z$ ¨¯AiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj.

b) A town has total population of 60,000, out of it 32,000 read the Hindu News paper and 35,000 read Times of India. 7500 read both Hindu and Times of India. Calculate How many people read neither Hindu nor Times of India? Represent by Venn diagram.
MAzÀ £ÀUgzÀ d£¸ASÉ 60,000 CzÀg° 32,000 d£ »AzÀÄ ¢£¥wPAiÀÄ£ÀÄß ªÀÄvÀÄ 35,000 d£ mÉªÄïì D¥ïÀ EArAiiÁ ¢£¥wPAiÀÄ£ÀÄß NzÀÄªgÀÄ. 7,500 ªÀÄA¢ JgqÀÆ ¢£¥wPU¼£ÀÆß NzÀÄªgÀÄ. ºÁUÁzÀg ¢£¥wPAiÀÄ£ÃÀ NzzªÀg ¸ASÉ JµÀÄ? ª£ÀÄ£ avzÀ ªÀÄÆ®P ¤gÀÆ¦¹.

7. a) Simplify ©r¹j $-\sqrt[3]{a\sqrt[3]{a}\sqrt[3]{a}}$ and ªÀÄvÀÄ Find the value when $a=2^{27/13}$ DzÁU ¨¯AiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj.

b) If $u=\{3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$ $A=\{3, 4, 5, 6\}$
$B=\{3, 5, 7, 9\}$ $C=\{6, 7, 8, 10, 12\}$ DzÀg find $(i)\ (A\cap B)'$ $(ii)\ (A'\cup C')$
¨¯AiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj

8. Solve by using Cramer's rule
PÃªÀÄgïß ¤AiÀÄªÀÄªÀ£ÀÄß §¼À¹ ©r¹j.

$$x+y+z=7$$
$$2x+3y+2z=17$$
$$4x+9y+z=19$$

9. a) A wire is bent into a form of circle. whose radius is 35 inches. If the same wire is bent into a form of square, what is length of a side and area of circle and square.
MAzÀÄ vÀAwAiÀÄ£ÀÄß ªÉvÀÛPÁgªÁV §V¸¯ÁVz. CzÀg wdå 35 EAZÀÄU¼ÀÄ. CzÃÀ vÀAwAiÀÄ£ÀÄß ZËPÁPÁgªÁV §V¹z° Czg MAzÀÄ ¨ÁºÀÄ«£ GzÀÝªÀ£ÀÄß PÀAqÀÄ»r¬Äj ºÁUÆ ªÉvÀz, ZËPz «¹ÃtðªÀ£ÀÄß PÀAqÀÄ»r¬Äj. 7 Marks

b) Solve for x £ ¨¯AiÀÄ£ÀÄß PÀAqÀÄ»r¬Äj
$2(x-3)=9+3(x-9)$ 3 Marks

Contd………3

SECTION – C
«¨ÁU - ¹

III. ***Answer any TWO of the following questions. 15 marks each:*** 2 x 15 = 30 Marks
AiiÁªÁzÁzgÆ JgqÀ ¥±ÉßUÀ½U Gvj¹. v¯Á 15 CAPÀUÀ¼ÀÄ:

10. a) Find the difference between simple and compound interest and amount on ` 18,000 for 5½ Years at 9.5% p.a. compounded annually.
` 18,000 C¸°U 5½ ªµðz° ±Ã 9.5 §rzgzAv ¸g¼§rUÆ ZP§rUÆ CUÀª ªÀvÀ ªÆvÀPÆ DUÀª ªÀvÀ¸ª£ÀÄß PÀAqÀ»r¬Àj. 10 Marks

b) Solve for x £ ¨¯AiÀÄ£ÀÄß PÀAqÀ»r¬Àj

$x^2 - 7x + 6 = 0$ 5 Marks

11. a) The sum of 3 numbers of G.P is 14 and their product is 64. Find the numbers.
MAzÀ UÀuÁvÀP ±ÃrAiÀ ªÀÆgÀ ¥zU¼ ªÆv 14 ªÀvÀ CªÀUÀ¼ UÀt®§ 64 Dzg D ªÀÆgÀ ¥zU¼£ÀÄß PÀAqÀ»r¬Àj.

b) In how many ways the letters of the word 'STATISTICS' is permutated and how many of them will begin and ends with 'S'.
'STATISTICS' J£ÀÄßª ¥zz°gÀª CPgU¼£ÀÄß JµÀ «zU¼° eÆÃr¸§ºÁzÀ ªÀvÀ C ¥zU¼ D¢ ªÀvÀ CAvÀz° 'S' CPg §gÀªAv JµÀ ¥zU¼£ÀÄß ga¸§ºÁzÀ.

c) Find Present Value, True Discount, Banker Discount and Bankers Gain on a bill of ` 10,000 due after 9 months at 6% p.a.
` 10,000 ªÀÄR¨¯AiÀÄÄ¼ 9 wAU¼ Cª¢AiÀÄ, ±Ã 6gAv ºÀArAiÀÄ PV, TD, BD ªÀvÀ BG AiÀÄ£ÀÄß PÀAqÀ»r¬Àj.

12. a) In how many ways 5 digit number can be formed by using 1, 2, 3, 4, 5, 6, 7, 8 and 9. And How many of them are 'odd'.
1, 2, 3, 4, 5, 6, 7, 8 ªÀvÀ 9£ÀÄß G¥AiÆÃV¹ 5 CAPU¼À¼ JµÀ ¸ASÉU¼£ÀÄß ga¸§ºÁzÀ ªÀvÀ CªÀUÀ¼° ¨¸¸ASÉU¼µÀ?

b) Solve by using logarithms.
¯ÁUï §¼¹ ¨¯AiÀÄ£ÀÄß PÀAqÀ»r¬Àj

$$\frac{\sqrt{878.75} \times (35.4)^2}{345}$$

c) Find HCF and LCM of 116, 252 and 124
116, 252 ªÀvÀ 124g ªÀ¸ÁC ªÀvÀ ®¸ÁC PÀAqÀ»r¬Àj.

13. a) A square garden with an area of 6400 Sq. ft. is to be provided a path of 6 feet broad around. What would be the cost of paying the path at ` 50 per Sq. ft.
6400 Zzg Cr «¹Ãtðª¼ GzÁ£z ¸Àv®Æ 6 Cr CU®z g¸AiÀÄ£ÀÄß ¤«Äð¸¨ÃPÁVz. g¸ ¤«Äð¸®Ä Zzg Cr MAzP ` 50 ªZ vU®ÀªÁzÁzg, MIÄ g¸ ¤«Äð¸Àª ªZª£ÀÄß PÀAqÀ»r¬Àj.

Contd………4

b) Divide ` 118 among A B and C so that A:B = 3 : 4 and B:C = 5 : 6.
A:B = 3 : 4 ªÄvÄ B:C = 5 : 6 C£Ä¥Ávz° 118 gÆU¼£Äß AB ªÄvÄ C U ºAaj.

c) The difference between BD and TD due after 6 months at 4% p.a. is ` 20. Find TD, BD, F and P.
6 wAU¼ Cª¢AiÄ ±Ã 4gAv EgÄª ºÄArAiÄ BD ªÄvÄ TD U EgÄª ªvÁ¸ ` 20 Dzg, TD, BD, F ªÄvÄ PAiÄ£Äß PAqÄ» r¬Äj.

SECTION – D
«¨ÁU – r

Note: Compulsory question for 80 marks scheme only
*¸ÆZ£U¼Ä: **80** CAPU¼ ¥±ß ¥wPU EgÄª PqÁAiÄ ¥±ßU¼Ä*

Answer any ONE of the following question, 10 marks each: 1 x 10 = 10 Marks
*AiiÁªÁzÁzgÆ MAzÄ ¥±ßU Gvj¹, v¯Á **10** CAPU¼Ä:*

14. a) Show that $\dfrac{2\times 3^{n+1}+7\times 3^{n-1}}{3^{n+2}-2\left(\frac{1}{3}\right)^{1-n}}=1$ JAzÄ ¸Á¢¹.

b) Explain Demargon's law by an example.
r ªiÁUð£ï£ ¤AiÄªÄª£Äß GzÁºguAiÆA¢U «ªj¹.

15. a) Find the inverse of $\begin{bmatrix} 3 & 2 & 1 \\ 2 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix}$ Ezg «¯ÆÃªÄª£Äß PAqÄ »r¬Äj.

b) Solve for x £ ¨¯AiÄ£Äß PAqÄ» r¬Äj

$$\frac{x}{2}+\frac{2x}{3}=\frac{7}{2}$$

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