Code : 302204

BBA 2nd Semester Theory Examination, 2017

Business Mathematics & Statistics-1(Mathematical Economics)

Time : 3 hours *Full Marks : 60*

Instructions :

(i) *There are* seven *questions in this Paper.*

(ii) *Attempt* five *questions in all.*

(iii) *Question No. 1 & 2 is compulsory.*

(iv) *The questions are of equal value.*

6×2=12

(I) A.M between $3\sqrt{(5)}$ and $5\sqrt{(5)}$ is

(i) $\sqrt{(5)}$

(ii) $2\sqrt{(5)}$

(iii) $3\sqrt{(5)}$

(iv) $4\sqrt{(5)}$

(II) If A,G, H are arithmetic, geometric and harmonic means between a and b respectively, then A,G, H are

(i) in G.P

(ii) in A.P

(iii) in H.P

(iv) Real numbers

P.T.O.

(III) $2^1 + 2^2 + 2^3 + \ldots + 2^n =$

(i) $2(2^n-1)$

(ii) $2(2^{n-1}-1)$

(iii) $2(2^{n+1}-1)$

(iv) None of Above

(IV) Given an arithmetic sequence 11, 2, 15, ..., if $T(m)$ is the first term that exceeds 200, find the value of m.

(i) 16

(ii) 17

(iii) 18

(iv) 19

(V) Find the sum of the integers between 301 and 400 inclusive that are multiples of 4.

(i) 8400

(ii) 8800

(iii) 20 200

(iv) 49 900

(VI) In a group of 6 boys and girls, four children are to be selected. In how many different ways can they be selected such that at least one boy should be there?

(i) 159

(ii) 209

(iii) 201

(iv) 212

(VII) How many words can be formed by using all letters of the word 'BIHAR'?

(i) 720 (ii) 24

(iii) 120 (iv) 60

(VIII) There were some eggs in a bag. When the eggs were grouped into four, five and six, two eggs were always in excess. How many eggs were there in the bag?

(i) 58 (ii) 60

(iii) 62 (iv) 120

(IX) What is the derivative with respect to x of $(x+1)^3-x^3$?

(i) $3x + 6$ (ii) $3x - 3$

(iii) $6x - 3$ (iv) $6x + 3$

(X) Find the partial derivative with respect to x of the function $xy^2 - 5y + 6$.

(i) $y^2 - 5$ (ii) y^2

(iii) $xy - 5y$ (iv) $2xy$

Answer any three of the following: 4×3=12

(i) Compute $\lim_{x \to 2} \frac{3x^2 - x - 10}{x^2 - 4}$

(ii) Determine if the following function is continuous at x=0

$$f(x) = \begin{cases} \frac{x-6}{x-3}, & \text{if } x < 0 \\ 2, & \text{if } x = 0 \\ \sqrt{4+x^2}, & \text{if } x > 0 \end{cases}$$

P.T.O.

(iii) Differentiate $y = 3\tan\sqrt{x}$

(iv) Integrate $\int x \sin x dx$

(v) In a class of 30 students, 15 students have taken Engli 10 Students have taken English but not French. Find t number of students who have taken (i) French and French but not English.

3. Integrate $\int \frac{x^3}{(1+x^4)^3} dx$

4. A sheet of cardboard 3 ft. by 4 ft. will be made into a box cutting-sized squares from each corner and folding up four edges. What will be the dimensions of the box with large volume?

5. (a) Find 10th term in the series 1, 3, 5,7, ...

(b) Find 4 + 12 +36 + ... up to 6 terms

6. How many different words can be formed with the letters the word 'SUPER' such that the vowels always come toget

7. (a) If A = {1, 2, 3}, and B = {1, 2, 3, 4}. Fi $(A-B)\cup(B-A)$.

(b) Find the absolute minimum and maximum on $\left[-\frac{\pi}{2}\right.$ of the function $f(x) = \sin(x^2)$.

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