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FOURTH SEMESTER **B.Tech. (EP)**

MAKE-UP MID SEMESTER EXAMINATION (*May-2020*)

EP-208 COMPUTATIONAL METHODS

Time: 45 Minutes ***Max. Marks: 25***

Note: Attempt all questions.

1. Multiple choice based question. Each question carries equal marks. **[10]**

(Only write answer for this question)

(i) The method always converges

(a) Bisection (b) Regula-Falsi (c) Secant (d) both a and b

(ii) f(x) is a function of (n-1)th order polynomial

(a) Δ^n f(x)=0 (b) Δ^n f(x)=constant (c) Δ^{n-1} f(x)=0 (d) Δ^{n-1} f(x)=constant

(iii) $E^{1/2}$ y(x) is equal to

(a) y(x+h/2) (b) y(x-h/2) (c) y(x+h) (d) none of the above

(iv) Rate of the convergence of Newton's Raphson method is

(a) 1.2 (b) 2 (c) 1.1 (d) none of above

(v) $\nabla\Delta =$??

(a) $\Delta - \nabla$ (b) ∇^2 (c) $\mu/2$ (d) none of the above

2. Apply five iterations using bisection method to find out root of equation $x^3 - 2x - 5 = 0$ between 2 and 3. **[5]**

3. Assume that the following value of u_k belongs to a polynomial of degree 4, compute the missing terms **[5]**

k	0	1	2	3	4	5	6	7
u_k	1	-1	1	-1	1	---	----	----

4. Find f(1) from following table **[5]**

x	-1	0	2	5	10
f(x)	-2	-1	7	124	999

********** **END** **********