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Internal Assesment Test - I

Sub: Engineering Maths-III

Code:

17MAT31

Date: 07/ 09 /2018

Duration: 90 mins

Max Marks: 50

Sem: 3

Branch:

ISE-A & B

**Answer all the questions**

OBE

Marks CO RB

L3

1. Express y as a Fourier series upto 2nd harmonics given the following values.

I X

0 1 2 3 | 4 | 5 | y

4

8

15

7

6

2 2. Using Newton's divided difference formula find f(3) and f(5) from the

following data.

9 56 711 980

[7] C06 L3

Ly T4

COS L3

***x dx***

3.

Evaluate

ng Simpson's one third rule by taking seven ordinates and

hence find log, 2.

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83

1.

Express y as a Fourier series upto 2nd harmonics given the following values.

x 0 1 2 3 4 5

157162 Using Newton's divided difference formula find f(3) and f(5) from the following data.

4

2.

[7] C06

no

*x dx*

006 L3

3.

Evaluate s \* are using Simpson's one third rule by taking seven ordinates and hence find log 2

C06

4. Fit an interpolating polynomial of the form x=f(y) by using Lagrange's inverse

interpolation formula and hence find x at y=5 given

[7]

X

*2*

1

10

17

**y**

5.

[7] COG L3

From the following table find the number of students who obtained i)less than 45 marks ii)less than 75 marks.

Marks 30-40 40-50 50-60 60-70 70-80 No. of students 31 | 42 | 51 35 | 31

**=**

[7] CON L3

o

--x

*in*

0 <

x

6. Obtain the half range Fourier sine series of f(x)=

=

**$**

*--in*

-<x< 1

of f(x) = x(27 – x) in 0 5x 521. Hence

[7]

col L3

7. Obtain the Fourier series expansion

1 1 1 deduce that

-=

22+ 12 12 221

CO6

10.3

[7]

4. Fit an interpolating polynomial of the form x=f(y) by using Lagrange's inverse

interpolation formula and hence find x at y=5 given

Bị !

[7]

006 L3

5. From the following table find the number of students who obtained

i)less than 45 marks ii)less than 75 marks.

Marks 30-40 40-50 50-60 60-70 70-80 No. of students 31 4251 3531

[7]

[7] com 13

CON L3

\4-x in 05x554

6.

Obtain the half range Fourier sine series of f(x)=3

\* mit

—

*in*

*– 2*

<x<1

f(x) = x(21 – x) in 0 5x521. Hence [7]

COI L3

7. Obtain the Fourier series expansion of

72 1 1 1 12 12 22+32

deduce that =

=

Page 2 of 3

*I untrenal Test - I*

*Branch - TEICIUPSE*

*ECE-C" ! Enpaindl y old a foule Bulis upli and hormos*

*It following Table valub*

monus

*Son:*

12 10 11 12 | 3 | 4 | 5 |

19 4 8 15 7162

*OSA 56 Al-6 74=3 N= 6 y sofa, cos +b. Son ) + ( ar los 254 + by Sam 2430),*

(4m) T® - Tu 2 y 6= 11 %s y codo y uszo ysino y sın20 104 10 4

4 0 0 | 118 | 60°

| -4 6.928 6.928

-7.5 12,99 -12,99 180°

7 o lo 6 2409 -3 -3

-5.1965.196 2 300

-1.932 -1.732

t

5

*1200*

Ş

-7

good

*42*

-8.5

-4.5

12.99

-2.598

3m) Alo = = 2y = }(42) = 14 (im) 9.2 av yut 0 = (-8,5) = -2,833 ? de e Zy0520- 1-415)=-1,5 s

biz? Ey Sin0 = 4.33

zam) by? ys1020.= (-0.598) = -0,8663m 19= 9 -2.832 Cost? +4.33 51072 - 15 Co$2719\_0.88S10274 km)

*. Using Newton's divided cliffeunt fomula food*

*f(3) and f(s) from the following dala*

*4 9 10 14 156 711 950*

*tu*

*De*

*Do*

*Son: We have te fond from where we halle by data*

f(2)=4, f14). 56, 469)-70 1110) = 980 | x I +(a) I DD Is On

20 = 2 | Yo=41

(2017) =56-4-26 71,-4 | 41=56

*fr x,y) = 711-56-121 22=9 1 42=711*

(916, Y)=269-)\_231T

1)950-)) -269 28=1042980

*2*

-

*2*

+620,2,0)= IS

26

Israen 1, , ds)

37 1'in

*9-4*

*9-4*

2-3

2

*16-4*

*10-9*

*fra)= frao) + (-8) ( \*a\*,7+ (X\_V3) (2–24 )[,,) - - (3m)*

*(im) fra)- 4+1 0-2)26 + (7-2) (-4)15+(2-2)(0-4) 1990*

= 4 + (x - 2) ((12 +21 +22] from=33-21] @m)

$0) = 21 f(5)=1151 (im) 3. Evaluati si dr using Simpson's one third Rub

By takoop Seven ondoals and hence find log? soh halo n= 6.

| .20=02,3 V6 2=Y3 1=”14=% 85-% %-1 | yazato 6/32 3ho 25 693 3941 142

(am)

Simpers Your Rule Si Ly0u = (140+ 46)4 4 1957 4 7 40+2144nd] = "[10+ %)+41 93 +245 + 3%6») + 2% 3%+%s]

*= 0,34 66. — (3m) Iloco we shall dedes valls of loge?*

*Intiqealing ekiaulically*

*Leita de casa nyt - log (1+x)*

1 [logs-log ] = og compare @ +6 logé -0.6932] @m).

*It*

*4. fut an intee polaling polynomics of et fom 2-fly)*

*by using lagianga's invesse erteepcolcelien fomula*

*and henc frind à at 4:5 given*

221 10119

*1911 314 Sob: 2= f(9) - (y-7) ly-Yv) 20+ 19-40) 14-42) + (y-Yo )19-4782*

*14,-40) 19, 4, 1y-402149-4)*

*201*

*(Yo-4) Toyu*

(2m),

(23)

*217)*

*= (43)/4-4) 2 + 1901 yu) 10+199)149) az 514-3964-47 -5 14 D -47 + 12 (9114-1)*

*1= $142-94 +12) - 5 (y?-54+14) +12149-49+3) Thes 2-71y) - 42+. is the required polepomicul (3m)*

aty -5 23 5+1=26 (2 )

*Ś*

*o*

*from the following find eto NO 4 Students who oblourec less than 45 Mack (w) less than 95 masks*

*| marka*

*30-40 40-50 50-60 60-801 70-801 No of Students | 31 | 42 51 35 31 Son: We Shall Reconstitule the given table with fon) Supresenling the numbce of Students less than a marke. That is*

*less than 40 malks 31 34 cidonto less than 50 macks 31+42 = 73 Students*

*1 6o maleks 73+51-124 "*

*(im) Il les 70 mauks 124+35=159 i les 80 macke 159 +31-190 11*

*being the roof Studenly o he need te bind f145)*

*Serung*

*less than 45 maks*

a Fon)

tan

70-40

Ay

Asy

lazy

144

ñ ar

191-25

I am

*+*

*12*

*70 1150*

*(2m)*

3

*(@) we shall hina f145)*

*9x = 40 + $ A4+6441) A24+819\_) (4-2) Aby: -*

8 = Rho; 845-40-05 fies) = 31+(018) 42 +105) (031) (9) #05)(0,5-1)(0,-) (-as)

*+(015) (05 -1) (0.5 -2) (0.5(39)*

*ram) f145) - 428649. They lhe no of Sla deno*

*LE*

2

*6*

24

obtaining

*less than 45 maoke 48.*

4175) = 4 +9 ryn + 919+1) 724 + -

*21*

*= 190 + (-2) 31 + (+41 (-4+1) 1-4) +(%) 7-% )/2+2)*

*zin (-4)+ - 14195) - 198.8 193) (2m)*

(im)

On 2

(im)

*6. obtain the half Range fourier Serie of f(n)=*

*394-2 in Os 25 % 2 22-3/4 in % 5asig Sch: fra) is defined in (0,1) comparing.with half the reing*

*(91) we hallo lali*

f(n)= on Sinntal whu bon =) •40) S10 (27 Jade in = 21". C %%-a) so mu nda + f (2-3) Sın ainda

Apply Bencelle's Reels In 32[(%-2) - Lotrin -1-) -smmal.

*+ [41-') -fotomo - - - Sports Lin] 1 - 250m ( 74 – a ) cornw a/s - namas ( Simoual.*

[ (2-a)bar on a lot to [ Somali burge termin ( vos ng tin beton ter sey.) - hig, Samoa

sol (l-coent) - atna Sinn - m rc-94) ating sa $0)-žm{-(-09) - 4 Sin 21 sonata com) (4m)

*p?p*

*|*

*277)*

test OT

*72*

*7 obtan the foulike Srebris Expuneon f()=21281–0)*

W OŚRERT Heni deduce there are not as t3 - Sch fix) = 2 (27 –») of f (27-» £ 20 -A) (21 (27) = DT-n)

*fra) is even funil on "1 bn=0] (im) loc en 2 627 -) dx = à J1992-x) dx = a (10 9% -23)"*

*# [12-T2) » [27)*

100 leti(im) On = 13" }(2.7-1°) cop na dan

*5\* [<1m \_n')Slang - (-20) (-60cmum.) + (-)(-mese) an = À L-au coena ( 7) = [ro coton - -4.6789*

jana - 4 P (3m) $(a)= 1627–2) = 204 + 3 -4 (Lorna -o (im)

**Y**

3

*27*

2-TT

*na pot - 4 1 tu-worthcoran*

TT 2-2=-4 -1);Co To Cop 2 55 60437 ---) T= 'My -"ha+Yes - and (im)