Code No. 2556/CBCS/BL

FACULTY OF ENGINEERING

B.E. (Civil) IV-Semester (CBCS)(Backlog) Examination, October 2020

Subject : Numerical Methods

Time : 2 Hours **Max. Marks: 70**

PART – A

Note: Answer any five questions. **(5x2 = 10 Marks)**

1 Find the square root of 5, using Newton – Raphson method in the interval (2, 3) correct to three decimal places.

2 Solve the following system by Gauss elimination method:

$2x - y + 3z = 9$
$x + y + z = 6$
$x - y + z = 2$

3 Construct Newton's divided difference table for the following data:

x	5	6	9	11
f(x)	12	13	14	16

4 Define eigen value and eigen vector of a matrix.

5 Evaluate $I = \int_0^1 \frac{dx}{1+x^2}$ using Trapezoidal rule taking h = 1/4.

6 Find the value of f′(0) from the table given below:

x	0	5	10	15
f(x)	0	3	14	69

7 Using Euler's method, find an approximate value of y corresponding to $x = 1$ given that $\frac{dy}{dx} = x + y$ and y = 1 when $x = 0$ take h = 0.25.

8 Write Milne's predictor and corrector formulae.

9 Define initial and boundary value problem.

10 Derive finite difference approximate for the first derivative using forward, backward and central difference approximations.

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Find the root of the equation $x^3 - 4x - 9 = 0$, using Bisection method in the interval (2.5, 2.75) correct to two decimal places.

(b) Solve the following equations by LU – Decomposition method

$2x + 3y + z = 9$
$x + 2y + 3z = 6$
$3x + y + 2z = 8$

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12 (a) Find eigen values of the symmetric matrix $A = \begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$, using Given's method.

(b) Find the polynomial f(x) by using Lagrange's formula and hence find f(3) for the following data:

x	1	2	5
f(x)	3	12	147

13 (a) Use Romberg method to compute $\int_0^1 \frac{1}{1+x}$ correct to three decimal places.

(b) For the following values of x and y, obtain $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at x = 1.0.

x	1.0	1.2	1.4	1.6
y	2.7183	3.3201	4.0552	4.9530

14 (a) Apply Runge-Kutta method to find an approximation value of y for x = 0.2, if $\frac{dy}{dx} = x + y^2$ and y = 1 when x = 0, take h = 0.1.

(b) Find by Taylor's series method the value of y at x = 0.1 to five decimal places from $\frac{dy}{dx} = x^2 y - 1, y(0) = 1$.

15 Use Crank-Nicolson method to solve the heat equation $\frac{\partial u}{\partial t} = \frac{\partial^2 u}{\partial x^2}$, subject to the condition u(x, 0) = 0, u(0, t) = 0, u(1, t) = t. Take $h = \frac{1}{4}$ and $k = \frac{1}{16}$.

16 Use Gauss-Jacobi iteration method to solve the following system.

$4x + y + 2z = 4$
$3x + 5y + z = 7$
$x + y + 3z = 3$

Take initial approximation $X^{(0)} = 0$ and iterate three times.

17 Evaluate $I = \int_1^2 \int_1^2 \frac{dxdy}{x+y}$ using Simpson's rule with h = k = 0.25.

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Code No. 2563/CBCS/BL

FACULTY OF ENGINEERING

B.E. (EE/Inst./M/P/AE) IV-Semester (CBCS)(Backlog) Examination, October 2020

Subject : Engineering Mathematics – IV

Time : 2 Hours **Max. Marks: 70**

Note: Answer any five questions. **(5x2 = 10 Marks)**

1 Find Fourier consine integral of $f(x) = e^{-kx},\ x \geq 0$ where K is a positive constant.

2 State and prove frequency shifting theorem in Fourier transform.

3 Find Z(sin(n+1)θ).

4 Find Z(e^{an}).

5 Explain Bisection method to find an approximate root of f(x)=0.

6 Using Euler's method, find an approximate value of y corresponding to x = 0.1, 0.2, Give that $\frac{dy}{dx} = x + y,\ y(0) = 1$.

7 Derive normal equations for the curve y = ae^{bx} using principle of Least squares.

8 Show that $r = \frac{\sigma_x^2 + \sigma_y^2 - \sigma_{x-y}^2}{2\sigma_x\sigma_y}$.

9 State Baye's Theorem.

10 Find the mean of uniform distribution.

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Find the Fourier sine transform of $e^{-|x|}$. Hence evaluate $\int_0^\infty \frac{x \sin mx}{1 + x^2}\,dx$.

(b) Find Finite Fourier cosine Transform of $F(x) = \frac{\cos k(\pi - x)}{K \sin k\pi}$.

12 (a) Find z(cos h θ).

(b) Solve by Z-Transform $y_{n+2} - 3y_{n+1} + 2y_n = 0, y_0 = 0, y_1 = 1$.

13 (a) Find a real root of 3x = cos$x$ + 1 using Newton-Raphson method.

(b) Given $\frac{dy}{dx} = x^2 - y, y(0) = 1$. Find y(0.1) using Runge-Kutta method of fourth order.

14 (a) Fit a parabola is least square sense to the data:

x	10	12	15	23	20
y	14	17	23	25	21

(b) Find coefficient of correlation for the following data :

x	10	14	18	22	26	30
y	18	12	24	6	30	36

..2

15 (a) If X is a normal variate with mean 30 and standard deviation 5, then find the probabilities that

(i) $26 \leq x \leq 40$ (ii) $x \geq 45$ (iii) $|x - 30| > 5$

(b) The lifetime of electric bulbs for a random sample of 10 from a large consignment gave the following data:

Item	1	2	3	4	5	6	7	8	9	10
Life in hrs.	402	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

Can we accept the hypothesis that the average lifetime of bulb is 4000 hrs.

16 (a) Five defective bulbs are accidentally mixed with twenty good ones. It is not possible to just look at a bulb and tell whether or not it is defective. Find the probability distribution of the number of defective bulbs, if four bulbs are drawn at random from this lot.

(b) Find the interpolating polynomial f(x) from the table

x	0	1	4	5
f(x)	4	3	24	39

17 (a) Given $\sin 45^o = 0.7071$, $\sin 50^o = 0.7660$, $\sin 55^o = 0.8192$, $\sin 60^o = 0.8660$, find $\sin 52^o$, using Newton's forward interpolation.

(b) Solve the equation

$8x - 3y + 2z = 20$

$4x + 11y - z = 33$

$6x + 3y + 12z = 35$

by Gauss – Seidal iteration method.

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Code No. 2572 / CBCS/BL

FACULTY OF ENGINEERING

B.E. (ECE) IV-Semester (CBCS) (Backlog) Examination, October 2020

Subject : Applied Mathematics

Time : 2 Hours **Max. Marks: 70**

Note: Answer any five questions. **(5x2 = 10 Marks)**

1 Let R be the field of real number and
W = {(x, y, z) / x, y, z are rational numbers}. Is W a subspace of $V_3(R)$?

2 Define rank and nullity of a linear transformation.

3 Find the interval of unit length which contains a root of the equation $e^x = 4x$.

4 Construct the Newton's divided difference table for the following data:

x	3	7	9	10
y	168	120	72	63

5 Write the expressions for finding $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ using Newton's backward interpolation.

6 Use Euler's method to find an approximate value of y(0.2) for $y' = 1 - y$, $y(0) = 0$.

7 State normal equations to fit a curve of the form $y = a + bx + cx^2$.

8 Show that $-1 \le r \le 1$, where r is the correlation coefficient.

9 Define linear programming.

10 Write the following LPP in normal form
Maximize $z = 2x_1 + x_2 + 3x_3$
Subject to $4x_1 + 3x_2 + 6x_3 \le 12$

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Show that the set of vectors {(2, 1, 4), (1, -1, 2), (3, 1, -2)} form a basis for R^3.

(b) Let $R : R^3 \to R^2$ be a linear transformation defined by $T\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 2x + y - z \\ 3x - 2y + 4z \end{pmatrix}$. Obtain the matrix of T w.r.t. the bases $\{(1, 1, 1)^T, (1, 1, 0)^T, (1, 0, 0)^T\}$

12 (a) Compute a root of the equation $x^3 - x - 1 = 0$ by regula falsi method correct to two decimal places.

(b) Solve the following system of equations by Gauss elimination method.
$4x + y + z = 4$, $x + 4y - 2z = 4$, $3x + 2y - 4z = 6$.

13 Using Adams-Baghforth-Maulton PC method, determine y(0.4) if y satisfies
$y' = \frac{xy}{2}$, y(0) = 1, y(0.1) = 1.0025, y(0.2) = 1.0101, y(0.3) = 1.0228.

..2

14 Find the equations to the lines of regression and the coefficient of correlation for the following data:

x	2	4	5	6	8	11
y	18	12	10	8	7	5

15 Solve the following LPP by simplex method.

Minimize $Z = 5x_1 - 20x_2$

Subject to $-2x_1 + 10x_2 \leq 5$,

$2x_1 + 5x_2 \leq 10$

$x_1 \geq 0$ and $x_2 \geq 0$

16 (a) Prove that transformation T : $V_3(R) \rightarrow V_2(R)$ defined by

$T\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}, \forall (x, y, z) \in R^3$ is a linear transformation. Find the null space of T.

(b) Using Lagrange's, interpolation formula, find y(10) from the table given below:

x	5	6	9	11
y	12	13	14	16

17 (a) Find the least squares line y = a + bx to the following data:

x	-2	0	2	4	6
y	1	3	6	8	13

(b) Find at $x = 0$ from the following table.

x	0	1	2	3	4	5
y	4	8	15	7	6	2

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Code No. 2586/CBCS/BL

FACULTY OF ENGINEERING

B.E. (CSE) IV-Semester (CBCS) (Backlog) Examination, Sept./Oct. 2020

Subject : Mathematics & Statistics

Time : 2 hours **Max. Marks : 70**

Note: Answer any five questions. **(5x2 = 10 Marks)**

1. Explain Bisection Method to find an approximate root of f(x) = 0.
2. If $\frac{dy}{dx} = x + y, y(o) = 1$, then find y(0.2) using Euler's method.
3. State Modulation Theorem and Convolution Theorem in Fourier Transforms.
4. Find Finite Sine Transform of F(x) = 1-$\frac{x}{\pi}$
5. Solve 18x $\equiv$ 30(mod 42)
6. State Fermat's Theorem
7. Find the mean of uniform distribution
8. State Baye's Theorem
9. If Z = ax + by and r is the correlation coefficient between x and y show that $\sigma_z^2 = a^2\sigma_x^2 + b^2\sigma_y^2 + 2abr\,\sigma_x\sigma_y$.
10. Prove that correlation coefficient is the geometric mean between the regression coefficients. 2

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11. (a) Evaluate the value of $\sqrt[3]{24}$ correct to four decimal places using Newton Raphson method.
    (b) Find the polynomial f(x) by using Lagrange's formula and hence find f(3) for

x	0	1	2	3
f(x)	2	3	12	147

12. (a) Find the Fourier Transform of F(x) = $\begin{cases} 1-x^2, & |x|<1 \\ 0, & |x|>1 \end{cases}$

    and use it to evaluate $\int_0^\infty \frac{x\cos x - \sin x}{x^3}\cos\frac{x}{2}\,dx$

    (b) Find the finite Fourier cosine transform of f(x) = x is (0,π).
13. (a) State and prove Euclidean algorithm.
    (b) If P is a Prime and p does not divide a, then show that (p,a) = 1.
14. (a) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the mean and standard deviation of the distribution.

    (b) A random sample of size 16 has 53 as mean. The sum of squares of the deviation from mean is 135. Can this sample be regarded as taken from the population having 56 as mean obtain 95% and 99% confidence limits of the mean of the population.

……2

15. (a) Find a second degree polynomial to the following data by the method of least squares.

x:	0	1	2	3	4
y:	1	1.8	1.3	2.5	6.3

(b) Find the coefficient of correlation and regression lines for the data.

x:	1	2	3	4	5
y:	2	5	3	8	7

16. (a) A die is thrown 276 times and the results of these throws are given below.

No. appeared on the die:	1	2	3	4	5	6
Frequency:	40	32	29	59	57	59

Test whether die is biased or not

(b) Apply Gauss-Seidal method to solve the system.

$20x + y - 2z = 17$, $3x + 20y - z = -18$, $2x - 3y + 20z = 25$.

17. (a) Apply Runge-Kutta method to find an approximate value of y for x = 0.2 in steps of 0.1, if $\frac{dy}{dx} = x + y^2, y(0) = 1$.

(b) Fit the curve $y = ae^{bx}$ for the data.

x	2	4	6	8	10
y	1	5	20	30	32

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Code No. 2592/CBCS/BL

FACULTY OF ENGINEERING

B. E. (I.T.)IV – Semester (CBCS) (Backlog) Examination, October 2020

Subject: Signals & Systems

Time : 2 hours **Max. Marks : 70**

Note: Answer any five questions. **(5x2 = 10 Marks)**

1. Define Dynamic system.
2. Find **x(-t) and x(t-2)** if x(t) is an impulse signal.
3. Compare vectors and signals.
4. Check whether the signal **$x(t) = \cos 2\pi t + \sin 8t$** is periodic nor not.
5. State **initial and final value** theorem in Laplace transform.
6. Find the Fourier transform of **$f(t) = e^{-4t} u(t)$.**
7. Check whether the system **$y(n) = x^2(n)$** is linear or not?
8. Define Aliasing.
9. Find the final value of **$X(Z) = (1-3Z^{-1}) / (1+ 6Z^{-1} – 42Z^{-2})$.**
10. Find the Z-transform of **x(n)={-2,4,5,7}.**

↑

PART – B

Note: Answer any four questions. **(4x15 = 60 Marks)**

11. (a) Check whether the system are linear or not and static or dynamic

    $d^2y(t)/dt^2-2dy(t)dt-8y(t) = x(t)$.

    (b) Sketch **time shifting, time reversal, time scaling and amplitude scaling** for

    x(t) = 2 [1- ltl］;ltl 2.

    0: otherwise

12. (a) Obtain the **Exponential Fourier series** for the full wave rectified signal.

    (b) State and prove any two properties of cross correlation.

13. (a) State and prove any three properties of Fourier transform.

    (b) Find the impulse response of the system described by the differential equation

    $d^2y(t)/dt^2-2dy(t)/dt-24y(t) = x(t)$. Assume zero initial condition.

14. (a) For the given **x(n)={2,1,4,3,5}. Find x(-n), x(n-3), x(n+2), -x(n) and x(-n-4).**

↑

    (b) Explain sampling operation in detail.

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15. (a) Find the Z – transform for **$x(n)=(1/3)^n u(n)-(1/2)^n u(-n-1)$** and plots its ROC.

    (b) Determine the impulse response for the system described by the difference equation **$y(n+2) + 4\ y(n+1) – 12\ y(n) = x(n)$.** Assume zero initial condition.

16. (a) Find the inverse Z –transform for X(Z) = **$(1+5Z^{-1})/(1-2Z^{-1}+Z^{-2})$ if ROC IzI>**

    (b) Find the inverse Laplace transform for X(s) = **$(s+3)/(s-4)(s^2-3s+3)$.**

17. (a) Compare continuous time and discrete time signal analysis.

    (b) Write a notes on signal transmission through LTI system.

    (c) State and prove Parseval's energy theorem in Fourier transform.

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Code No. 2044

FACULTY OF ENGINEERING

B.E 2/4 (Civil/AE/CSE)II-Semester (Backlog) Examination, October 2020

Subject: Environmental Studies

Time: 2 Hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1) State the importance of Environmental science.
2) Define Eutrophication.
3) Distinguish Producers, Consumers and decomposers.
4) Distinguish between food chain and food web.
5) What is meant by Biodiversity.
6) What are vulnerable and exotic species.
7) State the purpose of Water Act.
8) Classify Solid waste based on disposal mechanism.
9) Enumenats Green House gases.
10) Mention two natural disasters

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 a) Explain the benefits and problems of dams.
b) Discuss about the growing energy needs of our country.

12 a) Explain about lake ecosystem and river ecosystem.
b) What is the use of ecological pyramids in the context of ecological imbalances.

13 a) Briefly explain the values of biodiversity.
b) Explain different methods of conservation of biodiversity.

14 a) Explain varions issues involved in Environmental legislation.
b) How do automobiles contribute to air pollution? How it should be controlled.

15 a) What is Global warming and state various parameters responsible for the same.
b) Explain methodology involved in disaster management by with a neat sketch.

16 a) Explain Nitrogen Cycle with the aid of neat sketch.
b) How can you state that India as a Mega Diversity Nation.

17 Write a short note on the following
a) Watershed management
b) Soil degradation and its pollution.

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Code No. 2050/BL

FACULTY OF ENGINEERING

B.E. (EEE) II-Semester (Backlog) Examination, October 2020

Subject : Power System-I

Time: 2 Hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1. Define Load Factor and give its improvement.
2. What is meant by power factor Tariff?
3. Explain the operation of Economizer in thermal power plant.
4. Differentiate between Kaplan and Francis Turbines.
5. Give some applications of solar flat plate collector.
6. Explain the operation of moderator in Nuclear Reactor.
7. What are the advantages of Suspension insulators over pin type insulators?
8. What is meant by Capacitance grading of underground cables?
9. Explain about self & mutual GMD?
10. Explain the concept of transposition in over head lines?2M

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11. a) A power station has following daily load cycle :

Time in Hours	6 - 8	8 - 12	12 - 16	16 - 20	20-24	24 - 6
Load in MW	20	40	60	20	50	20

Plot the daily load curve and find the energy generated per day?

b) A power station has a maximum demand of 15000 KW ,Annual load factor 50% and Plant capacity factor 40% .Find the reserve capacity of the plant.

12 .a) Explain with neat diagram the working of solar concentrating collector.

b) Explain the working of closed cycle Gas Turbine Power Plant.

13. Draw the layout diagram of Thermal Power station and explain the working of different components of it.

14. a) Explain the improvement of string efficiency by using a Guard Ring.

b) Draw the layout diagram of Hydro-Electric power plant and explain its operation.

15. a) A transmission line has a span of 200 meters between level supports. The conductor has a Cross-sectional area of 1.29 cm^2,weighs 1170 kg/km and has a breaking stress of 4218 kg/cm^2. Calculate the sag for a safety factor of 5, allowing a wind pressure of 122 kg per square meter of projected area.

b) The three conductors of a 3-phase line are arranged at the corners of a triangleof sides 2m, 2.5 m and 4.5 m. Calculate the inductance per km of the line when the conductors are regularly transposed. The diameter of each conductor is 1.24 cm.

16. Derive the expression for Inductance of a, three phase transmission line when the conductors are unsymmetrically spaced but transposed.

17. Answer any two of the following :

a) Base load and peak load operation

b) Different insulating materials & parts of underground cables

c) Working of Pressurized water Reactor

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Code No. 2056/BL

FACULTY OF ENGINEERING

B.E. 2/4 (Inst.) II-Semester (Backlog) Examination, October 2020

Subject : Thermodynamics & Fluid Mechanics

Time : 2 hours **Max. Marks : 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks))**

1 Explain Clausius inequality.
2 Define second law of thermodynamics.
3 List out the applications of reciprocating air compressor.
4 Explain efficiency of multi-stage compressor.
5 Define specific weight and specific volume.
6 Explain uniform and non-uniform flow.
7 List out flow measuring devices.
8 Define impulse momentum equation.
9 Write short notes on Darcy friction factor.
10 What do you understand by turbulent flow in circular pipes?

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 An engine working on the otto cycle has a suction pressure of 1 bar and a pressure of 14 bar at the end of compression. Find
   i) Compression ratio
   ii) Clearance volume as a percentage of cylinder volume
   iii) The ideal efficiency and MEP if the pressure at the end of combustion is 21 bars.

12 a) Explain the working principle of open cycle gas turbine with a neat sketch.
   b) A gas turbine unit has a pressure ratio of 5:1 and maximum cycle temperature of 610^0C. the isentopic efficiencies of the compressor and turbine are 0.75 and 0.85 respectively. Calculate the power output in kilowatts of an electric generator geared to the turbine when the air enters the compressor at 15^0C at the rate of 15 kg/s. Take C_p=1.005kJ/kg-K and γ = 1.4 for the compression process, and take C_p=1.11 kJ/kg-K and γ = 1.333 for the expansion process.

13 Define equation of continuity. Obtain an expression of continuity of equation for a three-dimensional flow.

14 Name the different force present in a fluid flow. For the Euler's equation of motion, which forces are taken into consideration.

15 For a laminar flow through a circular pipe, prove that:
   (i) The shear stress variation across the section of the pipe is linear and
   (ii) The velocity variation is parabolic.

16 a) Compare valve timing diagram of two stroke and four stroke cycle engines.
   b) Explain with a neat sketch, the working of single stage impulse turbine.

17 a) Explain the principle of venturimeter with a neat sketch. Obtain an expression.
   b) Discuss the relative merits and demerits of venturimeter with respect to orificemeter.

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Code No: 2064/BL

FACULTY OF ENGINEERING

BE 2/4 (M/P) II-Semester (Backlog) Examination, October 2020

Subject: Thermodynamics

Time: 2 Hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1 Distinguish between extensive properties and intensive properties. Give one example each.
2 Define state, path and process.
3 Define Kelvin-plank's statement of II Law of thermodynamics?
4 Explain available and un-available energy?
5 Is work transfer is point function / path function. Explain?
6 Define First law of thermodynamics and write its corollaries.
7 Write Maxwell relations?
8 What is meant by a pure substance?
9 Draw P-V & T-S diagram of Otto cycle and name the processes?
10 Explain Amagat-Leduc law of partial volumes?

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Explain the concept of thermodynamics equilibrium.
(b) Explain the constant volume Ideal Gas thermometer with a neat sketch.

12 Air at 1.06 bar and 7ºC is heated at constant volume to a temperature of 847ºC. It is then expanded adiabatically until the pressure falls to 0.6 bar, following which heat is rejected at constant pressure until the temperature is brought back to 7ºC. Determine per kg of air.
(a) Change in internal energy in each operation
(b) Heat input of the cycle.
(c) Work output of the cycle.
Take R=287 J/kg-K, C_v=718 J/kg-K , C_p=1005 J/kgK

13 (a) Write Steady Flow Energy Equation and analyse it for a nozzle.
(b) Prove that violation of Kelvin Planck statement leads to violation of clausius statement?

14 (a) The following data pertains to a compression ignition engine working on air standard diesel cycle :
Cylinder bore (dia) = 15 cm; Stroke length = 25 cm;
Clearance volume = 400 cm^3.
Determine the air standard efficiency of the engine if fuel injection takes place at constant pressure for 5% of the stroke. How this efficiency value will be affected if the fuel supply continues up to 8 % of the stroke
(b) Explain the Otto cycle with P – V & T – S diagram.

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15 (a) Explain the formation of steam with T-S diagram.
(b) Explain the process involved in Rankine cycle with neat sketch and derive an expression for efficiency of the cycle.

16 (a) Derive expression for change in entropy during polytropic process.
(b) 2kg of air at a pressure of 15 bar and 300ºC expands polytropically to 1.5 bar. Calculate
(i) Work done
(ii) Final temperature
(iii) Heat transferred and change in entropy if the index of process is 1.25.

17 (a) Explain mole fraction, mass fraction and volume fraction.
(b) Define Zeroth law of thermodynamics and give examples.
(c) Explain Microscopic and Macroscopic approach

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Code No.2076/BL

FACULTY OF ENGINEERING

B.E. 2/4 (IT) II-Semester (Backlog) Examination, October 2020

Subject : Web Technologies

Time : 2 hours **Max. Marks :75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1. Differentiate between HTML and XHTML.
2. List the different types of CSS Selectors?
3. Justify how Schema is better over DTD?
4. What is XML Processor?
5. Explain the difference between JSP and SERVLET.
6. Define JSP directives with example.
7. State the features of WSDL.
8. Explain UDDI.
9. What is AJAX?
10. List the different ASP.NET Web Form Controls.

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11. Create a XHTML registration form to accept the details of a student : Name, Address (Street Name, Country and Pincode), Sex (Male/Female), Branch (chosen from a list box) and Courses (Check box). Provide submit and reset buttons on it.

12. a) Write a DTD for the XML document which has the student details with the following fields – roll number, name, course, address. Assume values for each field.
    b) Write a CSS file for the above XML document.

13. a) Explain the Servlet life cycle.
    b) What are the different action tags used in JSP?

14. a) Describe the general structure of SOAP message and explain.
    b) Explain the differences between SOAP and REST.

15. a) Explain ADO.NET.
    b) Explain different validation controls that are used in ASP.NET

16. a) Explain Exception handling in JSP.
    b) Write a JSP program to find the factorial of a number.

17. Write short notes on
    a) Box model of CSS
    b) XML Parsers

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