Jan 2021

P.T.U Questions
B.Tech (ECE)
Sem-3

Roll No. _____ Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE) (2018 Batch) (Sem.–3)

ELECTRONIC DEVICES

Subject Code : BTEC-301-18

M.Code : 76444

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. Explain why extrinsic semiconductors are required? Draw the energy band diagram of extrinsic and intrinsic semiconductors.
2. Explain the difference between diffusion current and drift current.
3. Explain the working of a transistor as a switch.
4. What are different types of diode? Draw symbols of each.
5. Give the V-I characteristics of PN diode.
6. State the relation between mobility and resistivity.
7. Define Transconductance of MOSFET.
8. What is pinch off voltage?
9. What is the difference between tunnel diode and normal diode?
10. What is sheet resistance?

SECTION-B

11. What is the use of Ebers-Moll model for PNP?

12. Compare ion implantation process with diffusion.

13. What is a solar cell and how does it work?

14. What do you mean by small signal switching models?

15. What do you mean by annealing? Why it is required in IC fabrication process?

SECTION-C

16. Explain the construction and working of e-MOSFET.

17. Discuss all the steps involved in fabrication of CMOS.

18. What is etching? Explain its different types and state advantages and demerits of each.

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March 2024

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SECTION-A

Write briefly :

1) Compare Zener breakdown and Avalanche breakdown.

2) What is the difference between a Schottky diode and normal diode?

3) What are the different types of diode? Draw symbols of each?

4) Draw the energy band diagram of extrinsic and intrinsic semiconductors.

5) What do you mean by Light Emitting diode?

6) What do you mean by diffusion current?

7) What do you mean by Etching?

8) What is diffusion capacitance?

9) What is pinch-off voltage?

10) What is the P-N junction diode?

SECTION-B

11) Draw and Explain the VI characteristics of a Zener diode.

12) Draw the circuit diagram of a full-wave bridge rectifier circuit.

13) What do you mean by annealing? Why it is required in the IC fabrication process?

14) What is a solar cell and how does it work?

15) What is the e-k diagram and its significance?

SECTION-C

16) Draw the Input and Output Characteristics of Common Emitter Configuration.

17) Draw the circuit diagram of a Half-wave rectifier circuit and Calculate

a) Idc

b) Irms

c) Ripple factor

d) Efficiency

18) Describe all steps of Photolithography in detail with diagrams.

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SECTION-B

11) Draw and Explain the VI characteristics of a Zener diode.

12) Draw the circuit diagram of a full-wave bridge rectifier circuit.

13) What do you mean by annealing? Why it is required in the IC fabrication process?

14) What is a solar cell and how does it work?

15) What is the e-k diagram and its significance?

SECTION-C

16) Draw the Input and Output Characteristics of Common Emitter Configuration.

17) Draw the circuit diagram of a Half-wave rectifier circuit and Calculate

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March 2021

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B.Tech.(ECE) (2018 Batch) (Sem.–3)

DIGITAL SYSTEM DESIGN

Subject Code : BTEC-302-18

M.Code : 76445

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

Write briefly :

1) Convert decimal number 37.125 to octal number system.

2) State De-Morgan's theorem.

3) Draw full adder circuit diagram.

4) What is the purpose of select lines in multiplexer?

5) Draw and explain Latch.

6) What do you mean by FSM?

7) What are the limitations of weighted resistor DAC?

8) Explain FPGA.

9) What are the disadvantages of data flow modelling?

10) Write various data types in VHDL.

SECTION-B

11) Solve the following Boolean function using 8:1 multiplexer :

$F = \sum m(0, 1, 2, 3, 5, 7, 8, 9, 10, 11, 13, 15)$

12) Add decimal numbers 34 and 25 using BCD adder.

13) What is race around condition and how can we avoid it?

14) Draw and explain dual slope ADC.

15) Write a VHDL code for binary to grey code converter.

SECTION-C

16) Draw and explain various types of TTL logic family.

17) Design Logic gates AND, OR, NOT, X-OR, X-NOR using NOR gates only.

18) Explain universal shift register.

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B.Tech.(ECE) (2018 Batch) (Sem.–3)

ELECTROMAGNETIC WAVES

Subject Code : BTEC-303-18

M.Code : 76446

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

Write briefly :

1) Write Maxwell's Equations in integral form.

2) Define propagation constant.

3) Differentiate between reflection and refraction of a plane wave.

4) What is meant by the characteristic impedance of transmission line?

5) What is Polarization and its types?

6) What are uniform plane waves?

7) What are the advantages of using transmission lines?

8) Write down the condition for a line to be distortionless.

9) State the significance of the smith chart and its features.

10) Define how VSWR can be determined using smith chart.

SECTION-B

11) What is Poynting vector? What is the significance of Poynting vector? Deduce an expression for instantaneous, average and complex Poynting vector.

12) Write and explain Maxwell's equation for static fields.

13) Differentiate between phase velocity and group velocity.

14) Write a short note on wave impedance for free space.

15) Explain the circuit representation of the parallel plane transmission line.

SECTION-C

16) What is understood by the polarization of EM waves? Explain linear, elliptical and circular polarization with appropriate figures.

17) What do you mean by transmission line? Derive an expression for transmission line equations.

18) Explain the wave between parallel planes. Derive the expression for the attenuation in the parallel plane guide.

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16th March

Roll No. | | | | | | | | | | | |

Total No. of Pages : 03

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B.Tech.(ECE) (2018 Batch) (Sem.–3)

NETWORK THEORY

Subject Code : BTEC-304-18

M.Code : 76447

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

Write briefly :

1) Relate Norton's and Thevenin's equivalent circuits.

2) State reciprocity theorem.

3) What are poles and zeros of a system?

4) State h-parameters using suitable equivalent circuit and equations.

5) Under what conditions maximum power can be transferred to a load?

6) State Dirichlet's conditions for Fourier Series. Give their significance.

7) Define image impedance for a 2-port network.

8) What is voltage divider rule for circuits?

9) What is Laplace Transform? Where to we use it?

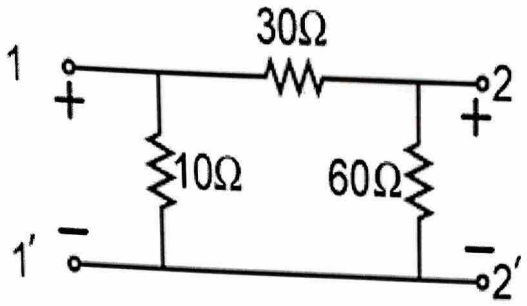
10) What are impedance parameters for 2-port networks?

SECTION-B

11) How can we determine if following system is a stable or unstable system?

$$H(s)=\frac{s^4+3s^3+6s^2+s+4}{s^5+4s^4+2s^3+2s^2+s+1}$$

12) Determine transmission-parameters for following 2-port network :

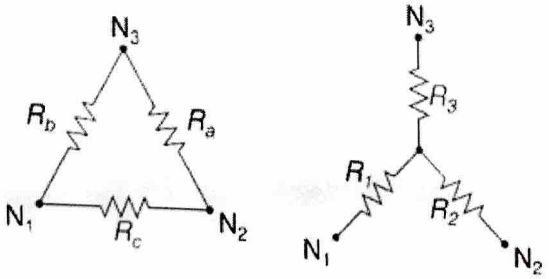


13) Solve following differential equation using Laplace Transform :

$$\frac{d^2y}{dt^2}-3\frac{dy}{dt}+6y=0$$

Where intitial conditions are $\frac{dy(0)}{dt}=2$ and $y(0)=0$

14) Determine R_a, R_b and R_c when both star and delta connections are equivalent. When $R_1=5\Omega$, $R_2=10\Omega$ and 15Ω



15) State and prove any four properties of Fourier Transform.

SECTION-C

16) Derive conversion formulas for 2-port networks :

a) Y-parameters into ABCD-parameters

b) ABCD-parameters into Z-parameters

17) Synthesize following 1-port networks

a) $Z(s)=\dfrac{s\left(s^2+9\right)}{10\left(s^2+4\right)\left(s^2+36\right)}$ using Cauer-1 Form

b) $Y(s)=\dfrac{10\left(s^2+4\right)\left(s^2+25\right)}{s\left(s^2+9\right)}$ using Foster-2 Form

18) a) Compare constant-k filters and m-derived filters.

b) Design constant-k (T-section & π-section) Low Pass Filters for given cut-off frequency $f_c = 1000\ Hz$ and design impedance $R_o = 500\Omega$.

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SECTION-A

Write briefly :

1. Derive the characteristic equation of D flip flop.
2. How merged table be transformed into the excitation table?
3. What are combinational circuits?
4. Find the min-terms of the logic expression Y = A'B'C' + A'B'C + A'BC + ABC'
5. Draw the logic diagram of SR latch using NOR gate.
6. What is single slope A/D converter?
7. Write the names of different modelling of VHDL.
8. Define entity and architecture.
9. Explain the term edge triggered.
10. What is finite state machine?

SECTION-B

11. Explain the weighted and non weighted codes with examples.

12. Write VHDL code for 4:1 MUX using selected signal assignment statement.

13. Discuss the addressed multiplexer configuration.

14. What are the applications of ROM and PROM memories? Explain.

15. Demonstrate the access time of PROM with a timing diagram.

SECTION-C

16. Reduce the following using K-map technique :

$F(A,B,C,D) = \prod M(0,3,4,7,8,10,12,14)+d(2,6)$

17. Design MOD-6 counter with coded outputs to reduce the number of output lines from to three.

18. Write VHDL code for the Ring counter.

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SECTION-A

Write briefly :

1. For a transmission line VSWR is 4. What is the reflection coefficient?
2. What are uniform plane waves?
3. What is the relation between primary constants and γ?
4. Briefly explain plane wave propagation.
5. Write short notes on TE and TM modes of propagation.
6. What is skin depth?
7. What is difference between group velocity and phase velocity?
8. Differentiate between rectangular and circular waveguide.
9. What is displacement current?
10. Define circular polarization.

SECTION-B

11. List out types of transmission lines and draw their schematic diagrams.

12. Derive the wave equations for source free regions.

13. Obtain an expression for the power loss in a plane conductor in terms of surfa impedance.

14. Write about reflection by perfect dielectric at normal incidence.

15. List out applications of smith's chart. How to measure them?

SECTION-C

16. Derive Maxwell's Field equations and explain their significance.

17. Draw a equivalent circuit of a two wire transmission line and mention its applications.

18. Obtain an expression for the force on a dielectric slab partially introduced in an electric field.

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SECTION-A

Write briefly :

1. State reciprocity theorem and its applications.
2. State convolution theorem.
3. Define hybrid parameters with equations and application.
4. A series RL circuit has R = 10KΩ, L = 10mH and C = 1 μF. Find the Transfer function of the circuit.
5. Define the necessary and sufficient conditions for a polynomial to be Hurwitz.
6. Define: transfer function, pole, and zero.
7. Define: image impedance and Quality Factor.
8. Give the properties of LC circuit.
9. State the advantages of 3-phase supply over single phase.
10. Why are network theorems required? Explain the difference between Thevenin and Norton theorem.

SECTION-B

11. For the given two port network calculate the Impedance parameters.

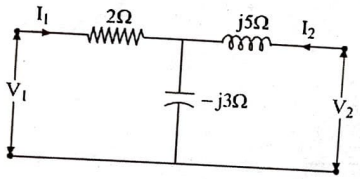

FIG.1

12. Find whether the given function is a positive real function?

$$F(s)=\frac{s^2+50s+14}{s+12}$$

13. Find the Fourier transform of the triangular pulse as shown in Fig. 2

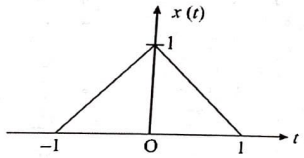

FIG.2

14. In the circuit shown, steady state is reached with switch open. Switch is closed at $t = 0$. Determine i(t) for t>0.

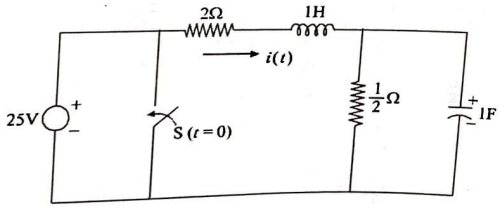

FIG.3

15. A delta connected three phase load has $10 < 0°$, $5 < -90°$ and $2 < 90°$. The supply voltage is 400V, 50Hz. Calculate the line currents for RBY phase sequence.

SECTION-C

16. The driving point impedance is given by :

$$Z(s)=\frac{s(s^2+9)}{(s^2+5)(s^2+13)}$$

Obtain the Foster-I and Foster-II forms.

17. What do you mean by balanced and unbalanced loads? Explain Millman's theorem for unbalanced loads with diagram and equations.

18. Find the value of Z_L so that maximum power is transferred to load. Also find the maximum power.

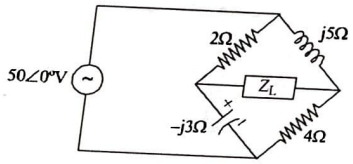

FIG.4

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B.Tech. (Computer Science & Engineering/Electronics & Communication Engineering) (Sem.–3)

PHILOSOPHY

Subject Code : HSMC-102-18

M.Code : 77082

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

Write briefly :

1. Upanishads
2. Heterodox Schools of Indian Philosophy
3. Brhadaranyaka Upanishad
4. Knowledge as Invention
5. Vedangas
6. Nyaya
7. Knowledge as Power
8. Mimamsa
9. Dharma Sastras
10. Moral Codes

SECTION-B

11. What is the difference between knowledge and ignorance narrated in Upanishads?
12. What do you understand by Plato's Symposium?
13. What are the views of M. Foucault about knowledge as oppression?
14. Describe briefly on transcendental self.
15. Discuss briefly about tools of acquiring knowledge?

SECTION-C

16. Elaborate, how Chandogya Upanishad describes about non-self, self, real and unreal?
17. With references to various Upanishads, discuss how universe originated?
18. What do you understand by knowledge about the self, society, polity and nature?

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Roll No.

Total No. of Q

Time : 3 Hrs.

INSTRUCTION

1. SECTION- each.
2. SECTION- have to att
3. SECTION- have to att

Write briefly :

1. Family
2. Origin of
3. Capitalism
4. Barter sys
5. Marxism
6. Buddhist
7. Developm
8. Models of
9. Decentral
10. Models of

Jan 2021

Roll No. | | | | | | | | | | | Total No. of Pages : 02

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B.Tech. (CSE/ECE) (2018 Batch) (Sem.–3)

DEVELOPMENT OF SOCIETIES

Subject Code : HSMC-101-18

M.Code : 76439

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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SECTION-A

Write briefly :

1. Family
2. Origin of Society
3. Capitalism
4. Barter system
5. Marxism
6. Buddhist Economics
7. Development in British period
8. Models of Governing System
9. Decentralization
10. Models of Social Structures

SECTION-B

11. Elaborate on how clan came into being?

12. How human beings and society are related to each other? Discuss it.

13. Compare different models of governing system.

14. Compare the concept of development in pre-British and post-British period.

15. Write a note on Gandhian concept of development.

SECTION-C

16. Compare different models of social structures and write in brief about their evolution?

17. How the ideas of political system originated and explain with reference to history?

18. Elaborate and critically analyse E.F. Schumacher's idea of development.

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B.Tech.(ECE) (2018 Batch) (Sem.–3)

MATHEMATICS III

Subject Code : BTAM-303-18

M.Code : 76448

Time : 3 Hrs.

Max. Marks : 60

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SECTION-A

Write briefly :

1. If a random variable has a Poisson distribution such that P(1) = P(2). Find the mean of the distribution.

2. Find the Laplace transform of $t^3 e^{-3t}$.

3. Represent $f(t) = \sin 2t$, $2\pi < t < 4\pi$ and 0 otherwise in terms of unit step function.

4. State convolution theorem of Fourier transform.

5. Find the Z-transform of $e^t \sin 2t$.

6. Write the relation between Fourier and Laplace transforms.

7. Define discrete and continuous random variables.

8. Define Rank correlation.

9. State initial and final value theorems of Z-transform.

10. Define Binomial and Poisson distribution functions.

SECTION-B

11. Evaluate :

$$L\left\{e^{-t}\int_0^t \frac{\sin t}{t}\,dt\right\}$$

12. Find the Fourier transform of :

$$e^{-2(x-3)^2}$$

13. Using the Z-transform, solve :

$$u_{n+2} + 4u_{n+1} + 3u_n = 3^n$$

with $u_0 = 0$, $u_1 = 1$.

14. The two regression equations of the variables x and y are $x = 19.13 - 0.87y$, $y = 11.64 - 0.50x$. Find (i) mean of x and y (ii) the correlation co-efficient between x and y.

15. The intelligence quotients (IQ) of 16 students from B. Tech. IInd year showed a mean of 107 and a standard deviation of 10, while the IQs of 14 students from B. Tech. Ist year showed a mean of 112 and a standard deviation of 8. Is there a significant difference between the IQs of the two groups at significance levels of 0.05? Given that critical value at 28 degree of freedom with 5% level of significance is 2.05.

SECTION-C

16. a) Apply Convolution theorem to evaluate

$$L^{-1}\left[\frac{1}{(s^2+1)(s^2+9)}\right]$$

b) Find the inverse Laplace transform of

$$\frac{se^{-s/2} + \pi e^{-s}}{s^2 + \pi^2}$$

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Total No. of Questions : 18

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B.Tech. (ECE) (Sem.–5)

ANALOG AND DIGITAL COMMUNICATIO

Subject Code : BTEC-501-18

M.Code : 78297

P.T.U Que
B.Tech
Sem.

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

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SECTION-A

Answer briefly :

1) Differentiate between Periodic and Aperiodic signals.

2) Define modulation index.

3) Describe white noise.

4) Give the advantages of adaptive delta modulation.

5) What is sampling theorem?

6) What do you mean by Nyquist criterion?

7) Give the expression for probability of statistically independent events.

8) Explain random variables.

9) Explain the concept of Binary phase shift keying.

10) Define the term "Keying" in digital modulation techniques.

SECTION-B

11) Draw and explain the block diagram of phase shift method for the SSB generation.

12) What are the various noise considerations in PCM?

13) Explain optimum detection of signals in noise.

14) Explain continuous phase modulation.

15) What are the various methods to detect the PM signals?

SECTION-C

16) Describe Differential pulse code modulation.

17) Explain the reception of DSB modulation.

18) Give the geometric representation of 16 signals in QAM system.

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B.Tech. (ECE) (Sem.–5)

DIGITAL SIGNAL PROCESSING

Subject Code : BTCS-502-18

M.Code : 78298

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1) List the basic elements of digital signal processing.

2) Whether the signal $y(n) = \sin(3n)$ is periodic or non-periodic?

3) State time shifting property of DFT.

4) What is correlation?

5) Discuss in short the concept of limit cycles in filters.

6) List limitations of analog signal processing.

7) What are the effects of finite word length in the implementation of digital system?

8) Differentiate between FIR and IIR filter.

9) List the various features of DSP processors.

10) What is the significance of Barrel shifter in ADSP?

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SECTION-B

11) Find the linear convolution of the sequences {1,1,2,1} and {1,0,2,0} using circular convolution graphically.

12) List and explain any two properties of z transform.

13) Discuss the effect of round off noise in digital filters.

14) Determine the direct form II realization of the following LTI system.

$y(n) = x(n) - x(n-1) + 2\,x(n-2) - 3x(n-4)$

15) Explain the concept of multirate signal processing.

SECTION-C

16) Find the 8- point DFT of {1,0,2,0,3,0,4} using DIT-FFT algorithm.

17) What is Filtering? Why it is not feasible to design an ideal filter? What are the characteristics of practical frequency selective filters?

18) Explain parametric and non-parametric spectral estimation in detail.

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Roll No. | | | | | | | | | | | |

Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ECE) (Sem.–5)

LINEAR INTEGRATED CIRCUITS

Subject Code : BTEC-503-18

M.Code : 78299

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Why positive feedback is used in oscillator?

2) Define slew rate?

3) Define first order low pass filter. What does order of a filter signifies?

4) What is input offset voltage?

5) Give pin configuration of IC 555 timer.

6) State difference between integrator and differentiator and give one application of each.

7) What is scaling amplifier?

8) Write a short note on fiber optic IC.

9) List the applications of video amplifier.

10) Discuss the concept of adjustable voltage regulator.

SECTION-B

11) Discuss the design of dual input unbalanced output differential amplifier.

12) Define IC's and discuss its various types.

13) What is an all pass filter? Where and why is it needed?

14) Explain operating principle and applications of IC 565.

15) Compare AC and DC amplifiers in detail.

SECTION-C

16) Explain working of Wein bridge oscillator with neat circuit diagram.

17) Discuss analog multiplier ICs (MPY634 KP) and their applications in detail.

18) Write a brief note on :

i) Effect of variation in power supply voltages on offset voltage.

ii) Common mode configuration and Common mode rejection ratio.

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Jan 2024

Roll No. | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech (ECE) (Sem.–5)

CONTROL SYSTEMS

Subject Code : BTEC-504-18

M.Code : 78300

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Define transfer function for LTI systems.

2) Write the formula for Mason's gain formula.

3) What is the difference between steady-state and transient response?

4) a) What is the difference between proportional and integral control?

   b) Draw the block diagram of feed forward and multi-loop control configurations.

5) Explain the Routh Hurwitz criterion of stability.

6) Draw the electrical circuits of lag and lead compensator.

7) What is the significance of gain margin and phase margin in the estimation of relative stability?

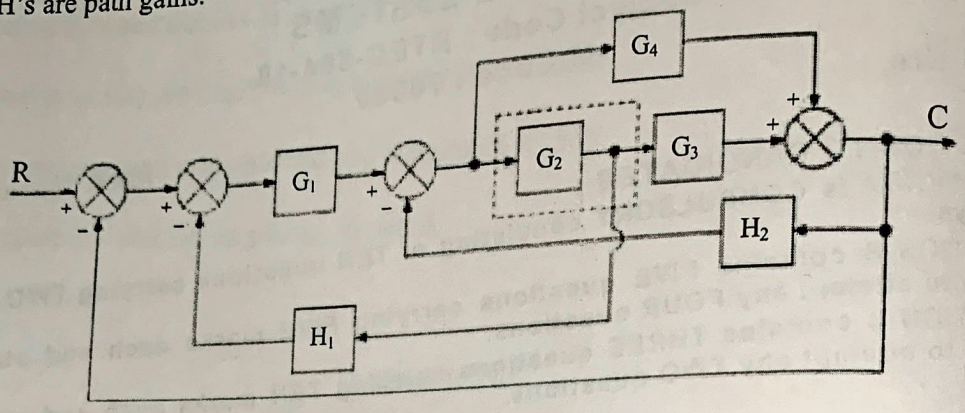
8) What is a characteristic equation? Give an example of it.

9) How state variables are derived for a given system?

10) What are eigen values and eigen vectors?

SECTION-B

11) Using Mason's Gain formula, obtain the transfer function of the control system for the following block diagram, where R is the input signal and C is the output signal. G's and H's are path gains.



12) Using the Routh's Hurwitz criterion, evaluate and comment on the stability for the control system having the following characteristics equation :

$$s^6 + s^5 - 2s^4 - 3s^3 - 7s^2 - 4s - 4 = 0$$

Also, determine the roots of the above system equation.

13) Using the final value theorem, derive the steady state error for unit step and unit ramp inputs.

14) Derive an equation for the magnitude and phase angle for a second order system in frequency domain. Also, estimate the resonant frequency and its bandwidth of system.

15) Derive the state transition equation in terms of state transition matrix and state variables.

SECTION-C

16) A unity feedback control system has an open-loop transfer function $G(s) = 5 / [s(s + 1)]$. Find the rise time, percentage overshoot, peak time, and settling time for a step input of 10 units. Also, determine the peak overshoot.

17) Obtain a state model of the system described by the transfer function. $Y(s)/U(s) = 5 / [s^3 + 6s + 7]$

18) Compare the P, I and D controllers in terms of time domain specifications. Hence, draw the overall response curve for PI and PID controller.

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Roll No. | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE) (Sem.–5)

PROJECT MANAGEMENT

Subject Code : BTMS-YYY-18

M.Code : 78302

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. a) Discuss the attributes of a project.

   b) What are the advantages of Project Management?

2. Define Project Management.

3. a) What do you understand by LOB?

   b) Write a short note on mixed organizational systems.

4. Differentiate between the PERT and CPM.

5. What do you mean by work breakdown structure?

6. a) Write short notes on Gantt Charts.

   b) Discuss the concept of matrix organization.

7. a) What do you mean by bar charts?

   b) Write the advantages of Gantt Chart.

8. How a project is controlled?

9. Describe the roles of a project manager.

10. a) Write a short note on networking process.

    b) What do you mean by Project Monitoring?

SECTION-B

11. Explain the characteristics of a project in detail.

12. "*Traditional form of project organization is not suitable for the projects.*"

13. What are the important functions of project planning?

14. How is the technique of PERT applied in Project Management?

15. How can project performance and schedule be controlled?

SECTION-C

16. How would you categorize and describe various life cycles of the project?

17. What are the objectives of Project Management and discuss the project selection methods?

18. a) Narrate the various approaches to project control. Explain the challenges exercising project control.

    b) Explain the various steps in the project control cycle and discuss the various phases of the project audit.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ECE) (Sem.–5)

PROGRAMMING IN JAVA

Subject Code : BTEC-905D-18

M.Code : 78710

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Define Java tokens.

2) Differentiate Applet with Applications.

3) Give complete meaning of statement "public static void main (String arg[])".

4) What is the difference between if and switch statement?

5) Write the difference between break and continue statements.

6) Write the importance of interfaces.

7) What is the need of packages?

8) What is a listener in context to event handling?

9) What is RMI?

10) What is JDBC?

SECTION-B

11) Explain what makes Java a platform-independent language?

12) Write a program to implement the Fibonacci series using for loop control structure.

13) What is inheritance? Why Java does not support multiple inheritance?

14) What are the different types of controls in AWT? Explain.

15) What are Java Beans? What are the advantages of Java Beans? Explain different properties of a Java Bean.

SECTION-C

16) Explain in detail that makes Java the most popular, preferable language over the years.

17) What is error and exception handling in Java? How would you handle the exception using Try and Catch?

18) What is an Applet? How applets are different from standalone Java application programs? Discuss.

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Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE) (Sem.–5)

ROUTING AND SWITCHING

Subject Code : BTEC-905A-18

M.Code : 78707

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Define autonomous systems.

2) What is the difference between router and switch?

3) What is Generic VLAN Registration Protocol?

4) What is ADSL Internet service?

5) Define DHCP.

6) What are the services offered by network layer?

7) What is distance vector Routing?

8) What is the difference between dynamic IP and static IP addressing?

9) Explain the addressing used in data link layer.

10) What is OSPF?

SECTION-B

11) Briefly explain the various fields of IPV6 address format.

12) Explain the term Authentication, Authorization and Accounting (AAA) used in network security.

13) What is DSL and ADSL? Explain the principle of establishing DSL/ADSL networks with PPPoE.

14) What is network address translation? Explain translation method in brief.

15) What is Generic Routing Encapsulation? How does it work?

SECTION-C

16) What is the difference between link state and distance vector routing protocol? Explain the steps involved in both types of routing protocol.

17) What are the services provided by application layer? Explain FTP and SMTP application layer protocol in detail.

18) Write a short notes on the following :

a) VRP operating system image management.

b) Bridging Enterprise Networks with Serial WAN Technology.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ECE) (2012 to 2017 E-III (Sem.–7)

ROBOTICS

Subject Code : BTEC-917

M.Code : 71922

Time : 3 Hrs.

Max.

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INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. What is Automation in robotics?
2. Differentiate between joint coordinates and world coordinates.
3. Describe the principle of pneumatic position sensors.
4. How dc servo motors differ from ac servo motors?
5. What are degrees of freedom?
6. Define Payload of a Robot.
7. Differentiate between internal and external grippers.
8. How time of flight camera works?
9. List the advantages and disadvantages of pneumatic actuator.
10. What is inverse kinematics?

SECTION-B

. the basic components of Robot? Explain them briefly with sketch.

.n about Proximity sensors and Compliance sensors.

cuss about Vaccum Grippers along with their advantages and disadvantages.

14. Explain about different image processing techniques used in Robotics.

15. Discuss the textual robot language structure with the help of block diagram.

SECTION-C

16. Discuss how the image segmentation helps to improve the quality of an image in a machine vision system?

17. Explain the various drive system used with an industrial robot and compare their features, merits and demerits.

18. Determine the manipulator Jacobian matrix and singularities for the 3-DOF articulated arm.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE) (2012 to 2017 E-II) (Sem.–7)

ARTIFICIAL INTELLIGENCE TECHNIQUES & APPLICATIONS

Subject Code : BTEC-911

M.Code : 71915

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. What do you mean by the term perceptron?
2. What do you mean by AI?
3. What is an expert system?
4. Differentiate between crisp and fuzzy set theory.
5. Define Adaline and Madaline.
6. How fuzzy sets are defined in Fuzzy Logic?
7. State the Bayes' rule.
8. List the problem formulation steps in AI.
9. What do you mean by mutation?
10. Mention the criteria for the evaluation of a search strategy.

SECTION-B

11. Explain any two types of neural networks.

12. Differentiate between single and multi point crossover operations.

13. Explain the string coding of chromosomes.

14. Differentiate between Mamdani and Sugeno Fuzzy Inference System.

15. Explain features of Fuzzy Logic and Neural Network toolbox in MATLAB.

SECTION-C

16. Explain the various Defuzzification methods.

17. Explain FLS for Antilock Braking System.

18. Explain GA in route planning for Travelling Sales Person.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ECE) (2012 to 2017) (Sem.–7)

OPTICAL COMMUNICATION

Subject Code : BTEC-702

M.Code : 71911

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. What is the concept of pulse broadening?
2. Explain briefly fiber coupling losses.
3. How BER helps to determine receiver performance?
4. Discuss the concept of negative resistance in APD photo-detector.
5. Using Ray theory describes the mechanism for the propagation of light in an optical fiber.
6. "*Nonlinearities are related with intensity*", Justify the statement.
7. A graded index fiber has a parabolic refractive index profile with 45 μm diameter. The numerical aperture is 0.25. Find out the number of guided modes propagating when it is operating at 1.5 μm wavelength.
8. Give details of optical cable construction.
9. Draw diagram and explain briefly distributed feedback laser.
10. How frequency chirping effects the bandwidth?

SECTION-B

11. A glass clad fiber is made with core glass of refractive index 1.5 and cladding is doped to give a fractional index difference 0.0005. Calculate the cladding index and critical internal reflection angle.

12. What do you understand by FWHM? How does it apply to LED's characteristics?

13. Differentiate the optical TDM system and code division multiplexing system.

14. A multimode step index fiber has a relative refractive index difference of 1 % and a core refractive index of 1.5. The number of modes propagating at a wavelength of 1.3 μm is 1100. Estimate the diameter of the fiber.

15. Discuss with the aid of a block diagram, the function of an optical fiber receiver in communication with its components.

SECTION-C

16. Fiber to fiber coupling losses is affected by intrinsic and extrinsic coupling losses. Can intrinsic coupling losses be limited by limiting fiber mismatches?

17. Outline structure of tunable semiconductor lasers for optical fiber communications discussing their relative merits and drawbacks.

18. Explain the following mechanism associated within optical fiber communication :

    a) Quantum shot noise

    b) Avalanche excess noise

    c) Fiber mode partition noise

    d) Thermal noise

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Total No. of Questions : 18

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B.Tech. (ECE) (2012 to 2017) (Sem.–7)

EMBEDDED SYSTEMS

Subject Code : BTEC-701

M.Code : 71910

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Write briefly :

1. Explain the concept of thumb instructions in ARM processor.
2. Which assembly instruction would you use to load 4 words starting from the memory location 0 × 80000000 into the registers r0-r3?
3. Describe the significance of ARMsd and ARMulator.
4. Explain process status register (PSR) for ARM.
5. Assume that x is an array of integers, and i and j are integers. Convert the following C statements into ARM assembly language.

   a. x[i]=j;

   b. x[j]=x[i];
6. Compare little and big-endian modes in ARM processor.
7. Implement the statement x= (a+b)-c, using ARM instructions.
8. Explain the instructions LDC and MRC with an example.
9. Explain Jazelle mode of ARM.
10. Give different applications of ARM processors.

SECTION-B

11. Discuss the role of L1 and L2 cache memories in ARM processor.

12. How ZIGBEE can be interfaced with an ARM processor? Draw and explain an interfacing diagram.

13. With a neat diagram explain the different general purpose registers of ARM processors.

14. Calculate the effective address of the following instructions if register R3 = 0 × 4000 and register R4 = 0 × 20

    a) STRH R9, [R3, R4]

    b) LDRB R8, [R3, R4, LSL #3]

    c) LDR R7, [R3], R4

15. Write an embedded C program to rotate stepper motor in clockwise direction. Draw a neat interfacing diagram of stepper motor with ARM7 processor.

SECTION-C

16. What are addressing modes? Explain various addressing modes with two examples of each used for ARM processors.

17. Use ldm and stm to write a short sequence of ARM assembly language to copy 16 words of data from a source address to a destination address. Assume that the source address is already loaded in r0 and the destination address is already loaded in r1. You may use registers r2 through r5 to hold values as needed. Your code is allowed to modify r0 and/or r1.

18. Write a program to display "ENGINEERING" on LCD using LPC2148 ARM processor. Also draw interfacing diagram.

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Total No. of Questions : 18

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B.Tech. (ECE) (2012 to 2017) (Sem.–7)

COMPUTER NETWORKS

Subject Code : BTCS-403

M.Code : 71909

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. What is OSI-1SO?
2. List different Ethernet versions.
3. What is the difference between congestion control and flow control?
4. What is the use of PPP protocol?
5. What do you understand by CDMA technology?
6. What do you understand multicasting routing?
7. What is ALOHA?
8. Differentiate between switch and hub.
9. What is subnetting?
10. Explain briefly the concept of cumulative acknowledgement in Go back by N protocol.

SECTION-B

11. Explain briefly different congestion management techniques.

12. Compare OSI Reference Model with the TCP/IP Model.

13. Discuss about the configuration and control fields of HDLC.

14. Differentiate LAN, MAN and WAN network topologies.

15. Describe a suitable congestion control algorithm with an example used for multicasting routing.

SECTION-C

16. Compare the working of Go back by N and sliding window protocols in transport layer with the help of suitable examples.

17. Compare the individual fields of IPv4 header with IPv6 header. Draw the format of an IPv6 and explain.

18. What is routing? At which layer it takes place? Explain hierarchical routing algorithm.

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Jan 2021
P.T.U Questions
B.Tech ME
Sem-3

Roll No. | | | | | | | | | | | | | |

Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(ME) (2018 Batch) (Sem.–3)

STRENGTH OF MATERIALS-I

Subject Code : BTME-304-18

M.Code : 76421

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. State and explain Poisson's ratio.
2. What do you mean by bar of uniform strength?
3. Define shearing force with the help of a diagram.
4. Why point of contraflexure does not exist in a simply supported beam?
5. What do you mean by composite beams? Write their applications.
6. Write the assumptions in derivation of torsion equation.
7. Write bending equation.
8. Define equivalent length in case of columns.
9. Write the relationship between moment, slope and deflection.
10. How Macaulay's method is different from Moment area method, briefly explain?

SECTION-B

11. What is the significance of stress-strain curve? Describe a stress-strain curve for ductile material.

12. A flitched beam consists of a wooden joist 12 cm wide and 20 cm deep strengthened by a steel plate 1 cm thick and 18 cm deep, one on either side of the joist. If the stresses in wood and steel are not to exceed 7.5 MN/m^2 ad 127.5 MN/m^2, find the moment of resistance of the section of the beam. Take, $E_{Steel} = 20\ E_{Wood}$.

13. Derive a relation to find torque transmitted by a hollow shaft.

14. A hollow cast iron column whose outside diameter is 200 mm has a thickness of 20 mm. It is 4.5 m long and is fixed at both ends. Calculate the safe load by Rankine-Gordon formula using a factor of safety of 4. Take permissible compressive stress as 550 MN/m^2 and constant a = 1/1600.

15. A wooden beam 150 mm wide and 250 mm deep has a span of 4 metres. Determine the load that can be placed at its centre to cause the beam a deflection of 12 mm. Take, $E = 6 \times 10^6\ kN/m^2$.

SECTION-C

16. A steel tie rod 50 mm in diameter and 2.5 m long is subjected to a pull of 100 kN. To what length the rod should be bored centrally so that the total extension will increase by 15 percent under the same pull, the bore being 25 mm diameter? Take E = 200 GN/m^2.

17. A horizontal beam AB of length 8 m is simply supported at A and B. It carries uniformly distributed load of 3 kN/m over the entire span and a clockwise moment of 12 kNm is applied in the plane of the beam at a point C, 5 m from A. Draw the shearing force and bending moment diagrams and determine the position and magnitude of maximum bending moment.

18. A beam AB of length *l* simply supported at the ends carries a point load *W* at a distance *a* from the left end. Find the deflection under the load and maximum deflection.

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~~Aug~~ 2021

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ME) (2018 Batch) (Sem.–3)

BASIC THERMODYNAMICS

Subject Code : BTME305-18

M.Code : 76422

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. Define thermodynamics.
2. State the concept of temperature and equality of temperature.
3. Define specific heat.
4. What is mechanical equivalent of heat?
5. What is perpetual motion machine of first kind?
6. Define free expansion process.
7. What is thermal reservoir?
8. Define thermal efficiency of heat engine. Can it be 100%.
9. What is cut-off ratio?
10. Define dryness fraction of steam.

SECTION-B

11. State the difference between extensive, intensive and specific properties of a thermodynamic system.

12. Write the comparison between Macroscopic and Microscopic approach.

13. An ideal gas requires 1150 kJ/kg of heat to raise its temperature from 20°C to 100°C when heated at constant pressure. When heat is supplied to the same gas at constant volume, the heat requirement is 825 kJ for the same temperature range. Determine the specific heat at constant pressure, specific heat at constant volume, adiabatic exponent, characteristic gas constant and the molecular mass of gas.

14. Define entropy and show change in entropy in an irreversible process.

15. Explain, with neat sketches, the sequence of events in the working of a two stroke petrol.

SECTION-C

16. State first law of thermodynamics and drive its analytical expression.

17. Explain throttling process and draw isenthalpic curves for a real gas and indicate there upon the inversion curve.

18. State and explain the Carnot theorem and discuss its corollaries.

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March 2021

Roll No. | | | | | | | | | | | |

Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(ME) (2018 Batch) (Sem.–3)

BASIC ELECTRONICS ENGINEERING

Subject Code : BTEC305-18

M.Code : 76420

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Outline the importance of offset voltage of an operational amplifier.

2) Develop the internal block diagram of an Op-amp.

3) Illustrate the pin diagram of IC 741.

4) Examine the importance of input offset current IN OpAmp.

5) Define p-n junction diode.

6) Define reverse voltage.

7) Discuss the need for biasing the transistor.

8) Why transistor is called current controlled device?

9) What are universal gates? Draw truth table of 3 input NAND gates

10) Minimize using Boolean algebra

A'BC+ B'C'+ ABC

SECTION-B

11) Specify the ideal characteristics of Op-amp and methods can be used to produce voltage sources.

12) Explain the working of op-amp as voltage follower.

13) Explain the working Principle of Photodiodes and discuss its applications.

14) Why the width of the base region of a transistor is kept very small compared to other regions?

15) Convert Hexadecimal (AC4) to– Octal and Decimal Number System.

SECTION-C

16) Why Common Emitter configuration is most popular in amplifier circuits?

17) Explain ZENER diode. What is breakdown voltage of Zener diode?

18) Minimize using K Map

$F(w, x, y, z) = \sum m (1, 2, 3, 4, 5, 7, 11, 14, 15)$

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March 2021

Roll No. | | | | | | | | | | | | |

Total No. of Questions : 15

Total No. of Pages : 03

B.Tech. (ME) (2018 Batch) (Sem.–3)

MACHINE DRAWING

Subject Code : BTME-303-18

M.Code : 76419

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. There are three sections in this question paper. Attempt ALL the questions from SECTION-A.
2. Attempt any TWO questions from SECTION-B and any ONE question from SECTION-C.

SECTION-A

1. What is the difference between allowance and tolerance? **(10×2=20)**
2. What is caulking and fullering?
3. Explain difference between Aligned and Unidirectional System of Dimensioning with suitable example.
4. What is the purpose of providing an expansion joint in the pipe line?
5. What is advantage of castle nut over common hexagonal nut?
6. Draw conventions for (i) internal threads (ii) rubber.
7. What do you understand by (i) length of a weld (ii) size of a weld?
8. What are the functions of connecting rod in IC engines?
9. Mention various types of bearings.
10. What is the function of blow off cock?

SECTION-B

11. Draw freehand the full sectional front view and top view of the Knuckle Joint. **(5×2=10)**
12. Draw free hand the full sectional front view and side view of the Muff Coupling.

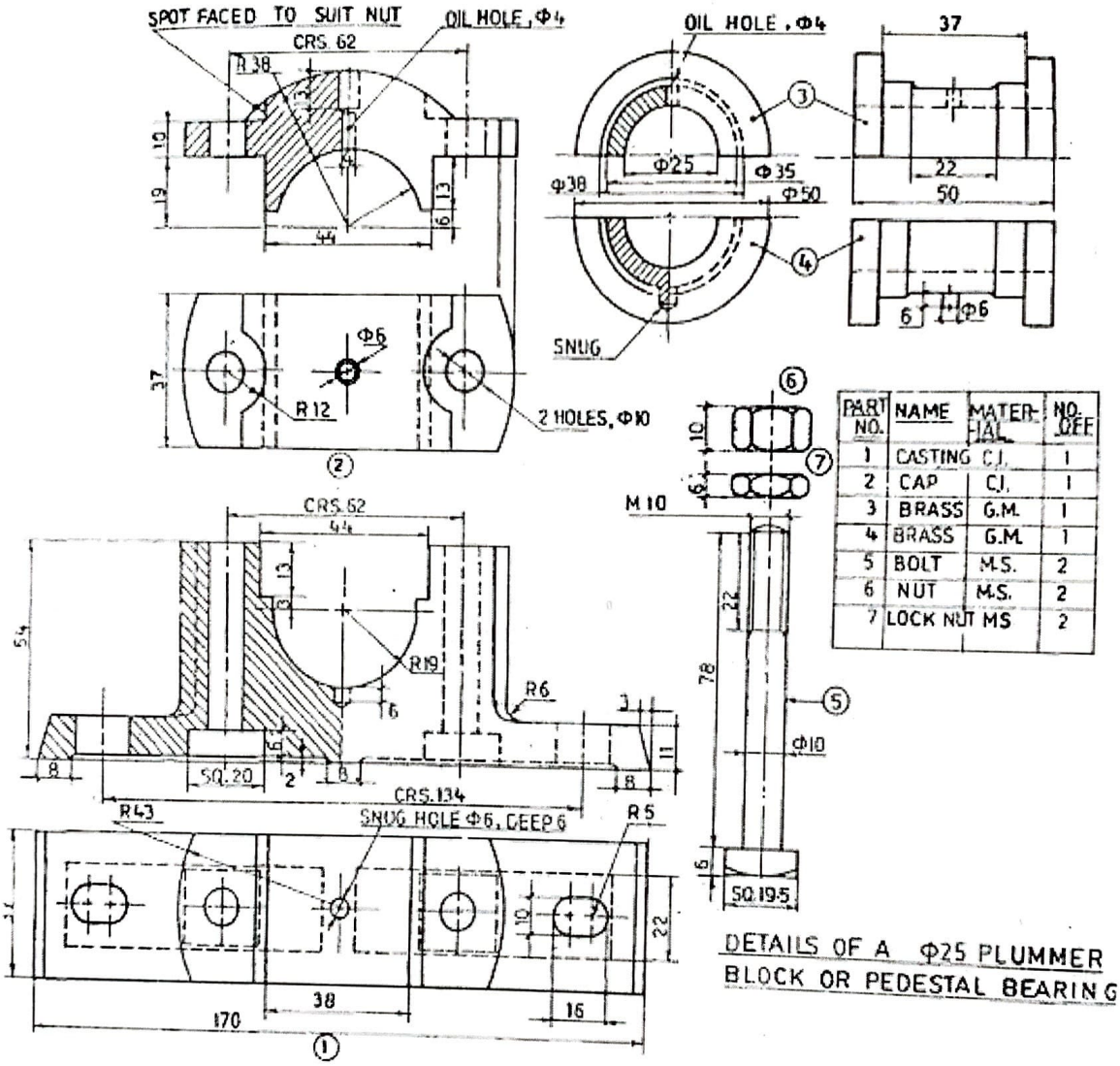
13. Draw freehand the sectional front view of Spigot and Socket joint used for underground pipelines of large diameters.

SECTION-C

14. Assemble the parts of a **Plummer block** given in Fig.1 and draw the following views (with bill of materials): **(30)**

a) Elevation left half in section

b) Plan



PART NO.	NAME	MATERIAL	NO. OFF
1	CASTING	C.I.	1
2	CAP	C.I.	1
3	BRASS	G.M.	1
4	BRASS	G.M.	1
5	BOLT	M.S.	2
6	NUT	M.S.	2
7	LOCK NUT	MS	2

Fig. 1

15. The part drawings of a Feed Check Valve are shown in Figure 2. Assemble the parts and draw full sectional view from the front and top view. Also show the Bill of Materials. **(30)**

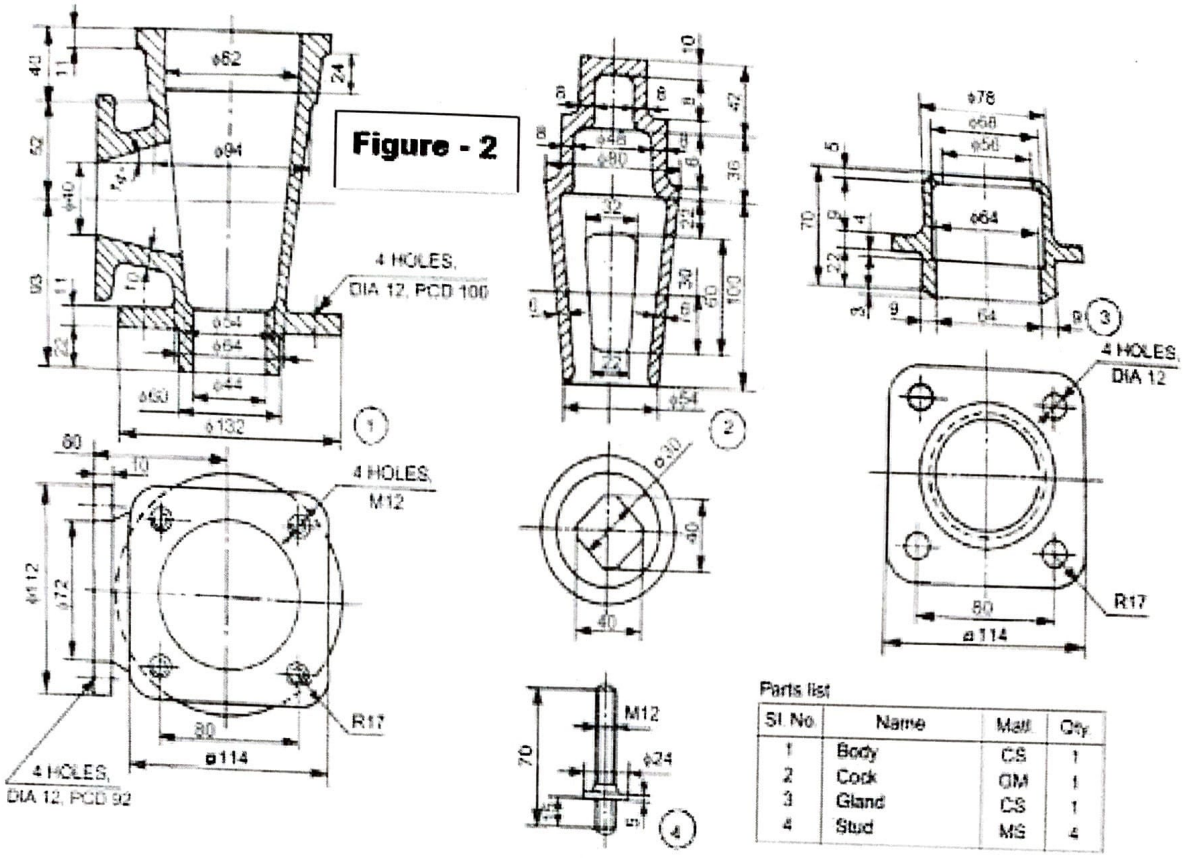


Fig. 2

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March 2021

Roll No. | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(ME) (2018 Batch) (Sem.–3)

THEORY OF MACHINES – I

Subject Code : BTME-302-18

M.Code : 76418

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1) Define Kinematics and Dynamics of machines.

2) What is meant by inversions of a kinematics chain?

3) Write the equation of correct steering.

4) Enlist inversions of single slider crank chain.

5) What are stepped pulleys? Where are they employed?

6) What do you understand by creep of the belt?

7) Give the classification of cams.

8) What do you understand by 'self-locking brake' and 'self-energising brake'?

9) What do you understand by the stability of governors?

10) What is the function of flywheel? Give its applications.

SECTION-B

11) Describe Oldham's coupling. Where is it used in practice?

12) Explain any one type of steering gear mechanism.

13) A multiple disc clutch has five plates having four pairs of active friction surfaces. If the intensity of pressure is not to exceed 0.127 N/mm^2, find the power transmitted at 500 r.p.m. The outer and inner radii of friction surfaces are 125 mm and 75 mm respectively. Assume uniform wear and take coefficient of friction = 0.3.

14) Describe the construction and operation of a rope brake absorption dynamometer.

15) The flywheel of a steam engine has a radius of gyration of 1 m and mass 2500 kg. The starting torque of the steam engine is 1500 N-m and may be assumed constant. Determine : 1. the angular acceleration of the flywheel, and 2. the kinetic energy of the flywheel after 10 seconds from the start.

SECTION-C

16) a) Derive an expression to determine ratio of driving tensions for flat belt drive.

b) Derive an expression to determine the length of belt in open belt drive.

17) Draw displacement, velocity and acceleration diagram when the follower moves with uniform acceleration and unifrom retardation. Also give expressions for maximum acceleration and maximum velocity of the follower during out stroke and return stroke.

18) A Proell governor has all four arms of length 305 mm. The upper arms are pivoted on the axis of rotation and the lower arms are attached to a sleeve at a distance of 38 mm from the axis. The mass of each ball is 4.8 kg and are attached to the extension of the lower arms which are 102 mm long. The mass on the sleeve is 45 kg. The minimum and maximum radii of governor are 165 mm and 216 mm. Assuming that the extensions of the lower arms are parallel to the governor axis at the minimum radius, find the corresponding equilibrium speeds.

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8th March 2021

Roll No. _____ Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ME) (2018 Batch) (Sem.–3)

FLUID MECHANICS

Subject Code : BTME-301-18

M.Code : 76417

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. Differentiate Newtonian and Non-Newtonian fluids
2. List 5 important properties of manometric fluids.
3. Why venturimeter is more accurate than orifice meter?
4. Why metacentric height of battleships is more than passenger ships?
5. What is the difference between convective and local acceleration?
6. What is momentum correction factor?
7. What is Weber's model? Give examples of its applications.
8. Why divergent part length is more than convergent part in venturimeter?
9. Define and distinguish rotational and irrotational flows.
10. How weirs are classified?

SECTION-B

11. A piston of 69mm diameter rotates concentrically inside a cylinder 70mm diameter. Bo
the piston and cylinder are 80 mm long. Find the tangential velocity of the piston if t
space between the cylinder and piston is filled with oil of viscosity 0.235 $N-s/m^2$ a
the torque of 0.0143 N – m is applied.

12. Show that the center of pressure of a body lies below its center of gravity.

13. A velocity potential in a two dimension flow is $\phi = y + x^2 - y^2$, find the stream functio
for this flow.

14. Derive an equation to measure the quantity of water flowing through a venturimeter.

15. A tank has two identical orifices in one of its vertical sides. The upper orifice is 1.5 m
below the water surface and the lower one is 3m below the water surface. Find the point
at which the two jets will intersect, if the coefficient of velocity is 0.95 for both the
orifices?

SECTION-C

16. i) Consider a partially submerged long, thin body being towed in water. Resistance R,
encountered by the body is function of length L of the body, density ρ, dynamic
viscosity μ of the liquid, velocity v with which the body is towed, and the acceleration
due to gravity g. Obtain an expression for R.

ii) An aeroplane model of scale ratio 1 : 30 is tested in water, which is 50 times more
viscous and 800 times more dense than the air. If the pressure drop in the model
during test is 225.63 N/m^3, find the corresponding pressure drop in the prototype.

17. What is delivered by a 10 cm G.I. pipe at the rate of 40 lit/s. Calculate the pressure
difference between the two points 50 m apart on the horizontal line? If one point is 50 m
higher than the other, what will be the difference in pressure? Take $f = 0.005$ and draw
the hydraulic gradient and total energy line.

18. Derive differential equation of continuity in three dimensions in cylindrical coordinates.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(ME) (2018 Batch) (Sem.–3)

BASIC ELECTRONICS ENGINEERING

Subject Code : BTEC-305-18

M.Code : 76420

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. State flip flop and its function.
2. Define op amp 741.
3. Give significance Class A amplifier over Class B amplifier.
4. Define amplifier and its function.
5. What is meant by factitious battery?
6. Give advantages of semiconductor material.
7. Define ripple factor in rectifiers and give its significance.
8. Convert the decimal number 39.75 to hexadecimal.
9. Differentiate between combinational circuit and sequential circuits.
10. What are opto-electronic devices and their functioning?

SECTION-B

11. Compare various number system in detail.

12. What is the concept of load line and Q point of transistor along with neat and clea diagram?

13. Describe the concept of bias stabilization in transistors and amplifiers.

14. Simplify the Boolean expression using K map : F (A,B,C,D) = $\Sigma(0,3,6,7,9,13,14,15)$

15. How an op-Amp will act as differentiator and integrator? Explain.

SECTION-C

16. Design AND-OR logic for the expression (A+B)(C+D)(E+F). Also convert the same circuit in NOR logic gate circuit.

17. a) What are the different logic gates? Give their truth tables.

    b) What are the Universal gates? Why are they so called?

18. What is JK flip flop? Discuss its working. What is race around condition?

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Roll No. | | | | | | | | | | | | |

Total No. of Pages : 04

Total No. of Questions : 15

B.Tech.(ME) (2018 Batch) (Sem.–3)

MACHINE DRAWING

Subject Code : BTME-303-18

M.Code : 76419

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **There are three sections in this question paper. Attempt ALL the questions from SECTION-A.**
2. **Attempt any TWO questions from SECTION-B and any ONE question from SECTION-C.**
3. **First angle projection to be used. You may assume any missing dimension.**

SECTION-A

Write briefly :

1. Draw conventions for 'Cutting Plane Line' and 'Gun Metal'.
2. Explain unilateral and bilateral tolerances with an example.
3. With suitable sketch, explain the method of dimensioning of i) Arc ii) Angle.
4. What are the advantages of welded joints over riveted joints?
5. Why are split muff couplings used in preference to solid muff?
6. What is a tap bolt?
7. What is lock nut? How does it work?
8. If two shafts to be flange coupled are slightly misalignmends, which type of flange coupling would you suggest and why?
9. What is the function of blow off cock?
10. What is application of swivel bearing?

SECTION-B

11. Draw freehand sketch of top half sectioned front view of muff coupling.

12. Draw freehand sketches of front view and top view of a knuckle joint.

13. Draw a full sectioned freehand sketch of spigot and socket pipe joint.

SECTION-C

14. Assemble the parts of **Screw Jack** given in Fig.1 and draw the following views (with bill of materials) :

    a) Elevation left half in section

    b) Top view

15. Assemble the parts of a **Stop Valve** given in Fig.2 and draw the following views (with bill of materials) :

    a) Elevation full in section

    b) Plan

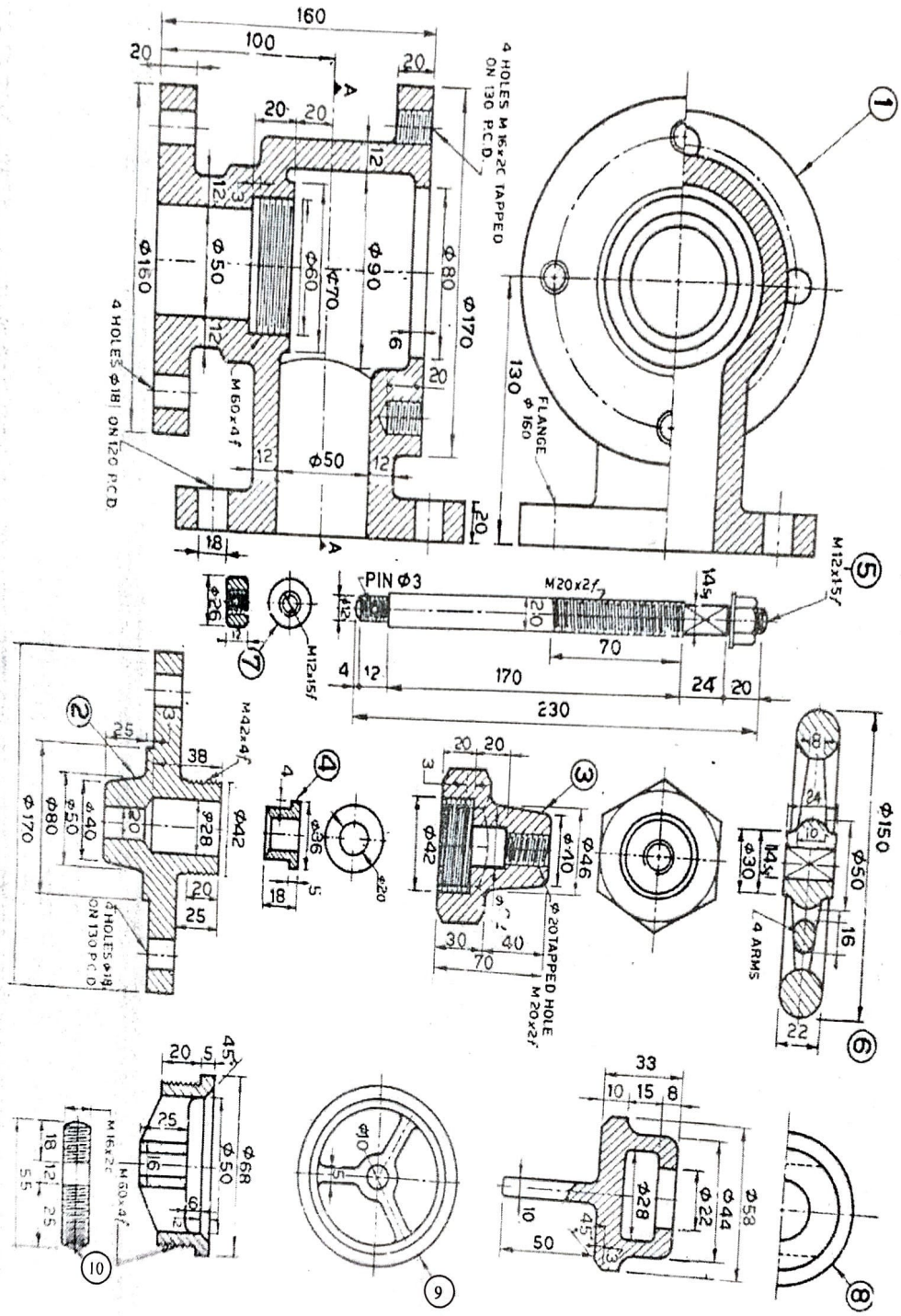

FIG.2

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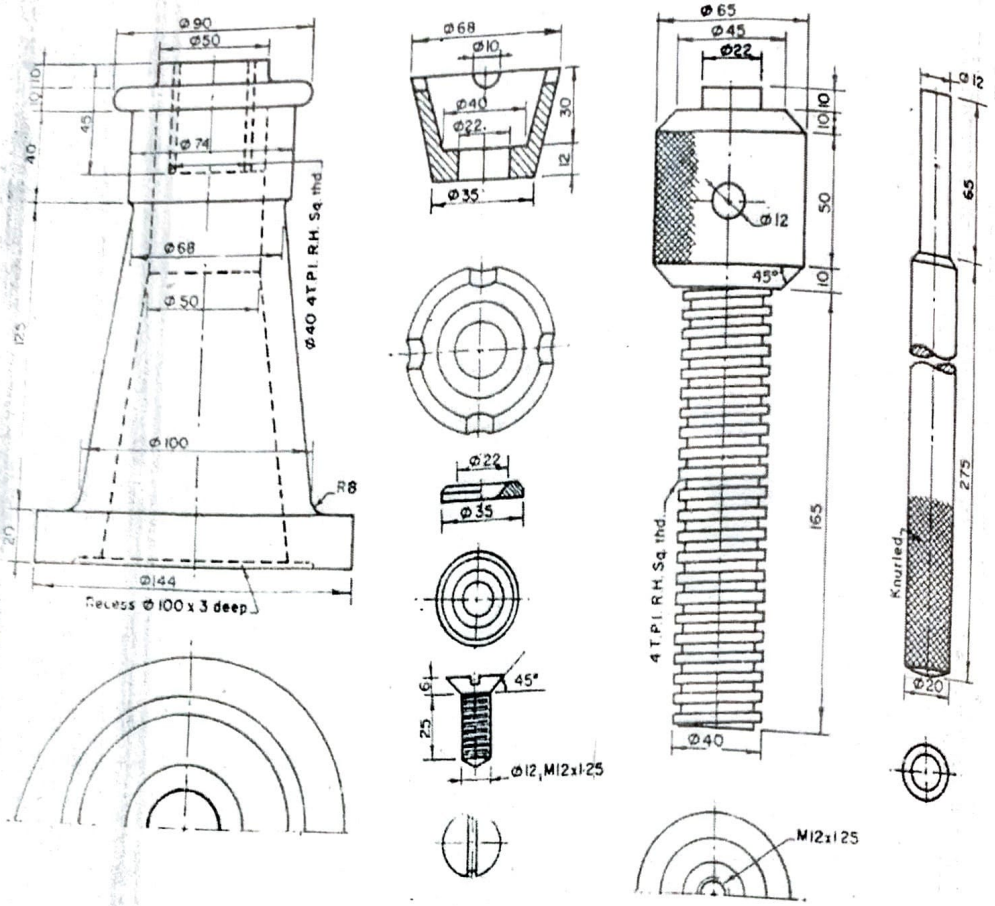
Ø90
Ø50
10
10
45
40
Ø74
Ø40 4TPI. R.H. Sq thd.
Ø68
Ø50
125
Ø100
R8
20
Ø144
Recess Ø100 x 3 deep
Ø68
Ø10
Ø40
Ø22
30
12
Ø35
Ø22
Ø35
45°
6
25
Ø12, M12x1·25
Ø65
Ø45
Ø22
10
10
Ø12
50
45°
10
4 T.P.I. R.H. Sq. thd.
165
Ø40
M12x1·25
Ø12
65
275
Knurled
Ø20

FIG.1

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ME) (2018 Batch) (Sem.–3)

THEORY OF MACHINES – I

Subject Code : BTME-302-18

M.Code : 76418

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. Define kinematic pair.
2. What is a machine?
3. Name the various engine indicators which work on the straight line motion mechanism.
4. Write the important factors upon which the selection of a belt drive depends.
5. State laws of solid friction.
6. Write the factors on which the capacity of breaks depends.
7. Write the function of loose and fast pulley.
8. What is 'Slip' in case of belt drive?
9. Write the application of universal joint.
10. What is the function of counter shaft pulley?

SECTION-B

11. Sketch and explain any two inversions of a double slider crank chain.

12. Derive the condition for transmitting the maximum power in a flat belt drive.

13. Write the classification of Followers with suitable sketch.

14. State the different types of governors. What is the difference between centrifugal and inertia type governors? Why is the former preferred to the latter?

15. The flywheel of a steam engine has a radius of gyration of 1 m and mass 2500 kg. The starting torque of the steam engine is 1500 N-m and may be assumed constant.

Determine :

a. Angular acceleration of the flywheel.

b. Kinetic energy of the flywheel after 10 seconds from the start.

SECTION-C

16. Describe the Watt's parallel mechanism for straight line motion and derive the condition under which the straight line is traced.

17. Describe with sketches one form of torsion dynamometer and explain with detail the calculations involved in finding the power transmitted.

18. A single cylinder double acting steam engine develops 150 kW at a mean speed of 80 r.p.m. The coefficient of fluctuation of energy is 0.1 and the fluctuation of speed is ± 2% of mean speed. If the mean diameter of the flywheel rim is 2 metre and the hub and spokes provide 5% of the rotational inertia of the flywheel, find the mass and cross-sectional area of the flywheel rim. Assume the density of the flywheel material (which is cast iron) as 7200 kg/m^3.

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Total No. of Questions : 18

B.Tech. (ME) (2018 Batch) (Sem.–3)

FLUID MECHANICS

Subject Code : BTME-301-18

M.Code : 76417

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. Define compressibility and bulk modulus.
2. State Pascal's law.
3. State different types of fluid flow.
4. Define Buoyancy.
5. Define stream function and potential function.
6. What do you mean by dimensional homogeneity and what are its applications?
7. What are various losses in pipes?
8. Show stable equilibrium of floating body with diagram.
9. Define Euler number.
10. Name the five model laws of similarity in Dimensional Analysis.

SECTION-B

11. Derive an expression for the time period of oscillation of a floating body in terms of radius of gyration and meta-centric height of floating body.

12. The stream function for a two dimensional flow is given by 2xy, Calculate the velocity at the point (2, 3). Find the velocity potential function also.

13. Derive continuity equation in cylindrical coordinates.

14. Discuss Kinetic Energy Correction and Momentum Correction Factors.

15. Evaluate the relation between stream function and velocity potential function.

SECTION-C

16. Water flows through a triangular right angled weir and then over a rectangular weir of lm width. The discharge coefficients of the triangular and rectangular weirs are 0.6 and 0.7 respectively. If the depth of water over the triangular weir is 360 mm, find the depth of water over the rectangular weir.

17. Show that momentum correction factor for laminar flow through a circular pipe is 4/3.

18. The pressure difference in a pipe of diameter D and length 1 due to turbulent flow depends upon the velocity V, viscosity, density, and roughness k. Using Buckingham's pi theorem obtain an expression for pressure difference.

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Total No. of Questions : 18

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P.T.U Que
B.Tech
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B.Tech (Mechanical Engineering) (Sem.–5)

HEAT TRANSFER

Subject Code : BTME-501-18

M.Code : 78247

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1) What will be your response to a person who states that heat cannot be transferred in vacuum?

2) Mention some of the cases where heat is generated internally at uniform rate in the conducting medium itself.

3) Enumerate the various assumptions made in the formation of energy equation for one dimensional heat dissipation from an extended surface.

4) What are Heisler charts?

5) Define Nusselt number. How it is related to temperature gradient in the fluid immediately in contact with the solid surface.

6) What do you understand by hydrodynamic and thermal boundary layers?

7) In the design of condensers, which of the two types of condensation is usually selected and why?

8) What do you understand by fouling of heat exchanger? How does it affect the performance of heat exchanger?

9) Define monochromatic and total emissive power.

10) Define radiosity and irradiation.

SECTION-B

11) Starting from the differential element, establish the following expression for loss of heat from a lagged pipe per m^2 of metal surface per degree temperature difference between the metal and lagging surfaces

$$q = \frac{k}{r \log_e (R/r)}$$

Where k is thermal conductivity of lagging material, R and r are the radii of lagging and metal surfaces respectively. Neglect the thermal resistance of the metal surface.

12) A fin 30 cm long and 10 mm diameters throughout is made of steel alloy of thermal conductivity 43 $W/m - °C$. The fin attached to a plane heated wall at 200°C, extends into surroundings at 25°C and unit surface conductance of 120 $W/m^2 -$ °C. Workout the heat flow rate from the fin to the surroundings. Presume that the tip of the fin is insulated and thermal radiation effects are negligible.

13) What is the radiant energy flux from a steel product at 1000 K. The product may be treated as grey body with constant emissivlty $\epsilon = 0.7$. Also workout the wave length corresponding to the maximum spectral intensity of radiation.

14) For a certain forced convection process, the following correlation applies:

$$Nu = 0.031 (Re)^{0.75} (Pr)^{0.30}$$

Workout the percentage change in the rate of heat flow per degree temperature difference when the original coolant is replaced by another fluid having viscosity equal to two third that of the original coolant. Assume that other fluid variables and configuration remains the same.

15) Explain the phenomenon of nucleate boiling. List the factors that affect nucleate boiling.

SECTION-C

16) Water enters a counter flow double pipe heat exchanger at 12°C temperature and flow rate of 0.16 kg/s. The water is to cool alcohol ($c_p = 2520\ kj/kg - K$) from 75°C to 35°C. The convection coefficient between alcohol and the tube wall is 340 $W/m^2 - K$ and that between the tube wall and water is 225 $W/m^2 - K$. Presuming tube to be thin, make calculations for the capacity ratio, the effectiveness and the heat transfer area required.

17) Explain in detail the mechanism of forced convection. Show by dimensional analysis that for problems in heat transfer involving forced convection only, the Nusselt number can be expressed as a function of Prandtl number and the Reynolds number.

18) Write short notes on the following :

a) Heat transfer from piston crown

b) Radiation shields

c) Nusselt theory of condensation.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Mechanical Engg.) (Sem.–5)

DESIGN OF MACHINE ELEMENTS

Subject Code : BTME-502-18

M.Code : 78248

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) What are the conditions under which the power rating of a belt is done?

2) Why is it necessary to dissipate the heat generated when brakes operate?

3) What is the function of clutch in an automobile?

4) What is the function of center bolt in leaf springs?

5) How do you designate the wire ropes?

6) What are the applications of welded joints?

7) Explain the Module and Pressure angle in terms of gears.

8) Why V-belts are made endless?

9) Differentiate between Simplex and Duplex chain.

10) What is the function of a bearing?

SECTION-B

11) A motor drives a machine shaft on which a pulley is mounted. The motor is placed vertically below the pulley having 1500 mm diameter, having belt tensions as 5400 N and 1800 N on the tight side and slack side respectively and are assumed to be vertical. The pulley is 400 mm overhung from the center line of the bearing. Taking the maximum allowable shear stress as 42 MPa, calculate the standard diameter of the shaft.

12) What do you mean by Equalized Stresses in leaf springs? How these are achieved? Explain with the help of neat sketch.

13) A compression coil spring made of an alloy steel is having the following specifications :

Mean diameter of coil = 50 mm ; Wire diameter = 5 mm ; Number of active coils = 20. If this spring is subjected to an axial load of 500 N ; calculate the maximum shear stress (neglect the curvature effect) to which the spring material is subjected.

14) The brake drum of a simple band brake is 750 mm in diameter and is fitted with a steel band 4 mm thick lined with brake lining having a coefficient of friction as 0.25 when not sliding. The arc of contact is 245 degrees. The brake drum is attached to a 600 mm hoisting drum that sustains a rope load of 8200 N. The operating force has a moment arm of 1500 mm and the band is attached 125 mm from the pivot point.

a) Determine the force required to just support the load.

b) What force will be required if the direction of rotation is reversed from the clockwise direction?

c) What width of the steel band is required if the tensile stress is limited to 52.5 MPa.

15) What are the different basis on which the gears are classified? Explain in detail.

SECTION-C

16) Power is transmitted between two pulleys mounted on the parallel shafts rotating in the opposite direction. The pulleys are separated apart at a distance of 1950mm having 0.45m and 0.2m diameter respectively. What power can be transmitted by the belt when the larger pulley rotates at 200 rev/min, if the maximum permissible tension on the tight side of the belt is 1000 N, and the value of μ between the belt and pulley is 0.25? Design the length of the belt required and the angle of contact between the belt and each pulley.

17) A sliding contact bearing is operating at 65°C is proposed for a centrifugal pump. The length of the journal is 0.24m and the load on it is 40 kN. The speed may be taken is 900 rpm. Calculate the heat generated and heat dissipated in the bearing.

18) An automobile compressor is running at 280 rpm is driven by 12.5 kW motor having 1000 rpm. The centre distance between the gears were assumed to be 300mm. Assuming the material of both the gears, design the drive completely. Take pressure angle as 14.5°.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Mechanical Engineering) (Sem.–5)

MANUFACTURING PROCESS

Subject Code : BTME-503-18

M.Code : 78249

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Enlist the parameters on which solidification time depends in metal casting.

2) What are the specific merits of cold working over hot working?

3) Define the term surface integrity.

4) Differentiate between Trimming and shaving shearing operations.

5) Distinguish between brazing and soldering.

6) What is meant by rapid tooling?

7) Briefly explain about FDM used in additive manufacturing.

8) Discuss the effect of amplitude and frequency of vibration on surface finish obtainable in ultrasonic machining.

9) List reasons for the development of unconventional machining processes.

10) What should be the properties of maskants?

SECTION-B

11) What are the essential conditions that are to be kept in mind while designing risers? Compare the modulus method with that of Caine's method of fixing riser dimensions.

12) What are the types of cutting tool wear patterns observed in single point tools? How do they affect the metal cutting performance? How do you define the tool life? Explain the parameters that control the tool life of a single point cutting tool.

13) What is meant by liquid-state welding? Explain the basic principle of arc welding processes. Why is the quality of submerged arc welding very good? Why is the flux not needed in tungsten-arc welding?

14) Describe briefly the factors that influence the quality of cut in Plasma Arc Machining (PAM). Discuss the process capabilities of Electron Beam Machining (EBM).

15) What is the difference between jig and fixture? What are different types of fixtures? Enumerate the different applications for jigs and fixtures.

SECTION-C

16) a) Describe briefly about cluster rolling mill. What is the advantage of tandem rolling? What factors contribute to spreading in flat rolling? Explain some defects that can be present in rolled products.

b) Why is investment casting process capable of producing fine surface detail on castings? Explain with suitable sketch.

17 a) What is meant by solid-state welding? Explain the principle underlying the seam welding process. What are the faying surfaces in solid-state welding processes? Enlist the names of products wherein this process is used.

b) Discuss in detail the principles and other important parameters need to be considered during forging die design.

18) What is the principle of electrochemical machining (ECM)? Describe the chemistry involved in the ECM process. Enlist the elements of ECM process with a suitable sketch. What are the materials commonly used for making a tool for use in this method? What are the functions of an electrolyte?

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech (Mechanical Engineering) (Sem.–5)

MANAGEMENT AND ENGINEERING ECONOMICS

Subject Code : BTME-504-18

M.Code : 78250

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1) Define Management.

2) What are the various functions of management?

3) Define Objectives and explain its nature.

4) Differentiate between programmed and non-programmed decisions.

5) Define communication.

6) Define Depreciation.

7) Define Marginal cost.

8) What is the Law of Demand?

9) Describe the process of selection.

10) What do you understand by EMI?

SECTION-B

11) Explain what is the scope of management?

12) Discuss Henri Fayol's theory of modern operational management.

13) Describe various steps involved in basic control process.

14) Differentiate between Micro and Macro economics.

15) Describe what is Declining Balance method of calculating depreciation.

SECTION-C

16) Discuss the importance of achieving balance between centralization and decentralization of authority.

17) Critically examine Herzberg's theory of motivation.

18) Explain the Law of Returns to Scale. Under which time period the Law of Returns to Scale apply?

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Total No. of Questions : 18

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B.Tech. (ME) (2012 Onwards) (Sem.–7)

INDUSTRIAL ENGINEERING AND MANAGEMENT

Subject Code :BTME-801

M.Code : 71994

Time : 3 Hrs.

M

P.T.U Questions B.Tech ME Sem-7

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Answer briefly:

1. Enumerate the scope of industrial engineering.
2. Enumerate the functions of management.
3. State objective of good plant layout.
4. Why is the Maslow hierarchy of needs important?
5. What is work sampling?
6. Why is hierarchy of planning important?
7. What do you understand by group technology layout?
8. Enumerate different approaches to decision making in organizations.
9. Enumerate the principles of delegation of authority.
10. Value Engineering is a powerful cost reduction tool. Justify.

SECTION-B

11. Discuss the relevance of Industrial engineering for achieving performance excellence in industry.

12. What is McGregor's Theory X and Theory Y? How does Theory X and Y motivate employees?

13. Explain the salient features, applications and limitations of Matrix organizations.

14. What is plant layout? Discuss different plant layouts giving suitable examples.

15. Differentiate between method study and work measurement. How is productivity increased by these methods?

SECTION-C

16. a) What is Taylor's Scientific Management? What are the major elements of Taylor's Scientific Management?

    b) Describe the hierarchy, principles and dimensions of planning function.

17. a) What is Organization? Explain the characteristics of formal and informal organizations.

    b) Discuss the procedure establish standard time for completion of a job.

18. a) Briefly describe dimensions of planning function in an organization.

    b) What do you mean by value engineering? Discuss phases involved in conducting a value engineering study.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ME) (2012 Onwards) (Sem.–7)

REFRIGERATION AND AIR CONDITIONING

Subject Code : BTME-802

M.Code : 71995

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. What is meant by refrigeration effect?
2. Define coefficient of performance.
3. How effectiveness of a refrigeration system is measured?
4. What is sub-cooling?
5. What is the function of a flash intercooler?
6. What is the function of absorber?
7. What is an azeotrope?
8. What are the factors affecting comfort air conditioning?
9. Why condensers are used in an air conditioning system?
10. Define wet bulb temperature.

SECTION-B

11. A refrigerator working on Bell - Coleman cycle operates between pressure limits of 1.05 bar and 8.5 bar. Air is drawn from the cold chamber at 10° C, compressed and then it is cooled to 30° C before entering the expansion cylinder. The expansion and compression follows the law $pv^{1.3}$ = constant. Determine the theoretical C.O.P. of the system.

12. Explain how an actual cycle differs from a theoretical vapour compression cycle.

13. Explain a two stage compression system with liquid intercooler.

14. What are eco-friendly refrigerants? Discuss the action plan to reduce ecological hazards.

15. Explain the working of steam jet refrigeration system with the help of a line diagram.

SECTION-C

16. Draw a neat diagram of lithium bromide water absorption system and explain its working.

17. Explain the air conditioning system required for winter season with the help of a sketch.

18. A two stage compression ammonia refrigerating system with water and flash intercooling and water sub-cooling operates between overall pressure limits of 13.89 bar and 1.9 bar. The flash intercooler pressure is 4.97 bar. The temperature of refrigerant leaving the water intercooler and the water sub-cooler is limited to 30°C. If the load is 10 TR, find :

    a) Coefficient of performance of the system.

    b) Power required to drive each compressor.

    c) Swept volume for each compressor assuming the volumetric efficiency for both the compressor as 80%.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (Mechanical Engineering) (Sem.–7)

MECHANICAL VIBRATIONS

Subject Code : BTME-803

M.Code : 71996

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Differentiate Oscillation and Vibration.

2) In short define types of Vibrations.

3) Describe causes of vibrations.

4) Vibration is a necessary Evil. Explain.

5) What are various effects of vibrations? Explain.

6) What do you understand by Natural frequency?

7) With help of Figure explain multi-degree freedom system.

8) What do you understand by degrees of freedom?

9) Why soldiers are asked to break their steps while crossing a bridge? Explain.

10) What is the principle of vibration absorber? Explain with help of neat sketch.

SECTION-B

11) A spring mass system with mass m kg and stiffness k N/m has a natural frequency of 1 Hz. Determine the value of stiffness k1 of another spring which when arranged in conjunction with spring of stiffness k in series will lower the natural frequency by 20% and in parallel will raise the natural frequency by 20%.

12) Describe and differentiate Coulomb and Viscous Damping in detail.

13) Add two harmonic motions analytically which are represented by the equations :

$x(1) = 4 \sin (7t+\pi/6)$

$x(2) = 5 \cos(7t-\pi/12)$

Compare the result with graphical representation.

14) Torque T is applied at the midpoint of a uniform cross-section circular shaft of length '*l*', which twists the shaft by angle α radians. If the torque is released suddenly, derive equation for resulting motion.

15) Describe torsional vibration absorber with neat sketch.

SECTION-C

16) Explain the following :

a) Vibration isolation transmissibility

b) Torsional vibration of circular shafts

17) A beam having length of 0.42 m, moment of inertia $10000m^4$ and modulus of elasticity 196000 N/m^2 is supporting two masses 40 kg and 20 kg at a distance of 0.16 and 0.24 m from one end. Determine lowest natural frequency by Rayleigh's method.

18) Determine the normal function for the boundary conditions as one end fixed and the other end free of a cantilever system of length '*l*', starting with the expression for strain energy during free longitudinal vibration of bar with uniform area of cross-section.

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Total No. of Pages : 02

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B.Tech. (ME) (2012 Onwards E-II) (Sem.–7)

NON-DESTRUCTIVE TESTING

Subject Code : DE/ME-2.4

M.Code : 72010

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write short notes on following :

1. Differentiate between destructive and non-destructive testing.
2. Give salient features of Acoustic Emission Technique.
3. Name two of the NDT techniques that can be used to detect internal defects.
4. Explain the principle of Eddy current testing & its applications.
5. Which materials are subjected to magnetic particle testing?
6. State safety precaution in Industrial radiography.
7. What is concrete test hammer?
8. Which NDT method is used for measuring thickness of materials?
9. Differentiate between ordinary penetrant testing and fluorescent penetrant testing.
10. Explain the term subject contrast and IQI in radiographic testing.

SECTION-B

11. State how different NDT techniques are selected for defect detection.

12. Explain principle of radiographic testing and give its applications and limitations.

13. Explain various methods of magnetization & demagnetization commonly practi Non-destructive testing procedure.

14. Explain the principle of Ultrasonic Testing. Give its applications, advantage limitations.

15. Give a list of leak testing methods highlighting their principle and applications.

SECTION-C

16. a) Explain the nondestructive method by which moisture distribution in wood predicted.

    b) State dye penetrant test principle and explain capillary action, contact angle, ad force and cohesive force. Mention limitations of dye penetrant test.

17. a) Discuss the defect detection methods for ferrous and nonferrous materials.

    b) What is photoelastic material? Explain the phenomena of stress analysis photoelasticity giving a neat sketch.

18. a) Describe sonic material analyzer, its working, applications using an appro sketch.

    b) Explain with suitable sketch: Circular Magnetization, and Longi Magnetization.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (ME) (2012 Onwards OE) (Sem.–7)

HUMAN RESOURCE MANAGEMENT

Subject Code : HU-251/252/DE-13/ME-25

M.Code : 54067

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Answer briefly :

1. Concept of manpower planning.
2. Causes of stress.
3. Self-Appraisal.
4. Define the term Establishment.
5. Explain the concept of industrial relation.
6. Role playing.
7. Different types of transfer.
8. Group discussion.
9. Process of career planning.
10. Monetary incentive.

SECTION-B

11. Discuss the benefits of promotion. Should it be based on seniority and merit? Give reasons.
12. Define Job Specification. How it is different from Job Description.
13. Explain Herzberg's two factors theory. Compare it with Maslow's need hierarchy theory.
14. Define Job Evaluation. Discuss its advantages and limitation.
15. What steps will you like to introduce in a factory for the safety of workers operating dangerous machines? Discuss.

SECTION-C

16. What are the objects of the Contract Labour (Regulation and Abolition) Act, 1970?
17. What is a trade union? What are its functions and objects? Explain.
18. What are the objectives of personnel management? Who is responsible for the performance of this function?

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE/IT) (2018 Batch) (Sem.–3)

DIGITAL ELECTRONICS

Subject Code : BTES-301-18

M.Code : 76435

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. State flip flop and its function.
2. Draw the full adder circuit using half adder.
3. Write the function of magnitude comparators.
4. Draw the NOR gate latch write its truth table.
5. What are the types of programmable logic devices?
6. Give the difference between Moore and Melay's model.
7. State the De Morgan's law and write any one application.
8. Convert the decimal number 39.75 to hexadecimal.
9. Differentiate between combinational circuit and sequential circuits.
10. What will be memory capacity of RAM if it has 10 bit address lines?

SECTION-B

11. Compare various number system in detail.

12. Illustrate the design procedure with algorithmic state machine with neat flow chart.

13. Discuss the features and functional blocks of FPGA.

14. Simplify the Boolean expression using K map :

    $F(A,B,C,D) = \Sigma(0,3,6,7,9,13,14,15)$

15. How an op-Amp will act as differentiator and integrator? Explain.

SECTION-C

16. Design AND-OR logic for the expression $(A + B)(C + D)(E + F)$. Also convert the same circuit in NOR logic gate circuit.

17. a) What are the different logic gates? Give their truth tables.

    b) Describe the classification of semiconductor memories.

18. What is JK flip flop? Discuss its working. What is race around condition?

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10th March 2021

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(CSE) (2018 Batch) (Sem.–3)

OBJECT ORIENTED PROGRAMMING

Subject Code : BTCS-302-18

M.Code : 76437

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. What is an Object and Class?
2. Explain how data is secured in C++?
3. What is Pointer? Write down its syntax.
4. What is the characteristic of member function?
5. Differentiate between multilevel and hybrid inheritance.
6. What are the features of Object oriented programming?
7. Difference between throw and throws.
8. What is string? Give an example.
9. What is binding? Explain types of Binding.
10. Explain pure virtual function.

SECTION-B

11. Explain Copy constructor with suitable C++ program.

12. Explain function Overloading.

13. Differentiate Call by value and Call by reference.

14. Define the term Data hiding and Polymorphism.

15. Explain the formatted I/O operations.

SECTION-C

16. Write a program to create a student report using inheritance technique.

17. Explain the exception handling mechanism in C++.

18. What is friend function? What are the merits and demerits of using friend function?

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March 2021

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) (2018 Batch) (Sem.–3)

MATHEMATICS-III

Subject Code : BTAM304-18

M.Code : 76438

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Investigate the continuity of the function $f(x,y)=\begin{cases}\dfrac{xy}{x^2+y^2}, & (x,y)\neq(0,0)\\ 0, & (x,y)\neq(0,0)\end{cases}$ at the origin.

2. Test the convergence or divergence of the series : $\sum\dfrac{\sqrt{n}}{n^2+1}$.

3. Find the general and singular solution of $\sin(px-y)=p$.

4. Solve $xy(1+xy^2)\dfrac{dy}{dx}=1$.

5. Find the complete solution of $\dfrac{d^3y}{dx^3}+y=0$.

6. Evaluate $\int_0^1\int_x^{\sqrt{x}}(x^2+y^2)\,dx\,dy$.

7. If $\phi(cx-az,\ cy-bz)=0$, show that $\dfrac{a\partial z}{\partial x}=\dfrac{b\partial z}{\partial y}=c$.

8. State Balzano Weirstrass theorem.

9. Determine the exactness of the differential equation : $\frac{2x}{y^2}dx + \frac{y^2-3x^2}{y^4}dy = 0$.

10. Examine for convergence : $1+\frac{1}{2}+2+\frac{1}{3}+3+\frac{1}{4}+4+....\infty$.

SECTION-B

11. Find the points on the surface $z^2 = xy + 1$ nearest to the origin.

12. Evaluate by changing the order of integration : $\int_0^3 \int_1^{\sqrt{4-y}} (x + y)\,dx\,dy$.

13. Test for convergence : $1+\frac{x}{2}+\frac{2!}{3^2}x^2+\frac{3!}{4^3}x^3+\frac{4!}{5^4}x^4+.....\infty$.

14. Solve : $(xy^3 + y)\,dx + 2(x^2y^2 + x + y^4)\,dy = 0$.

15. Using method of variation of parameters, solve : $\frac{d^2y}{dx^2} + 4y = \tan 2x$.

SECTION-C

16. a) Solve : $x^2\frac{d^2y}{dx^2} + 4x\frac{dy}{dx} + 2y = e^x$.

    b) Find particular integral of $(D^2 + 1)\,y = \cos(2x - 1)$.

17. a) If $z = \log(x^2 + xy + y^2)$, show that $x\frac{\partial z}{\partial x} + y\frac{\partial z}{\partial y} = 2$.

    b) Find the double integration, the area of the lemniscates $r^2 = a^2 \cos 2\theta$.

18. a) Test the series for absolute and conditional convergence :

$$1-\frac{1}{2\sqrt{2}}+\frac{1}{3\sqrt{3}}-\frac{1}{4\sqrt{4}}+....\infty.$$

    b) For what values of x the following series of convergent : $x-\frac{x^2}{2^2}+\frac{x^3}{3^2}-\frac{x^4}{4^2}+..... \infty$.

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16th March

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE/IT) (2018 Batch) (Sem.–3)

DIGITAL ELECTRONICS

Subject Code : BTES-301-18

M.Code : 76435

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) How AND gate can be made using NOR gates?

2) Differentiate between combinational and sequential circuits.

3) Convert Hexadecimal number (BC4) base 16 TO Octal and Decimal Number System.

4) Convert Binary number (10110) to Gray code.

5) What is ring counter?

6) Convert BCD NUMBER (1001 1000) to Excess-3 code.

7) How Decoder can be used as Demultiplexer?

8) Define FPGAs.

9) Write De-Morgan's theorem.

10) Add binary numbers : 10110 + 01101 + 10101

SECTION-B

11) Implement the following function using Decoder :

$F(A, B, C, D) = \sum m\ (1, 2, 3, 5, 7, 8, 11)$.

12) Design 2-bit comparator circuit.

13) What is Race Around condition, how it can be avoided?

14) Write short note on classification of memories.

15) Minimize the following expression using K-Map technique :

$AB'C + A'BCD' + AB + B'D$

SECTION-C

16) Describe various characteristics of A/D convertors. Also explain the working of Successive Approximation A/D convertor.

17) Design MOD 10 counter using JK flip flop.

18) Minimize using QM Method

$F(w, x, y, z) = \sum m\ (0, 1, 3, 5, 7, 11, 12, 13, 14, 15)$

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Total No. of Questions : 18

Total No. of Pages : 03

B.Tech. (CSE) (2018 Batch) (Sem.–3)

MATHEMATICS-III

Subject Code : BTAM304-18

M.Code : 76438

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Solve the following :

1. Show that the limit for the function $f(x,y)=\dfrac{x^2+y^2}{x^2-y^2}$ does not exists as $(x, y) \to (0, 0)$.

2. Evaluate the integral $\int_{-1}^{1}\int_{0}^{z}\int_{x-z}^{x+z} dydxdz$.

3. Check the convergence of the following sequences whose nth term is given by $a_n=\left(\dfrac{3n+1}{3n-1}\right)^n$.

4. State Cauchy Integral test for convergence of a positive term infinite series.

5. Write down the Taylor's series expansion for $\sin x$ about $x=\dfrac{\pi}{2}$.

6. Solve by reducing into Clairaut's equation : $p=\log(px-y)$, where $p=\dfrac{dy}{dx}$.

7. Solve the differential equation $\dfrac{dy}{dx}+y\cot x = x\,\text{cosec}\,x$

8. Determine whether the differential equation is exact

$$(x^2+y^2+2x)dx+2ydy=0$$

9. Solve the differential equation $\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = 0$

10. Find Particular integral for $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = e^{-x}$

SECTION-B

11. Using Method of Lagrange Multipliers, find the maximum and minimum distance of the point (3, 4, 12) from the sphere $x^2 + y^2 + z^2 = 1$.

12. Solve by changing order of integration : $\int_0^a \int_y^a \frac{x}{x^2 + y^2} dxdy$, a is any positive constant.

13. For what value(s) of x does the series converge (i) conditionally (ii) absolutely?

$x - \frac{x^2}{\sqrt{2}} + \frac{x^3}{\sqrt{3}} - \ldots\ldots$ to ∞. Also find the interval of convergence.

14. Solve the differential equation :

$(xy^3 + y)dx + 2(x^2y^2 + x + y^4)dy = 0$

15. Solve the differential equation $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = xe^{3x} + \sin 2x$.

SECTION-C

16. a) Check the convergence of the series $\sum_{n=2}^{\infty} \frac{\sqrt{n+1} - \sqrt{n}}{n^{3/2}}$.

b) Find by double integration, the area lying inside the circle $r = a \sin \theta$ and outside the cardiode $r = a(1 - \cos \theta)$.

17. a) Solve the differential equation $\frac{dy}{dx} + \frac{x}{1-x^2} y = x\sqrt{y}$.

b) Solve the differential $xyp^2 - (x^2 + y^2)p + xy = 0$, where $p = \frac{dy}{dx}$.

18. a) Solve by Method of Variation of parameters $\frac{d^2y}{dx^2} + y = \sec x$.

b) Solve $(1+x)^2 \frac{d^2y}{dx^2} + (1+x)\frac{dy}{dx} + y = \cos \ln(1+x)$.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) (2018 Batch) (Sem.–3)

OBJECT ORIENTED PROGRAMMING

Subject Code : BTCS-302-18

M.Code : 76437

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. Define inheritance. Name various types of inheritance.
2. What is a pure virtual function?
3. What is Data hiding? How it is achieved in C++?
4. What do you understand by array of class objects? Discuss with example.
5. What is function overloading? Give example.
6. Discuss the declaration and usage of static data members.
7. What are basic data types supported by C++?
8. Compare private, protected and public visibility modes.
9. Discuss C++ stream classes.
10. What are recursive functions? Give example.

SECTION-B

11. What is a friend function? Explain its importance with an example.

12. What do you mean by Multi level Inheritance? Explain with the help of an example.

13. Explain various types of constructor with examples.

14. Explain the declaration, accessing and usage of static data members with the help of suitable examples.

15. Show and explain how to open, close, read and write a file?

SECTION-C

16. Explain various control statements of C++ with suitable examples.

17. Define Polymorphism. Explain its types. How polymorphism is implemented in C++? Give suitable examples.

18. What do you mean by exception handling in C++? Write a program that throws an arithmetic exception as and when a number input is a negative number.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (CSE) (2018 Batch) (Sem.–3)

DATA STRUCTURE & ALGORITHMS

Subject Code : BTCS-301-18

M.Code : 76436

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. Write at least **three** differences between linear and binary search.
2. Write pseudo code to implement circular queue.
3. Stacks are used to implement recursion in programming languages. Explain why?
4. Evaluate below postfix expression.

   2 3 2 ^ ^ 8 2 / / 5 2 * 6 – +

5. Write pseudo code to find maximum element in a singly linked list. Consider node in linked list has 'data' field storing an integer.
6. Explain left and right rotations in an AVL tree.
7. Create the BST after inserting following elements in order in an empty BST.

   5, 6, 3, 2, 4, 7, 9, 1

8. What is in-place sorting?
9. What are stable sorting techniques?
10. What is Time complexity of quick sort in worst case? And why?

SECTION-B

11. Solve the below recurrence relation using substitution method.

$$T(n) = \begin{cases} 2T\left(\frac{n}{2}\right) + C & ; \quad n > 1 \\ 1 & ; \quad n = 1 \end{cases}$$

12. Write pseudo code to implement queue using stack i.e. implement insert and delete operation of queue using push and pop.

13. A queue can be implemented using single linked list in two ways. One implementation has front at head and rear at tail of linked list. Other implementation has front at tail and rear at head of linked list. Which implementation among two is efficient and why?

14. Create hash table of length 13 for the following keys entered in the same order using below hash function. Linear probing is used to resolve collision.

    Keys : {4684, 4879, 5651, 1829, 1082, 7107, 1628, 2438, 3951, 4758, 6967, 4989}
    Hash function : (sum of all digits)% 13

15. Give the brief introduction to threaded Binary trees?

SECTION-C

16. Graph data structure can be very efficient in finding shortest path between two cities. Show with an example.

17. Explain :

    a) Difference between connected and unconnected graph.

    b) Discuss pros and cons of Adjacency matrix representation of a graph.

18. How a multidimensional array is represented in memory? Explain the program which reads two matrices?

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B.Tech. (CSE) (Sem.–5)

ENTERPRISE RESOURCE PLANNING

Subject Code : BTES 501-18

M.Code : 78319

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) SAP

2) ROI

3) MIS

4) DSS

5) QAD

6) EIA

7) SSA

8) SCM

9) BPR

10) ERP

SECTION-B

11) Differentiate ERP and E-Commerce.

12) Explain Direct and Indirect benefits of ERP.

13) Discuss the advantages of Data Mining.

14) What is Pre-evaluation Screening? Why it is required?

15) Discuss the reason of growth of ERP Market.

SECTION-C

16) Explain an On-line Analytical Processing (OLAP) in detail.

17) Explain The Subsystems of Plant Maintenance Module in ERP.

18) Explain different phases of ERP implementation Life Cycle. Explain it with example.

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Total No. of Questions : 18

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B.Tech (CSE) (Sem.–5)

DATABASE MANAGEMENT SYSTEMS

Subject Code : BTCS-501-18

M.Code : 78320

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

Answer briefly :

1) What is Data Independence?

2) Define the term Entity.

3) Difference between relation calculus and relational algebra.

4) What is Transitive Dependency?

5) What is Indexing?

6) Explain briefly various kinds of privileges.

7) What is shadow paging?

8) What is a transaction?

9) Why database security is important?

10) What is Locking?

SECTION-B

11) What are integrity constraints? Why they are important?

12) What is the purpose of normalization in DBMS?

13) Discuss various concurrency control techniques.

14) Discuss the importance of Authentication.

15) Explain Distributed databases with its advantages.

SECTION-C

16) a) What is data model? Explain its types.

    b) Explain various data models.

17) Write note on hashing.

18) What are Object-Oriented Databases? Write its advantages and disadvantages.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (CSE) (Sem.–5)

FORMAL LANGUAGE & AUTOMATA THEORY

Subject Code : BTCS-502-18

M.Code : 78321

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

Answer briefly :

1) If A={a, b} and B={a, c}, Find A* U B*.

2) State Kleene's Theorem.

3) Find Regular Expression over {a,b} having set of all string containing exactly two a's.

4) Differentiate between type1 and type2 grammar.

5) State Arden's Theorem.

6) Describe PDA.

7) Differentiate between Injective and Surjective functions in a set.

8) Write the steps needed for proving that a given set is not regular.

9) Define Derivation Tree.

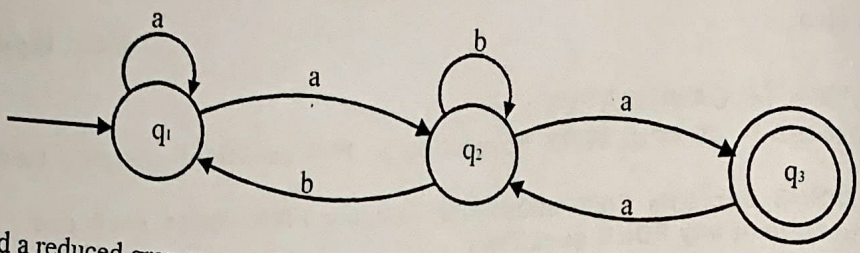
10) State Ambiguous grammar with example.

SECTION-B

11) Describe pumping lemma for regular set with the help of an example.

12) Prove that string represented by following transition system is

$(a + a(b + aa)^*b)^* a(b + aa)^*a$.



13) Find a reduced grammar equivalent to the given grammar.

$S \rightarrow AB$ $A \rightarrow a$ $B \rightarrow b$ $B \rightarrow C$ $E \rightarrow c$

14) What are the different types of Grammars and Languages associated with it.

15) Discuss the Universality of Cellular Automata.

SECTION-C

16) Find a grammar in GNF equivalent to the grammar.

$E \rightarrow E + T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow (E) \mid a$

17) Discuss the various representations of Turing Machine.

18) Design PDA for $\{wcw^T \mid w = \{a,b\}^*\}$.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) (Sem.–5)

SOFTWARE ENGINEERING

Subject Code : BTCS-503-18

M.Code : 78322

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Write two advantages of waterfall model of software life cycles.

2) What do you mean by requirement gathering?

3) Differentiate between coupling and cohesion.

4) What are the basic issues in software design?

5) What are the fundamentals of testing? Explain in brief.

6) Explain in brief about Black-box testing.

7) What is project planning and control?

8) What is the difference between PERT and GANTT charts in reference to project scheduling?

9) Explain in brief about PSP.

10) What is SEI CMMI in software engineering?

SECTION-B

11) Write a detailed note on waterfall model of software life cycle.

12) Explain in detail about user interface design.

13) Write a detailed note on Software Reliability metrics.

14) Write a detailed note on Rayleigh-Norden results.

15) What do you mean by software maintenance? Explain in detail.

SECTION-C

16) Explain in detail about Code standards and Code review techniques.

17) Explain in detail about component-based software development.

18) Write a detailed note on Requirements analysis and specification.

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Total No. of Questions : 18

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B.Tech. (CSE) (Sem.–5)

COMPUTER NETWORKS

Subject Code : BTCS 504-18

M.Code : 78323

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1) Define protocols.

2) What is bandwidth in network?

3) What is VLAN and why it is used?

4) What is the use of ALOHA protocol?

5) Differentiate IPV4 with IPV6.

6) Define DHCP.

7) Write the role of FTP.

8) Give the principle of Bluetooth.

9) Discuss UDP Protocol.

10) What is meant by congestion control?

SECTION-B

11) What is topology and discuss types of topology?

12) Discuss the role of multiplexing in data communication.

13) Write the types of routers. Explain any one in short.

14) Give the basic concept of Cryptography.

15) Discuss Quality of Service improving techniques on transport layer.

SECTION-C

16) Explain the protocols and standards used in OSI Model.

17) What do you mean by error detection and correction? Discuss cyclic redundancy check.

18) Define multiple access protocol. How CSMA/CA protocol is used to avoid the collision in networks?

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B.Tech (CSE) (Sem.–5)

WEB TECHNOLOGIES

Subject Code : BTCS-520-18

M.Code : 78326

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) What do you mean by Internet Addressing?

2) Define HTTPs.

3) Discuss Cookies.

4) Compare HTML *vs.* DHTML.

5) What are Internal CSS style sheets?

6) What are JavaScript data types?

7) Define Session.

8) What is JSON used for?

9) What is form?

10) Discuss MySQL.

SECTION-B

11) Write the role of Internet Service Provider.

12) Write a short note on Web Browsers in Web Technology.

13) Give the overview and features of HTML5.

14) Give the use of strings in PHP.

15) List the advantages and disadvantages of AJAX.

SECTION-C

16) By taking a suitable example, explain the use of Document Head and Body in HTML structure.

17) What is client side JavaScript? Write the syntax of writing JavaScript into HTML.

18) Explain decision and looping in PHP by taking a suitable example.

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B.Tech. (CSE) (2012 to 2017) (Sem.–7)

ARTIFICIAL INTELLIGENCE

Subject Code : BTCS-701

M.Code : 71893

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

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SECTION-A

Write briefly :

1) What is state space search for water jug problem?

2) What is Conflict Resolution Strategies?

3) What is decision tree?

4) What is a Rule based learning?

5) What is a monotonic Production System?

6) How recursion is implemented in lisp?

7) What is declarative knowledge?

8) What is an agent?

9) What is an expert system?

10) What is a frame problem?

SECTION-B

11. Explain the AO* algorithm. Under what situations it can be used?

12. Express the following as semantics net with interconnected nodes and labeled arcs :

"*Company ABC is a software development company. Three departments within the company are Sales, Administration and Programming. Joe is a manager of programming. Bill and sue are programmer. Sue is married to Sam. Sam is editor of PHi. They have three children, and they live on Elm Street. Sue wears glasses and is 5.5 feet tall*".

13. What is meant by a "Knowledge-Based System"? Describe the basic components of a knowledge- based system. Also mention the various levels of knowledge representation.

14. Differentiate between Data, Belief, Hypothesis & Knowledge. What is tautology? Give an example.

15. Derive a parse tree for the sentence "Bill Loves the Frog" where the following rules are used :

S → NP VP

NP → N

NP → DET N

VP → V NP

DET → the

V → loves

N → bill | frog

SECTION-C

16. What do you understand by unsupervised learning? What are the major characteristics?

17. What is minimax search for game playing? Explain the Min Max algorithm.

18. Consider the following sentences :

John likes all kind of food

Apples are food

Chicken is food

Anything anyone eats and is not killed by is a food

Bill eats peanuts and is still alive

Sue eats everything Bill eats

a) Translate these sentences into formulas in predicate logic.

b) Prove that john like peanuts using backward chaining.

c) Convert the formula into clause form.

d) Prove that John likes peanuts using resolution.

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B.Tech.(CSE) (2012 to 2017) (Sem.–7)

THEORY OF COMPUTATION

Subject Code : BTCS-702

M.Code : 71894

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Answer Briefly:

1. Define alphabets in Theory of Computation.
2. Define Non Deterministic Finite Automata.
3. What is a transition table?
4. Discuss Regular Expression.
5. State pumping lemma for regular languages.
6. Write short note on decidability.
7. What is left most derivation?
8. Write properties of LR(k) grammars.
9. Compare deterministic and non deterministic versions.
10. Define the language of Turing machine.

SECTION-B

11. Define the rule for construction of CFG from given PDA.

12. What are the additional features of PDA compared with NFA?

13. Verify whether that the following context free grammar is ambiguous or not :

    $S \rightarrow 1A0S$

    $S \rightarrow 1A0S1S$

    $A \rightarrow 1$

    $S \rightarrow 0$

14. Give pushdown automata that recognize the following languages :

    $B = \{w \in \{0, 1\}^* \mid w = w^R$ and the length of w is odd$\}$

15. Describe the recursively Enumerable Language with example?

SECTION-C

16. Write the steps to convert context free grammar into regular expression by taking suitable example?

17. Explain the extended transition function for NFA, DFA and $\in$-NFA. Give the regular expressions for set of all strings that begin with 110?.

18. Write short note on following :

    a) Rules for the conversion of Grammars to PDA

    b) Parsing techniques

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B.Tech. (CSE/IT) (2012 to 2017 E-II) (Sem.–7)

BUSINESS INTELLIGENCE

Subject Code : BTCS-908

M.Code : 71900

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. What is meant data mining?
2. How to implement the business intelligence?
3. Write the characteristics of data warehouse.
4. What is meta-data model?
5. What are dashboards?
6. What is Crypto Analysis?
7. Differentiate between text mining and spatial mining.
8. Critically comment on the inferences of ETL.
9. Can BI used for DM? Or vice versa? Justify.
10. Define support of rule and confidence of rule.

SECTION-B

11. Write short note on Transformation.

12. What is association rule mining? List various rules of association rule mining based on the dimensions of data involved in the rule set.

13. Explain the various modern techniques of crypt analysis.

14. Write short note on Genetics application development using data mining.

15. Write short note on K-Nearest Neighbor classification technique.

SECTION-C

16. Explain the data mining techniques used in neural networks with special reference to decision trees.

17. Describe in detail data warehouse architecture and its components with neat sketch.

18. Explain in detail Multi-dimensional Modeling. Also explain various attributes and types of schema.

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B.Tech. (CSE/IT) (2012 to 2017 E-II) (Sem.–7)

SOFTWARE TESTING AND QUALITY ASSURANCE

Subject Code : BTCS-905

M.Code : 71897

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. What is software testability?
2. What is unit testing? Explain.
3. What are the software quality assurance metrics?
4. What do you mean by Software Validation?
5. What is data-flow testing? Explain.
6. How is beta testing useful?
7. List the various testing techniques.
8. Define Random Testing.
9. What are the issues in object-oriented testing?
10. Discuss the steps used for testing real time systems.

SECTION-B

11. Discuss the benefits of validation and verification in a project.

12. Why do we need integration testing? Explain various approaches in integration testing.

13. Discuss the random and partition testing for classes.

14. Distinguish between alpha and beta testing. How are test cases designed for these tests? Are the test cases for these types of tests necessarily identical? Explain your answer.

15. Describe the major software quality assurance activity and indicate their importance.

SECTION-C

16. Differentiate between following :

    a) Equivalence partitioning and Boundary value analysis methods

    b) Verification and Validation 3

    c) White-Box and Black-Box Testing 3

17. What do you mean by ISO quality models? Explain SEJ-CMM and ISO 9000 certification. Also explain their relevance in detail. 4 10

18. a) What is object-oriented testing? Explain the various object-oriented testing strategies and issues in detail. 5

    b) Discuss the Design Phase and Program Phase testing. 5

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B.Tech. (CSE) (2012 to 2017 E-III) (Sem.–7)

CLOUD COMPUTING

Subject Code : BTCS-912

M.Code : 71904

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. Define cloud scalability.
2. Why community clouds are so important?
3. What is cloud automation?
4. Give example of (PaaS) Architecture.
5. What is the Use of API in cloud?
6. What is role of Hybrid Cloud?
7. Give basis of Service Level Agreement.
8. Discuss the use of Digital Signatures.
9. Define asymmetric key encryption.
10. Give introduction of Windows Azure Platform.

SECTION-B

11. Mention the Layers of Platform as a Server (SaaS) Architecture.

12. What is Virtualization? Discuss the benefits of Virtualization.

13. Before deploying applications to cloud which selection criteria can be used.

14. Explain some future developments of Clouds by taking any case study.

15. Discuss the concept of Identity Management in cloud based solutions.

SECTION-C

16. Write the role of cloud management platform reference architecture in cloud services.

17. Explain cloud security risks. Discuss the cloud security reference model to describe the security levels.

18. Discuss how Amazon Web Services cloud tools and services are providing support to the customers?

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B.Tech. (IT) (2018 Batch) (Sem.–3)

COMPUTER ARCHITECTURE

Subject Code : BTES-302-18

M.Code : 76394

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. What are addressing mode used for?
2. How a number is represented using floating point representations?
3. Explain pros and cons of RISC architecture.
4. What are different layers of memory organization?
5. What is role of interrupts?
6. What is DMA controller?
7. What is the difference between hardware and software interrupts?
8. What are the disadvantages of multi-level cache memory?
9. Differentiate between write back and write through policies.
10. Why Optimal Page Replacement Algorithm is practically impossible to implement?

SECTION-B

11. Explain in detail differences between hardwired and micro-programmed control unit design.

12. Create the circuit diagram of full adder using two half adders.

13. Explain parallel processing. What are the challenges in achieving parallel processing?

14. Differentiate between primary and secondary memory with examples.

15. Write short note on I/O interfaces.

SECTION-C

16. Explain various stages in instruction pipelining. Discuss in detail methods to handle control hazards.

17. Explain cache mapping techniques wiz, Direct, associative and Set-Associative mapping.

18. Explain addressing modes in 8085 microprocessor with examples:

    a. Immediate addressing mode

    b. Register addressing mode

    c. Direct addressing mode

    d. Register indirect addressing mode

    e. Implied addressing mode

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(IT) (2018 Batch) (Sem.–3)

MATHEMATICS-III

Subject Code : BTAM-304-18

M.Code : 76393

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Define homogeneous function with the help of an example.

2. Find the equation of the tangent plane and normal to $xy + z = a^2$ at (1, 1, 1).

3. Evaluate $\int_{-1}^{1}\int_{0}^{z}\int_{x-z}^{x+z}(x+y+z)\,dydxdz$.

4. Test the series $\sum_{n=1}^{\infty}\frac{(n+1)^n}{n^{n+1}}$ for convergence or divergence.

5. State Logarithmic test to check convergence or divergence.

6. Discuss the convergence of the series $\sum_{n=1}^{\infty}\frac{n^2}{3^n}$.

7. Find the Integrating factor of the differential equation : $x^2 y\,dx - (x^3 + y^3)\,dy = 0$.

8. Find the general solution of $y = xy' - (y')^3$.

9. Write down Cauchy's linear differential equation.

10. Find the particular integral of $\frac{d^3y}{dx^3} + \frac{d^2y}{dx^2} - \frac{dy}{dx} - y = \sin 2x$.

SECTION-B

11. If $u = f(y-z, z-x, x-y)$, prove that $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = 0$.

12. Discuss the convergence or divergence of the series $\frac{1}{2\sqrt{1}} + \frac{x^2}{3\sqrt{2}} + \frac{x^4}{4\sqrt{3}} + \frac{x^6}{5\sqrt{4}} + \ldots\ldots$.

13. Solve the differential equation $(x^4 e^x - 2m\,x\,y^2)\,dx + 2m\,x^2\,y\,dy = 0$.

14. Solve the differential equation : $y + px = p^2 x^4$.

15. Solve by the method of variation of parameter $y'' - 2y' + 2y = e^x \tan x$.

SECTION-C

16. Find the area of the portion of the surface of the sphere $x^2 + y^2 + z^2 = 9$ lying inside the cylinder $x^2 + y^2 = 3y$.

17. Solve the differential equation : $(3x+2)^2 \frac{d^2y}{dx^2} + 5(3x+2)\frac{dy}{dx} - 3y = x^2 + x + 1$.

18. i) Discuss the convergence of the series Σa_n, where $a_n = \frac{n^n x^n}{n!}$.

    ii) Solve the differential equation : $\left(\frac{e^{-2\sqrt{x}}}{\sqrt{x}} - \frac{y}{x}\right)\frac{dy}{dx} = 1,\ x \neq 0$.

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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(IT) (2018 Batch) (Sem.–3)

OBJECT ORIENTED PROGRAMMING

Subject Code : BTIT-302-18

M.Code : 76392

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Define a Class and how it is different from Object.

2) Define the role of constructor.

3) Illustrate the use of an array.

4) What is the benefit of function overloading?

5) What does 'this' pointer point to?

6) What is an Operator Overloading?

7) How virtual functions are used?

8) Why we need Exception Handling?

9) Discuss the concept of stream.

10) Define the data encapsulation.

SECTION-B

11) How is automatic initialization of objects achieved in C++? Illustrate.

12) How data hiding is accomplished using the concept of classes in C++?

13) How are objects created and member functions defined?

14) Discuss the procedure of exception handling mechanism in detail.

15) Explain the need of virtual base classes.

SECTION-C

16) Discuss the different types of constructors in C++.

17) Discuss various steps involved in using a file in a C++ program? Explain it with the help of a program that read the content of the file.

18) Explain different types of inheritance with suitable examples.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (IT) (2018 Batch) (Sem.–3)

MATHEMATICS-III

Subject Code : BTAM-304-18

M.Code : 76393

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write brief :

1. Express $\partial w/\partial r$ and $\partial w/\partial s$ in terms of r and s if

$$w = x + 2y + z^2, \quad x = \frac{r}{s}, \quad y = r^2 + \ln s, z = 2r$$

2. Show that the function

$$f(x,y) = \begin{cases} \dfrac{2xy}{x^2+y^2} & (x,y) \neq (0,0) \\ 0 & (x,y) = (0,0) \end{cases}$$

is not continuous at origin.

3. Find the local extreme values of the function $f(x,y) = x^3 + y^3 + 3x^2 - 3y^2 - 8$

4. Define convergence of a sequence and give an example of a convergent sequence.

5. State Leibniz's test for alternating series.

6. Determine for what values of a and b, the following differential equation is exact.

$$(y + x^3)dx + (ax + by^3)dy = 0$$

7. Find the integrating factor for the following differential equation

$$(5x^3 + 12x^2 + 6y^2)dx + 6xydy = 0$$

8. Give an example of a fourth order linear differential equation.

9. Find the solution of the differential equation $y'' - 4y' - 12y = 0$

10. If y_1 and y_2 are two linearly independent solutions of a second order linear differential equation, then what can you say about the general solution of this equation. Justify your answer.

SECTION-B

11. Find the volume of the region in the first octant bounded by the coordinate planes and the planes $x + z - 1$ and $y + 2z = 2$.

12. For what values of x does the following power series converge ?

$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{x^{2n-1}}{2n-1}$$

13. Obtain the general solution and singular solution of the non-linear equation

$$y = xy' - (y')^3.$$

14. Solve the differential equation $y'' + 16y = 32 \sec 2x$ by using method of variation of parameters.

15. If $\sum_{n=1}^{\infty} |a_n|$ converges, then show that $\sum_{n=1}^{\infty} a_n$ also converges. Is the converse also true? Justify your answer.

SECTION-C

16. Find the extreme, values of the function $f(x, y, z) = x^2 + y^2 + z^2$ subject to the constraints $x^2 + y^2 - 1 = 0$ and $x + y + z = 1$.

17. Test the convergence of the series (i) $\sum_{n=1}^{\infty} (-1)^n \frac{\ln n}{n - \ln n}$ (ii) $\sum_{n=1}^{\infty} \frac{8 \tan^{-1} n}{1 + n^2}$

18. Find the general solution of the equation $y'' - 4y' + 13y = 18e^{2x} \sin 3x$.

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B.Tech. (IT) (2018 Batch) (Sem.–3)

OBJECT ORIENTED PROGRAMMING

Subject Code : BTIT-302-18

M.Code : 76392

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. What is the use of constructors?
2. How is (ios::app) mode different from (ios::ate mode)?
3. What is function overloading?
4. What is a virtual class?
5. What is a friend functions?
6. How is object different from a class?
7. What is meant by initialization of a variable?
8. What is polymorphism?
9. What is advantage of scope resolution operator?
10. Explain the difference between abstraction & data hiding.

SECTION-B

11. Explain how memory is allocated to classes & objects?

12. How are destructors invoked in derived classes?

13. What is the overloading of function? How does a compiler execute an overloaded function?

14. What are the various access mechanisms available for inheritance?

15. Why is it necessary for constructors to know the order to declaration in base class?

SECTION-C

16. What are the steps in the design of a program using object oriented techniques.

17. What are the various File Opening modes? Explain various file pointer manipulators available in CPP. Mention various file error handling functions available in CPP.

18. Write a program to copy the content of two data file to third file. Make use of the exception handling conditions also.

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Total No. of Questions : 18

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B.Tech. (IT) (2018 Batch) (Sem.–3)

DATA STRUCTURE & ALGORITHMS

Subject Code : BTIT-301-18

M.Code : 76391

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. What is the Degree of a Graph?
2. What is a weighted graph?
3. What is a B tree?
4. What is difference between LIFO and FIFO structure?
5. Is there a header node in a link list?
6. What is a height balanced tree?
7. What is the height of a tree?
8. What is the complexity of an algorithm?
9. What are the operations possible on BST?
10. How a tree is represented in memory?

SECTION-B

11. Suppose a sequence of numbers is given like: 15, 11, 16, 17, 29, 22, 10, 25, 45, 34. How these numbers will be sorted using: Selection Sorting?

12. What do you understand by generalized lists? How is dynamic memory allocation and deletion done?

13. How minimal spanning tree for a graph is generated. Explain with an algorithm.

14. What is the post fix and prefix representation of the following expression

    (A * (b + C)) + (b/d)*a + z

15. Construct the binary tree for the following expression :

    $(5x + 5)(3x - y)$

    Give the sequence obtained when tree is traversed in post order form.

SECTION-C

16. Suppose a binary tree T is in the memory. Write a recursive algorithm which find the number of nodes in T and which finds the depth of T.

17. Let there be two Polynomials A and B of your Choice. How the addition of those two polynomials will take place using link list? Show it diagrammatically also.

18. What are the various operations possible on a Circular link list? Explain with the algorithm.

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Total No. of Questions : 18

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B.Tech. (IT) (Sem.–5)

FORMAL LANGUAGE & AUTOMATA THEOR

Subject Code : BTIT-501-18

M.Code : 78256

B.T.U QU
B.Tech
Sem

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

Answer briefly :

1) Define Finite Automaton.

2) What are various properties of transition function?

3) Define grammar and language.

4) Differentiate between left and right context in languages.

5) Define yield in CFG.

6) Define ambiguity in CFG.

7) Define TM.

8) Define the term acceptability in PDA.

9) Give instantaneous description of Turing machine.

10) Differentiate between DFA and NDFA.

SECTION-B

11) Write a note on canonical derivations.

12) Discuss the formal properties of LL(k) and LR(k) grammars.

13) Explain the concept of ambiguity with the help of example.

14) Construct a Moore machine equivalent to the Mealy machine M defined by following table :

Present State	Next State			
	a = 0		a = 1	
	State	Output	State	Output
→ q_1	q_1	1	q_2	0
q_2	q_4	1	q_4	1
q_3	q_2	1	q_3	1
q_4	q_3	0	q_1	1

15) Find a reduced grammar equivalent to the given grammer.

$S \rightarrow AB$ $A \rightarrow a$ $B \rightarrow b$ $B \rightarrow C$ $E \rightarrow c$

SECTION-C

16) Write a note on cellular automaton and rewriting systems.

17) Design PDA for $\{a^m b^n \mid m > n\}$

18) Design Truing machine of $\{0^n 1^n \mid n >= 1\}$

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Total No. of Questions : 18

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B.Tech (IT) (Sem.–5)

DATABASE MANAGEMENT SYSTEMS

Subject Code : BTIT-502-18

M.Code : 78257

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1) What is data independence? What are its types?

2) Write various data manipulation operations that can be performed data.

3) Differentiate between char and varchar2 data types in oracle.

4) What is Transitive Dependency?

5) What is difference between primary index and secondary index?

6) What is a checkpoint in DBMS?

7) What is a transaction?

8) Why security is required in DBMS?

9) What are Web databases?

10) What are advantages of OODBMS?

SECTION-B

11) What is ER Diagram? What are the symbols used in it? Design and Draw an ER diagram for a banking system.

12) What is the difference between relational algebra and relational calculus?

13) Discuss the Shadow Paging Recovery Technique. Under what circumstances does it not require a log?

14) How can you manage access control to different data in database?

15) Explain distributed database with its advantages.

SECTION-C

16) What is normalization? Why do we need to normalize our database? Explain various normal forms by taking proper example.

17) What is Hashing? How Hash Codes Work? Explain with Examples.

18) Discuss various concurrency control technique.

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Total No. of Questions : 18

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B.Tech. (IT) (Sem.–5)

PROGRAMMING IN JAVA

Subject Code : BTIT-503-18

M.Code : 78258

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1) What is JVM?

2) What are limitations of Java programming language?

3) Why Java is platform independent language?

4) Define abstraction.

5) What is the difference between final and finally?

6) Why Java does not support multiple inheritance?

7) What is the need of super keyword in Java?

8) What are checked exceptions?

9) What is difference between thread and a process?

10) What is a Socket and advantages of Java Sockets?

SECTION-B

11) Explain the steps involved in creating and executing a Java program.

12) Write a program in Java to demonstrate Constructors.

13) Explain about interfaces. How they are different from the abstract classes?

14) Explain Multithreading. How Java implements its Thread model?

15) What is an Applet? How applets are different from standalone Java application programs? Discuss.

SECTION-C

16) Explain in detail that makes Java the most popular, preferable language over the years.

17) What is function overloading? Is operator overloading is possible in Java? Write a program to show the concept of Function overloading using inheritance.

18) What are packages? What is the utility of packages? How packages are created, imported, and used? Discuss with the help of an example. Also discuss package access protection.

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (IT) (Sem.–5)

SOFTWARE ENGINEERING

Subject Code : BTIT-504-18

M.Code : 78259

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Define Software Engineering.

2) What do you mean by feasibility study? Explain.

3) Explain in brief about cohesion in reference to software design.

4) What do you mean by coding standards in software engineering.

5) What are the fundamentals of software testing? Explain in brief.

6) Explain in brief about mutation testing.

7) What is the need of Software Project Management? Explain.

8) Explain in brief about quality management.

9) What do you mean by software reuse? Explain.

10) What is SEI CMMI in software engineering?

SECTION-B

11) Differentiate functional and Non-functional requirements.

12) Explain the concept of static and dynamic analysis in detail.

13) Explain in detail about Project Planning and Control.

14) Write a detailed note on Cost estimation in reference to software project management.

15) Explain in detail about Software reliability metrics.

SECTION-C

16) Write a detailed note on the following software life cycle models :

(a) Waterfall

(b) Evolutionary

17) Write a detailed note on DFD and Structure chart.

18) Explain in detail about Computer aided software engineering.

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Total No. of Questions : 20 Total No. of Pages : 04

B.Tech. (IT) (Sem.–5)

UNIVERSAL HUMAN VALUES-2

Subject Code : HSMC-122-18

M.Code : 78260

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FOUR marks each and students have to attempt any ALL questions.
3. SECTION-C contains FIVE questions WITH INTERNAL CHOICE carrying SIX marks each and students have to attempt ALL questions.

SECTION-A

Fill in the blanks :

1) ------- is a feeling of having more than required physical facilities.

------- आवश्यकता से अधिक भौतिक सुविधाएं होने की भावना है ।

------- ਲੋੜ ਵਲੋਂ ਜਿਆਦਾ ਭੌਤਿਕ ਸਹੂਲਤਾਂ ਹੋਣ ਦੀ ਭਾਵਨਾ ਹੈ ।

2) To be in a state of liking is ----------.

पसंद के हिसाब से एक अवस्था में होना ------ है ।

ਪਸੰਦ ਦੇ ਹਿਸਾਬ ਵਲੋਂ ਇੱਕ ਦਸ਼ਾ ਵਿੱਚ ਹੋਣਾ -------- ਹੈ ।

3) The basic human aspirations are .....

बुनियादी मानवीय आकांक्षाएं हैं .....

ਬੁਨਿਆਦੀ ਮਾਨਵੀ ਇੱਛਾਵਾਂ ਹਨ .....

4) Self-exploration is the process for ..... Education.

आत्म-अध्ययन ..... शिक्षा के लिए प्रक्रिया है ।

ਸਵੈ-ਅਧਿਐਨ ..... ਸਿੱਖਿਆ ਲਈ ਪ੍ਰਕਿਰਿਆ ਹੈ ।

5) ..... is a basic Human Value.

..... एक बुनियादी मानव मूल्य है।

..... ਇੱਕ ਮਨੁੱਖੀ ਮੁੱਲ ਹੈ.

6) The process for value education is .....

मूल्य शिक्षा के लिए प्रक्रिया है .....

ਮੁੱਲ ਸਿੱਖਿਆ ਲਈ ਪ੍ਰਕਿਰਿਆ ਹੈ .....

7) The basic human needs are .....

बुनियादी मानवीय आकांक्षाओं हैं .....

ਬੁਨਿਆਦੀ ਮਾਨਵੀ ਲੋੜਾਂ ਹਨ .....

8) What is Skill?

कौशल क्या है?

ਹੁਨਰ ਕੀ ਹੈ ?

9) Physical facilities are necessary but ---------- for humans.

भौतिक सुविधाएं मनुष्य के लिए आवश्यक है, लेकिन -------- हैं।

ਭੌਤਿਕ ਸਹੂਲਤਾਂ ਮਨੁੱਖ ਲਈ ਜ਼ਰੂਰੀ ਹਨ , ਲੇਕਿਨ ---------- ਹਨ ।

10) We shuold not operate only on the basis of pre ----------.

हमें केवल पूर्व --------- के आधार पर कार्य नहीं करना चाहिए ।

ਸਾਨੂੰ ਸਿਰਫ਼ ਪੂਰਵ ------ ਦੇ ਆਧਾਰ 'ਤੇ ਕੰਮ ਨਹੀ ਕਰਨਾ ਚਾਹੀਦਾ ।

SECTION-B

11) What is prosperity ?

समृद्धि क्या है ?

ਖੁਸ਼ਹਾਲੀ ਕੀ ਹੈ ?

12) What are the basic guidelines of value education ?

मूल्य शिक्षा के बुनियादी दिशानिर्देश क्या हैं ?

ਮੁੱਲ ਸਿੱਖਿਆ ਦੇ ਬੁਨਿਆਦੀ ਦਿਸ਼ਾਨਿਰਦੇਸ਼ ਕੀ ਹਨ ?

13) Explain Natural Acccptance.

सहज स्वीकृति समझाओ ।

ਕੁਦਰਤੀ ਮੰਜ਼ੂਰੀ ਸਮਝਾਓ ।

14) What is the need of Value-Education ?

मूल्य शिक्षा की क्या जरूरत है ?

ਮੁੱਲ ਸਿੱਖਿਆ ਦੀ ਕੀ ਜ਼ਰੂਰਤ ਹੈ ?

15) What are the activities and needs of self and body ?

आत्म और शरीर की गतिविधियाँ, आवश्यकताएँ क्या हैं ?

ਸਵੈ ਅਤੇ ਸਰੀਰ ਦੀਆਂ ਜਰੂਰਤਾਂ ਅਤੇ ਗਤੀਵਿਧੀਆਂ ਕੀ ਹਨ ?

SECTION-C

16) Explain self-organization and health.

आत्म संगठन और स्वास्थ्य के बारे में बताएं ।

ਆਤਮ ਸੰਗਠਨ ਅਤੇ ਸਿਹਤ ਦੇ ਬਾਰੇ ਵਿੱਚ ਦੱਸੋ ।

OR

What are the programmes to ensure Health ?

स्वास्थ्य को सुनिश्चित करने के लिए क्या क्या कार्यक्रम हैं ?

ਸਿਹਤ ਨੂੰ ਠੀਕ ਰੱਖਣ ਲਈ ਕਿਹੜੇ ਕਿਹੜੇ ਤਰੀਕੇ ਹਨ ?

17) What do you mean by Respect? What are the different patterns of differentiation ?

तुहाडा आदर दा की मतलब है? फरक दे वॅख वॅख पैटरन की हन ?

आप का सम्मान से क्या मतलब है? भेदभाव के विभिन्न पैटर्न क्या हैं ?

OR

What are the five dimensions of human endeavor in society?

समाज में मानव प्रयास के पांच आयाम क्या हैं ?

ਸਮਾਜ ਵਿੱਚ ਮਨੁੱਖ ਕੋਸ਼ਿਸ਼ ਦੇ ਪੰਜ ਪਹਿਲੂ ਕੀ ਹਨ ?

18) Explain Competence in Professional-Ethics.

पेशेवर नैतिकता में क्षमता समझाओ ।

ਪੇਸ਼ੇਵਰ ਨੈਤਿਕਤਾ ਵਿੱਚ ਸਮਰੱਥਾ ਸਮਝਾਓ ।

OR

What do you mean by Comprehensive Human Goal? Elaborate.

व्यापक मानव लक्ष्य से आपका क्या अभिप्राय है? विस्तार से बताएं ।

ਵਿਆਪਕ ਮਨੁੱਖੀ ਟੀਚੇ ਤੋਂ ਤੁਹਾਡਾ ਕੀ ਭਾਵ ਹੈ ? ਵਿਆਖਿਆ ਕਰੋ ।

19) What do you mean by universal human order? What could be your role in moving towards it ?

आप सार्वभौमिक मानवीय आदेश से क्या समझते हैं? इसमें आपकी भूमिका क्या हो सकती है ?

ਤੁਸੀ ਸਾਰਵਭੌਮਿਕ ਮਾਨਵੀ ਆਦੇਸ਼ ਵਲੋਂ ਕੀ ਸੱਮਝਦੇ ਹੋ ? ਇਸ ਵਿੱਚ ਤੁਹਾਡੀ ਭੂਮਿਕਾ ਕੀ ਹੋ ਸਕਦੀ ਹੈ ?

OR

What are the salient unethical practices in the profession at present? Analyze the root cause and possible solution.

मौजूदा समय में पेशे के मुख्य अनैतिक तरीके क्या हैं? मूल कारण और संभव समाधान का विश्लेषण करें ।

ਮੌਜੂਦਾ ਸਮਾਂ ਵਿੱਚ ਪੇਸ਼ੇ ਦੇ ਮੁੱਖ ਅਨੈਤਿਕ ਤਰੀਕੇ ਕੀ ਹਨ ? ਮੂਲ ਕਾਰਨ ਅਤੇ ਸੰਭਵ ਸਮਾਧਾਨ ਦਾ ਵਿਸ਼ਲੇਸ਼ਣ ਕਰੋ।

20) What are the implications of value based living at various levels ?

मूल्य आधारित जीवन यापन के विभिन्न स्तरों पर अच्छे परिणाम क्या हैं ?

ਕਦਰਾਂ ਕੀਮਤਾਂ ਆਧਾਰਿਤ ਜੀਵਨ ਜੀਉਣ ਦੇ ਵੱਖਰੇ ਵੱਖਰੇ ਪੱਧਰਾਂ ਤੇ ਚੰਗੇ ਨਤੀਜੇ ਕੀ ਹਨ ?

OR

Explain harmony in family.

परिवार में तालमेल के बारे में बताएं.

ਪਰਿਵਾਰ ਵਿੱਚ ਤਾਲਮੇਲ ਦੇ ਬਾਰੇ ਵਿੱਚ ਦੱਸੋ

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Roll No. | | | | | | | | | | |

Total No. of Questions : 18

Total No. of Pages : 02

B.Tech. (IT) (Sem.–5)

E-COMMERCE

Subject Code : BTIT-508-18

M.Code : 78262

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1) Discuss the Role of Firewall.

2) WAP technology.

3) Mobile based application.

4) Payment Gateway.

5) Google pay v/s Credit card.

6) Payment security issues.

7) Unsolicited mails.

8) Domain name for website.

9) EPS.

10) Data protection.

SECTION-B

11) Discuss the generic framework of E-Commerce. What is the role of E-Commerce in modern business?

12) What are the security issues in Web-World Wide? What are the important factors to consider in Firewall Design?

13) What are the different forms of agreements and Government policies for E-Commerce with respect to payments?

14) Write a short note on : Data Encryption standard, Asymmetric encryption and Digital Signature.

15) Explain in detail the kind of infrastructure required for E-Commerce.

SECTION-C

16) Discuss in details the Emerging Client Server Threats-Network Security. What are the Limitations of firewall?

17) What are the business models for E-Commerce? Discuss in detail the Mercantile Process Models.

18) Describe the Electronics Payments. Discuss the process used for making payment through different payment Gateway. What are E-Commerce laws to protect consumers?

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(IT) (2012 to 2017) (Sem.–7)
BUILDING ENTERPRISE APPLICATIONS
Subject Code : BTIT-701
M.Code : 71979

Time : 3 Hrs.

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B.Tech
Sem-7

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carry each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Write briefly :

1. ERP
2. Prototyping.
3. Business modelling.
4. Logical Architecture.
5. XML.
6. Dynamic code.
7. Penetration testing.
8. Code analysis.
9. Why configuration Management plan is used?
10. Test cases

SECTION-B

11. What are the key determinants of a successful enterprise application?

12. What is the role of business process modelling in implementing enterprise?

13. Explain principles and practices of data architecture and design.

14. Differentiate between functional and non-functional requirements.

15. Explain the use of integration and performance testing in detail.

SECTION-C

16. Compare various SDLC models. Also differentiate cohesion and coupling.

17. Discuss various steps used in requirement elicitation. Also write various challenges face during requirement elicitation.

18. Explain various policies for infrastructure management.

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Total No. of Questions : 18 Total No. of Pages : 02

B.Tech. (IT) (2012 to 2017) (Sem.–7)

SOFTWARE PROJECT MANAGEMENT

Subject Code : BTIT-702

M.Code : 71980

Time : 3 Hrs. Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

1. Define Project Stakeholders.
2. What do you mean by project scheduling?
3. Discuss project milestone.
4. What is term activity in project management?
5. Define breakdown structure.
6. Discuss role of Project leader.
7. What is risk control?
8. How do we perform quality control?
9. Why is risk monitoring important?
10. Why estimation of cost is important in Project?

SECTION-B

11. Write the steps to identify requirements in planning of project.

12. What is the importance of risk management in software project management?

13. How would you manage a team efficiently to complete the project?

14. Discuss how quality assurance is done while managing the project.

15. What are the main objectives of integrated change control?

SECTION-C

16. Explain various factors that affects the project schedule by taking an example.

17. What is the process of estimating the cost of a project? Explain using any case study.

18. Why is project closing important? Which knowledge areas are involved in project closing?

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Total No. of Questions : 18

Total No. of Pages : 02

B.Tech.(IT) (2012 to 2017 E-III) (Sem.–7)
ENTERPRISE RESOURCE PLANNING
Subject Code : BTCS-916
M.Code : 71992

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Define the following :

1. What are the limitations of ERP?
2. What are the misconceptions about ERP?
3. State various business modules in the ERP system.
4. Name the ERP products of SAP.
5. List any two limitations of ERP.
6. Name the elements of supply-chain-Management.
7. What do you mean by Business Intelligence?
8. Who are the main players in the ERP market?
9. What is Business Integration and how do the ERP systems achieve it?
10. What is OLAP?

SECTION-B

11. What are the factors to be considered in selecting an ERP Package?

12. How ERP is useful in managing the supply chain in an enterprise? Explain.

13. How CRM enabled ERP system is useful to the organizations? Explain.

14. Explain the functions of sales, distribution and Service modules of ERP.

15. Explain in detail about the various Risks in ERP.

SECTION-C

16. With suitable representation examine the different phases of the ERP implementation Life Cycle.

17. What are the different approaches to ERP implementation? Define integrated data module. Discuss tangible and intangible benefits of ERP. Will there be any increase in Productivity after ERP implementation.

18. What are the Business modules in an ERP system? Explain their functions and features in detail.

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