Code No. 11286

FACULTY OF ENGINEERING

B.E. 4/4 EE / (Inst.) II-Semester (Main & Backlog) Examination, May 2019

Subject : Electronics Instrumentation Systems

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	An 8-bit DAC has resolution of 20mV/LSB, find V_{0FS} and V_0 if the I/P is $(10000000)_2$.	3
2	Mention advantages and limitations of Dual slope ADC.	2
3	State advantages of a DVM over an analog meter.	3
4	Define Total harmonic Distortion.	2
5	Mention advantages of Fundamental-Suppression Harmonic Distortion Analyzer.	2
6	What is the use of Phase locked loop?	3
7	What are the requirements for a computer operated testing?	3
8	List pin signals of IEEE 488 bus.	3
9	List advantages of the digital storage oscilloscope.	2
10	Determine deflection sensitivity of a CRO, given that with usual notation Id = 2.5cm, L = 20cm, d = 2.5 cm, Ed = 5V, Ea = 2000V.	2

PART – B (50 Marks)

11	Explain the principle and working of R-2R Ladder D to A converter with necessary equations and circuit.	10
12	a) Explain with necessary diagrams working and operations of True RMS Voltmeter.	5
	b) With a neat sketch explain the operation of a Op-Amp based current to voltage converter.	5
13	With necessary diagrams explain principal and working of heterodyne harmonic analyzer.	10
14	Draw IEEE-488 instrumentation bus structure and explain various interfaces of it.	10
15	a) Explain in detail about major components of vertical amplifier in a CRO.	5
	b) With necessary diagrams explain about digital storage oscilloscope.	5
16	a) Write important features of Instrumentation amplifier.	4
	b) With a diagram explain principle of current to voltage converter.	6
17	Write short notes on the following :	
	a) Successive Limiting type of Log IF amplifier	6
	b) Automatic instrumentation	4

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Code No. 11304

FACULTY OF ENGINEERING

B. E. 4/4 (Mech.) II – Semester (CBCS) (Main & BL) Examination, May 2019

Subject: Production Drawing

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part – A & any five questions from Part – B.

PART – A (25 Marks)

1. Differentiate between machine drawing and production drawing. 3

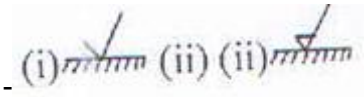
2. Differentiate between forge shop drawings, e. pattern shop drawing, f, sheet metal drawing. 2

3. Calculation of fits-graphical representation-fundamental deviation, tolerance zones from 40 mm basic size indicate the type of fit consider suitable shaft basis system. 3

   basis $\rightarrow$ shaft hole

   h6-S5 S6-h5

4. Sketch material condition (MMC) and (LMC) for plain shaft of _____ and plain hole _____ 4

5. Interpret the roughness machining symbols given as -  2

6. Fill in the blanks 2

   a. $\nabla\nabla\nabla$ range of Ra___; Manufacturing process____;____;___grade number ____

7. Sketches Machine components conventions (i) square on shaft, (ii) external threads (detail) 2

8. Sketch for Welding statements (i) illustration (ii) Representation (iii) symbols 3

   a. square butt weld || 2 welded from both sides 2-2 _____ ; _____ ; _____

9. Sketch the Sketch hydraulic conventions/symbols:

   (i) 2/2 value

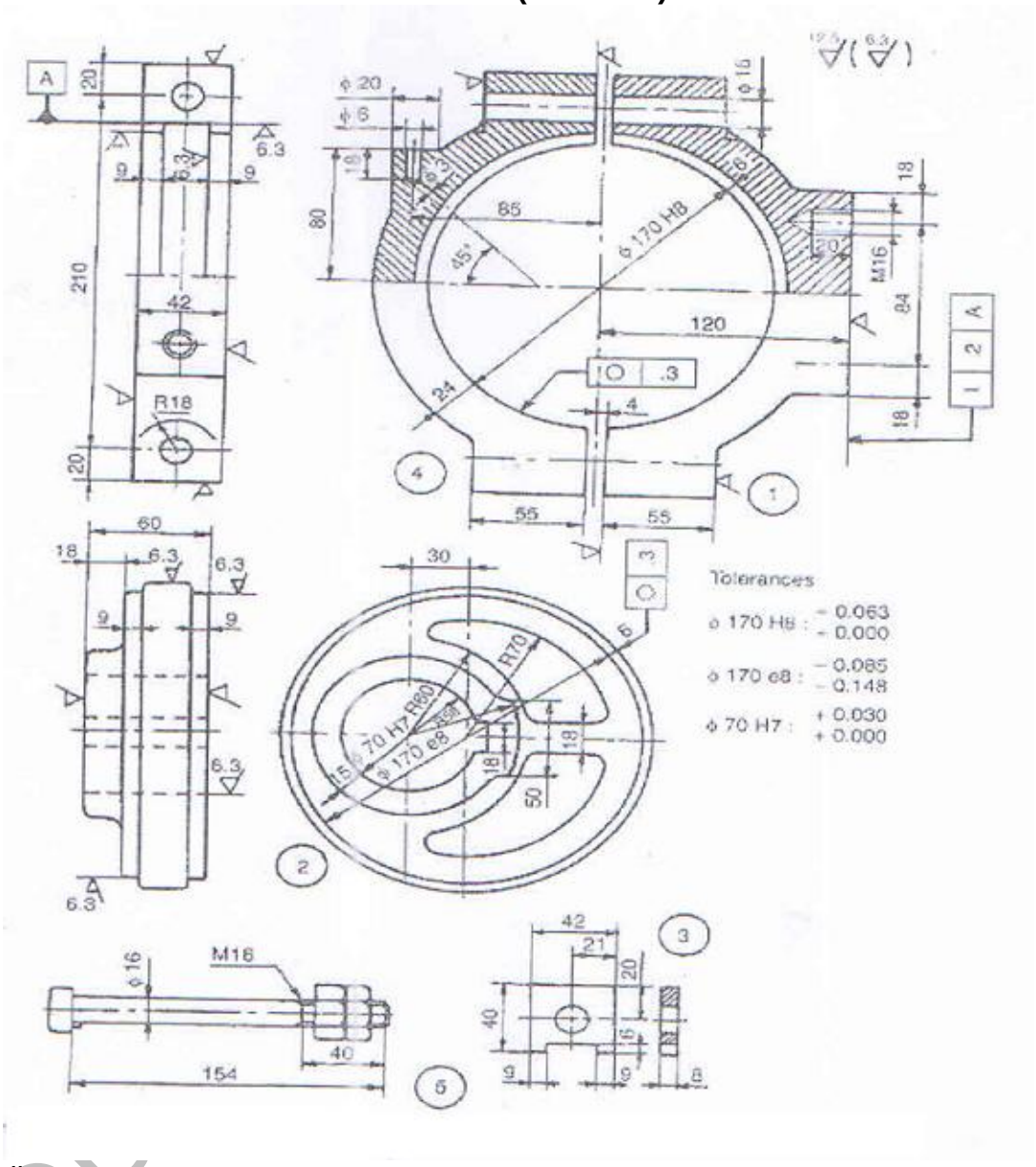
   (ii) Pressure reducing valve,

   (iii) valve actuation by plunger,

   (iv) pilot operated value; 4

Contd..2

PART – B (50 Marks)



Part list

Part No.	Quantity	Name	Material
1.	1	Strap	Cl
2.	1	Sheave	Cl
3.	2	Shim	Brass
4.	1	Strap	Cl
5.	2	Bolt with nuts	MS

9. Eccentric assembly

a. Draw the front section view	15
b. Draw side view	15
c. indicate the process planning sheet for strap	5
d. indicate the process planning sheet for sheeve.	5
e. where is the primary, secondary and tertiary datum located in the assembly	3
f. how many geometric tolerance are indicated in components	2
g. state all the geometric tolerances mentioned in the assembly.	5

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Code No: 11323

FACULTY OF ENGINEERING

B.E.4/4 (Production) II – Semester (Main & backlog) Examination, May/June 2019

Subject: Tool Design

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from part A and any five questions from part B.

PART – A (25 Marks)

1. What are the important characteristics of tool materials?
2. Mention the merits of Ultrasonic Machining (USM).
3. State the advantages of broaching process.
4. Differentiate between tangential form and circular form tool.
5. State design consideration of a single point cutting tool.
6. Sketch four different type of milling cutters
7. Explain the effect of variation of angles in torque of twist drill?
8. What is mean by reamer tolerance?
9. What are the design requirements for press tools
10. Explain what you understand by fool proofing in tool design.

PART – B (5 x 10 = 50 Marks)

11. (a) With a neat sketch explain the working principles of EDM.
    (b) Differentiate between burnishing and ballizing.
12. (a) Sketch single point cutting tool and indicate various tool angles and their functions.
    (b) Explain the manufacturing methodology for milling cutters.
13. (a) Explain with neat sketch the design and Manufacture of Tabs and Dies.
    (b) With a neat sketch explain spinning operation.
14. (a) How to calculate bending allowance in bending process? Explain.
    (b) Explain different plastic tools used in industry.
15. (a) Explain 3-2-1 principle of location with sketch.
    (b) What are the various considerations for designing a fixture for turning operation?
16. (a) Explain electrical and vacuum clamping with neat sketch.
    (b) Explain the principle and different process parameters of USM.
17. Write short notes on:
    (a) Sharpening of twist drill.
    (b) Forging dies

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Code No: 11327

FACULTY OF ENGINEERING

B.E.4/4 (A.E) II – Semester (Main & backlog) Examination, May/June 2019

Subject: Alternative Fuels and Energy Systems for Automobiles

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from part A and any five questions from part B.

PART – A (25 Marks)

1. Describe the need for Alternative Fuels?
2. List out some important properties of Methanol.
3. What is DEE? Mention its Formulae.
4. Name some pollutants that are considerably reduced by using ethyl alcohol in SI engines.
5. Describe some of the important properties of CNG.
6. What are specific advantage of alcohol blends used in automobiles?
7. List the problems encountered during the handling of hydrogen.
8. Discuss some applications of biodiesel.
9. Describe the five benefits of Vegetable oil for automobiles.
10. What are the advantages and limitations of electric vehicles.

PART – B (5 x 10 = 50 Marks)

11. Explain the availability of CNG and also the modifications required in automobiles for its use as alternative fuel.
12. Describe the production of DME.
13. Describe the production of LNG and how it is transported.
14. (a) Write short note on biogas digester.
    (b) What are the Ten applications of biogas?
15. Explain the production of Methanol and ethanol fuels and discuss about economics of using them as alternative fuels in automobile.
16. Explain in detail about various Batteries used in HEV.
17. Explain the concept of a Fuel cell Hybrid.

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Code No: 11344

FACULTY OF ENGINEERING

BE 4/4 (CSE) II Semester (Main & Backlog) Examination, May/June 2019

Subject: INFORMATION STORAGE AND MANAGEMENT (ELECTIVE-II)

Time : 3 Hours **Max.Marks:75**

Note: Answer all questions from Part – A & any five questions from Part – B

Part – A (25 Marks)

1. What is the maximum possible number of node ports in a 2-switched fabric network. (2)
2. Describe Cache management techniques. (3)
3. Define Information Lifecycle. (2)
4. Propose different factors affecting NAS performance. (2)
5. Differentiate between MTTR & MTBR. What are the various causes for downtime? (3)
6. A NAS implementation configured jumbo frames on the NAS head with 9,000 as its MTU. However, the implementers did not see any performance improvement and actually experienced performance degradation. What could be the cause? Examine the end-to-end jumbo frame support requirements in a network. (3)
7. What are the roots of a cloud computing? (2)
8. Discuss the various programming models of cloud computing. (3)
9. What are the 3 security domains of data storage? (2)
10. What are the various parameters to be monitored in a storage infrastructure? (3)

PART – B (50 Marks)

11. a) What is structured and unstructured data? Investigate the challenges of storing and managing unstructured data. (5)
    b) Compare and contrast between various levels of RAID. (5)

12. a) Define SAN. Explain about Fibre Channel Architecture with a diagram.. (5)
    b) Explain the TWO types of ISS implementation with their Architecture. (5)

13. a) Explain the various NAS file sharing protocols. (5)
    b) The average I/O size of an application is 64 KB. The following specifications are available from the disk manufacturer: average seek time = 8 ms, 8,200 RPM, and transfer rate = 50 MB/s. Determine the maximum IOPS that could be performed with this disk for the application. Using this case as an example, Explain the relationship between disk utilization and I.O.P.S (5)

14. a) How is the backup taken in a NAS based environment? (5)
    b) An administrator configures six pointer-based virtual replicas of a source LUN and creates eight full-volume replicas of the same LUN. The administrator then creates four pointer-based virtual replicas for each full-volume replica that was created. How many usable replicas are now available? (5)

15. a) Investigate Service Oriented Architecture and its application to cloud computing. (5)
    b) Examine various considerations for selecting a public cloud service provider. (5)

16. a) Explain the challenges involved in securing storage Infrastructure. (5)
    b) How is security achieved in the IP-SAN environment? (5)

17. Write short note on the following:
    a) SNIA storage Virtualization Taxonomy. (5)
    b) Various phases of a BC planning Lifecycle. (5)

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Code No: 11356

FACULTY OF INFORMATICS

BE 4/4 (IT) II Semester (Main &Backlog) Examination, May /June 2019

Subject: Information Storage and Management (Elective-IV)

Time: 3 Hours **Max.Marks:75**

NOTE: Answer All Questions from Part-A & Any five questions From Part-B

Part – A (25 Marks)

1. Explain the significance of Information Storage and Management in various domains. (2)
2. Enlist the different types of technologies that have evolved to enable storage of data. (3)
3. Define LUN Masking, why it is used for? (3)
4. List and explain the technologies used for protecting data in RAID levels. (2)
5. What is fixed content? (2)
6. Differentiate general purpose servers and NAS Device. (2)
7. What is disaster recovery? (2)
8. What are the parameters monitored for storage infrastructure? (3)
9. What is Risk triad? (3)
10. Explain the challenges faced in storage virtualization. (3)

PART – B (50 Marks)

11. Explain in detail about Information Lifecycle Management Implementation and Benefits. (10)
12. a) Explain Disk drive components and its functionalities. (4)
    b) Explain in detail components of intelligent storage system with a neat diagram. (6)
13. a) What is IP-SAN? Why there is a need for IP-SAN. How IP-SAN is implemented. (6)
    b) Write about FCIP Topologies. (4)
14. a) Explain the components of SAN. (4)
    b) Explain the FC-SW and FC-AL , discuss the advantages of FC-SW over FC-AL. (6)
15. What are different Local and Remote replication technologies explain in detail. (10)
16. a) Enlist the different steps in Back-up operation and Restore operation. (5)
    b) Explain the topologies used for Backup. (5)
17. Write short notes on
    a) SNIA Storage Virtualization Taxonomy. (4)
    b) Different Virtualization Technologies. (2)
    c) Kerberos Authorization (4)

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Code No: 11357

FACULTY OF ENGINEERING

BE 4/4 (I.T) II – Semester (NEW) (Main) Examination, May / June 2019

Subject: Simulation & Modeling (Elective – IV)

Time: 3 Hours **Max. Marks: 75**

Note: Answer All Questions From Part – A, & Any Five Questions From Part – B.

PART – A (25 Marks)

1. Write any two advantages of simulation. (2)
2. What is Model and Component of a system? (2)
3. What are the applications of queuing model? (2)
4. Define a statistical model. Give an example. (2)
5. What is Uniform distribution? Explain. (3)
6. What are the properties of the random numbers? (2)
7. What are the types of simulations with respect to output analysis? (3)
8. Can we apply Goodness of fit tests to input simulation? Explain (3)
9. What are the techniques for verification of simulation model? (3)
10. What do you mean by stochastic nature of the output data? (3)

PART – B (50 Marks)

11. a) Explain System and System environment. (5)
    b) Explain Steps in simulation study. (5)

12. What do you mean by statistical model in simulation? Discuss any one in detail. (10)

13. a) What is continuous probability function? Explain with example? (5)
    b) What are the tests for testing the randomness of numbers generated? Explain. (5)

14. Discuss the types of simulation with respect to output analysis. (10)

15. a) What are the validation of a model assumptions? (5)
    b) Give some advantages and disadvantage of Validation in Simulation. (5)

16. Write short notes on
    a) Continuous and Discrete simulation languages. (5)
    b) Calibration and Validation. (5)

17. Explain the validation of input-output transformations of the model and the various techniques used? (10)

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Code No. 11358

FACULTY OF ENGINEERING

BE 4/4 I.T. II Sem. (Main & Backlog) Examination, May / June 2019

Subject: Advanced Computer Architecture (Elective – IV)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A, & any five Questions from Part-B

PART – A (25 Marks)

1. Define Computer Architecture (2)
2. What is Amdahl's law? (3)
3. What is Data hazard? (2)
4. What is the role of Branch prediction buffer (3)
5. What are Vector Processors? (2)
6. Write about Vector Register (3)
7. Specify the formula to calculate average memory access time. (2)
8. What is page table in virtual memory system? (3)
9. What is Barrier synchronization (3)
10. What is Spin lock? (2)

PART – B (50 Marks)

11. Explain about Desktop Brenchmarks, Server Brenchmarks and Embedded Benchmarks. 10

12. (i) Describe branch prediction technique. (5)
    (ii) State about the control hazards (5)

13. (i) Explain Vectorizable loop with an example. (4)
    (ii)Describe the Instruction level vector parallelism (6)

14. (i) Discuss about the media for interconnection of networks (5)
    (ii)Explain the mapping of virtual address to physical address using page table. (5)

15. (i) Discuss about the media for interconnection of networks. (5)
    (ii) Explain SIMD Array Processors. (5)

16. Discuss about the cache Coherence for Multiprocessors. (10)

17. Write short notes on (10)
    (i) Cost of Integrated circuit.
    (ii) Static branch prediction
    (iii) Architecture in Sun Microsystems

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Code No. 11359

FACULTY OF ENGINEERING

BE 4/4 (I.T.) II – Semester (Main & Backlog) Examination, May/June 2019

Subject: Natural Language Processing (Elective – IV)

Time: 3 hours. **Max. Marks: 75**

***Note*: Answer all questions from Part-A & answer any five questions from Part-B**

PART – A (25 Marks)

1. What is Computational Linguistics? (3)
2. State two dialog based NLP applications. (2)
3. What are Verb Phrases? Give two examples. (3)
4. What is a Lexical Category? (2)
5. Describe the purpose of building an Augmented Transition Network. (3)
6. Give a simple Grammar and Structure for the sentence: *Bob wrote the letter*. (2)
7. How do you represent Context-Independent Meaning? (3)
8. What are Thematic Roles? (2)
9. Why do we need to tag Parts of Speech? (2)
10. How do you calculate Lexical Probability (3)

PART – B (50 Marks)

11. a) Describe Natural Language Understanding System. (5)
    b) Explain Semantic-Processing with a suitable example. (5)
12. a) Obtain Logical Form for the sentence: the rose is red, and develop the Contextual-Interpretation. (5)
    b) What is Ambiguity? How do you encode? (5)
13. a) Illustrate Depth-First Top-Down Parsing. (5)
    b) Discuss issues in the design of Lexicon. (5)
14. a) Discuss co-occurrence of constraints that arise between word senses. (5)
    b) Discuss linking Syntax and Semantics. (5)
15. a) Present a Bigram and explain some typical computations involved therein. (5)
    c) Explain the use of the following assumption: the probability of a category occurring depends only on the category before it. (5)
16. a) Discuss Semantic-Interpretation and Compositionality. (5)
    b) Discuss how you resolve ambiguity for a case of your choice. (5)
17. Write notes on:
    i) Statistical Methods. (5)
    ii) Applications of NLP. (5)

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Code No. 11469/CBCS/S

FACULTY OF ENGINEERING

BE V Semester (Civil) (CBCS) (Supple.) Examination, May 2019

Subject : Theory of Structures - I

Time: 3 Hrs **Max. Marks. 70**

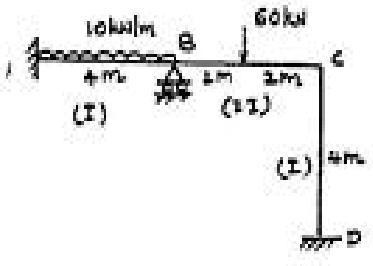
Note: Answer all questions from Part – A & any five questions from Part – B

Part – A (20 Marks)

1) Define carry over factor and distribution factor.
2) State what is the influence of sinking of support?
3) A propped cantilever beam of span 3m subjected to a point load of 18 kN at the centre. Find the slope at propped end using slope deflection method.
4) In which method, sway and non-sway calculations are carried out at a time.
5) What are the limitations of Kani's method?
6) Define Castigliano's first theorem.
7) Define Unit load method.
8) A two hinged semi circular arch is subjected to a load of 90 kN at a section where the radius vector makes an inclination of 30^{o} with the level of springing. Find the horizontal thrust?
9) State the differences between three hinged and Two hinged arches.
10) Using strain energy method, determine the maximum deflection in a cantilever beam of span 2m subjected to a point of 10 kN at the free end.

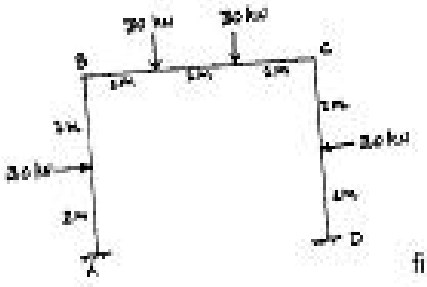
PART – B (5 x10 = 50 Marks)

11 Analyze the frame shown in the figure(1) by slope deflection method and draw BMD.



figure(1)

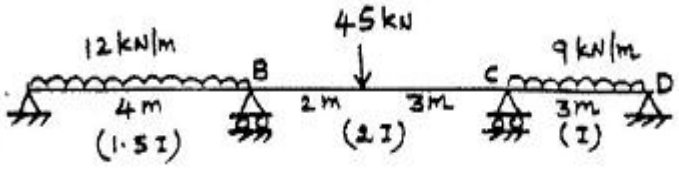
12. Draw the BMD for the frame as shown in the figure(2) by moment distribution method.



figure(2)

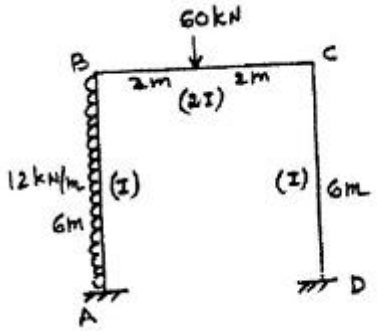
..2

13. Draw the BMD for the beam as shown in the figure(3) by Kani's method.



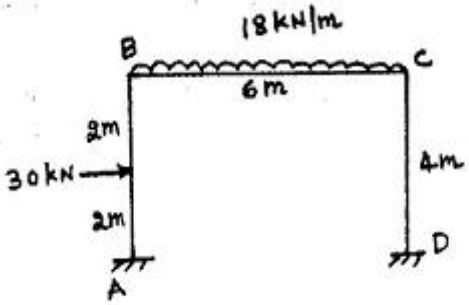
figure(3)

14. Draw the BMD for the frame as shown in the figure (4) by slope deflection method.



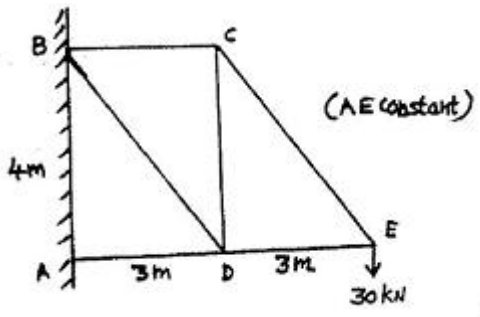
figure(4)

15. Draw the BMD for the portal fram as shown in the figure(5) by Kani's method.



figure(5)

16. Using strain energy method, determine the maximum deflection at free and 'E' for the figure



figure(6)

17. A two hinged parabolic arch of span 60m and rise 8m is supported by a point load of 90kN at a distance of 20 m left end. Draw the bending move diagram.

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Code No. 11483 / CBCS / S

FACULTY OF ENGINEERING

B.E. (EEE / Inst.) V – Semester (CBCS) (Suppl.) Examination, May 2019

Subject: Digital Signal Processing & Applications

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions from Part – A and any five questions from Part – B.

PART – A (10x2 = 20 Marks)

1 Define:
   a) Sampling
   b) Linearity

2 Test the stability $h(n) = (1/2)^n u(n)$

3 Differences between DIT and DIF algorithm.

4 Compute the DFT of a sequence $(-1)^n$ for N=5

5 Find the IDFT of Y(k) = {1, 0, 1, 0}.

6 Distinguish between FIR and IIR.

7 What are the steps to design IIR filter using bilinear transformation?

8 What is the need of anti aliasing filter prior to down sampling?

9 What are the steps in selection of DSP processors?

10 Write short notes on Pipelining P-DSP.

PART – B (5x10 = 50 Marks)

11 a) Find the total response of the system described by difference equation. $y(n)+2y(n-1) + y(n-2) = x(n)+x(n-1)$ with initial condition $y(-1) = y(-2) = 1$. 5

   b) Determine the system described by input-output equation is linear or non-linear.
      a) $y(n) = nx(n)$
      b) $y(n) = x^2(n)$ 5

12 a) State and prove time scaling and time reversal properties of DFT. 5

   b) Find the DFT of a sequence x(n) = {1, 1, 1, 1, 1, 1, 0, 0} using DIF FFT algorithm. 5

13 a) Design a low pass Butterworth filter that has -2dB pass band attenuation at a frequency of 20 rad/sec and atleast -10dB stop band attenuation at 30 rad/sec. 5

   b) Design a Chebyshev Filter with a maximum pass band attenuation of 2.5 dB at Ωp = 20 rad / sec. and the stop-band attenuation of 30 dB at Ωs = 50 rad / sec. 5

14 a) Obtain the direct form I, direct form II, cascade and parallel form realization for the system.
   $y(n) = -0.1y(n-1) + 0.2y(n-2) + 3x(n)+3.6x(n-1) + 0.6x(n-2)$. 5

..2

b) Design an ideal low-pass filter with frequency response

$H_d(e^{jw}) = 1$ for $-\Pi/2 < \mu < \Pi/2$.

$= 0$ for $\Pi/2 < \mu < \Pi$

Find the value of h(n) for N=11. 5

15 a) Write short notes on architecture of TMS 320C3X. Write about Bus structure, CALU, ARAU, and INDX in detail. 5

b) Write short notes on memory organization of TMS 320 C5X. 5

16 a) Write short notes on application of DSP. 5

b) For the analog transfer function H(s) = 2/(s+1)(s+2). Determine H(z) using impulse invariance method. Assume T = 1 sec. 5

17 a) Find the z-Transform of the following:

i) $x(n) = \cos n$ u(n)

ii) $x(n) = (1/3)^{n-1}$ u(n-1) 5

b) Determine 8-point DFT of the sequence x(n) = {1, 1, 1, 1, 0, 0, 0, 0} using DIT FFT algorithm. 5

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Code no: 11494/CBCS/S

FACULTY OF ENGINEERING

BE V Semester (CBCS) (ECE) (Supple.) Examination, May 2019

Subject: Analog Communication

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part – A and any five questions from Part – B

Part – A (10 x 2 = 20 Marks)

1. Compare linear modulation schemes based on transmission power and bandwidth requirement.
2. An AM signal S(t) = 8 Cos(1+0.4 Cos $2\pi 10^3 t$+0.3 Cos $2\pi 10^4 t$). Find the net modulation index.
3. Reason out the need of amplitude limiter in FM.
4. State the Carson's rule for FM bandwidth.
5. State sampling theorem for low pass signals.
6. Compare PAM, PWM, PPM based on noise immunity, power requirement.
7. What is Double spotting?
8. Give any two local FM station frequencies and the typical bandwidth used for FM signal broadcasting.
9. Define thermal noise.
10. Give expression for noise equivalent temperature of two port network and of cascaded stages.

PART – B (5 x 10 = 50 Marks)

11. a) How Ring modulator generates DSBSC signal. Explain with diagram, waveforms and mathematical analysis? (5)

    b) An AM transmitter develops an unmodulated carrier output of 400W across 1Ω resistive load. The carrier is modulated by a single tone with a modulation index of 0.8.
    (i) Write the expression for AM signal S(t) assuming f_c = 1MHz, f_m = 5KHz.
    (ii) What is the transmission bandwidth of this signal?
    (iii) Find the sideband power, total power and transmission power efficiency (η). (5)

12. a) Differentiate between Narrow band and Wideband FM signals. Discuss the generation of Narrow band FM signal with a diagram and mathematical analysis. (5)

    b) How Foster Seeley discriminator performs demodulation of FM signal? Explain with circuit and phasor diagrams. (5)

13. a) Discuss the generation and detection of PPM signal with diagrams and waveforms. (7)

    b) Draw the frequency spectrum of sampled signal if sampling rate (f_s) is greater than, less than or equal to Nyquist rate. (3)

contd....2

14 a) Draw Low level and High level AM transmitter structures and explain the functionality of each block. (7)

b) Find image frequency and its rejection ratio (IFRR) for a AM super heterodyne receiver tuned to 900KHz if the antenna of this receiver is connected to the mixer via a tuned circuit whose loaded Q is 40. (3)

15 a) Derive the expression for Figure of Merit of SSB-SC signal using coherent reception. (7)

b) Write about different measures of noise such as noise temperature and noise bandwidth. (3)

16 a) State the properties of Hilbert Transform. Find the Hilbert Transform of a signal $m(t) = 2 \sin 2\pi f_m t$. (4)

b) How the use of pre and de-emphasis circuits improves the performance of FM system. (6)

17 Write a short note on:

a) Noise figure of cascaded stages of two port networks (5)

b) Types of sampling (5)

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Code No: 11500/CBCS/S

FACULTY OF ENGINEERING

B.E. (Mech.) V - Semester (CBCS)(Supple.) Examination, May 2019.

Subject: Manufacturing Processes

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (10 x 2.5 = 25 Marks)

1. Indicate the differences between pure solidification and metal alloy.
2. What are the functions of chills?
3. Why is die casting can be used for producing smallest parts?
4. How do you improve the surface finish of the expendable mold cavity processing?
5. What are some functions of electrode coating in shielded metal arc welding?
6. How are welding electrodes classified? What information does the designation Provide?
7. What are most commonly used brazing metals?
8. How does brazing differ from welding?
9. State how burrs can be reduced in sheet metal operations?
10. State the differences between bloom, slab, billet with a sketch.

PART – B (5 x 10 = 50 Marks)

11. a) Explain the sand conditioning properties – refractoriness, cohesiveness, permeability, collapsibility.
    b) Explain the design of riser with neat sketch.

12. a) Explain the step by step procedure for investment casting.
    b) Explain one method of inspection of defects in casting.

13. a) What are the three process of metal transfer that occur during arac welding?
    b) (i) What are two najor roles of pressure in resistance welding?
    (ii) What is the source of heat friction welding with neat sketch?

14. a) (i) What is the simplest and most widely used for of resistance welding.
    (ii) State suitable applications of friction stir welding process.
    b) (i) What is function of slag coating that forms over a shielded metal arc weld?
    (ii) What are some cpmmonly used shielding gas in the gas tungsten arc process.

15. a) Explain hydroforming with neat sketch.
    b) Explain flat rolling defects with neat sketch.

16. a) Explain electromagnetic forming with neat sketch.
    b) What is the major advantages of spot welding?

17. a) (i)Explain the differences between Fullering, edging and blocking.
    (ii) What is earring, and why it occurs.
    b) Explain rubber pad forming with neat sketch.

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Code No. 11505/CBCS/S

FACULTY OF ENGINEERING

B.E. V – Semester (CBCS) (Prod.)(Supple.) Examinations, May 2019

Subject: Metal Forming Technology

Time: 3 hours **Max. Marks: 70**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (2 x 10 = 20 Marks)

1. What is work hardening of metals? Explain briefly.
2. Elucidate the properties of cold worked products.
3. Differentiate between bending and deep drawing.
4. Give a brief classification of presses used in sheet metal works.
5. Write the properties of die material for making extrusion.
6. Define the terms: Die angle, deformation speed.
7. What is the principle of roll forging process? Explain briefly.
8. Differentiate clearly between Machine Forging and Press forging.
9. State about the rolling mills configuration.
10. Enlist the common defects observed in hot rolled products.

PART – B (5 x 10 = 50 Marks)

11. a) What is meant by Yield criteria? Explain in detail.
    b) Describe the phenomenon of yielding of a ductile material under uniaxial and biaxial states of stress.

12. a) Describe the blanking and piercing operations with the help of neat sketches.
    b) Differentiate between Simple die and compound die used in sheet metal works.

13. a) Explain the effect of friction in wire drawing operation.
    b) Describe the principle of spinning operation help of a sketch.

14. a) Explain principle of Drop forging with neat sketch.
    b) Differentiate between Isothermal forging and hot isostatic pressing.

15. a) Sketch and explain the working of a cluster rolling mills.
    b) Explain the procedure adopted for rolling a strip of metal.

16. a) Estimate the blanking force required to cut a blank of 20 mm wide, 30 mm long from a strip 1.5 mm thick sheet metal. Take Shear strength of the material as 350 N/mm^2
    b) Explain the advantages and limitations of Compound die over progressive die.

17. Write short notes on any TWO of the following:
    a) Spring back.
    b) Defects in extruded products.
    c) Roll bending.

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Code No. 11507 / CBCS / S

FACULTY OF ENGINEERING

B.E. (A.E.) V - Semester (CBCS) (Supple.) Examination, May 2019

Subject : Automotive Diesel Engines

Time : 3 hours **Max. Marks : 70**

Note: Answer all questions from Part-A. Answer any Five questions from Part-B.

PART – A (10 x 2 = 20 Marks)

1 Explain what is meant by cetane number.
2 What are the applications of 2 stroke and 4 stroke diesel engines?
3 Draw neat sketch of fuel injector and lable it main components.
4 What is all speed governor?
5 Define swirl and squish.
6 What are the antiknocking agents used diesel engines?
7 Define Turbo charging.
8 What is the need of charge cooling in turbo charged engines?
9 List the parameters which influences the engine performance.
10 What are the major pollutants from diesel engines?

PART – B (5 x 10 = 50 Marks)

11 The condition at the beginning of compression in air standard diesel cycle are fixed by P_1 = 200 kPa, T_1 = 380k. The compression ratio is 20, and cutoff ratio is 1.8 for k = 1.4. Determine
   a) The maximum temperature in K
   b) The heat addition per unit mass in KJ/Kg
   c) The thermal efficiency

12 a) Discuss how diesel is rated for anti-knock quality and explain how the cetane number is determined in laboratory.
   b) Compare diesel and dual cycles taking different variables.

13 Describe the construction and working of the jerk type fuel injection pump with a neat sketch.

14 With a neat sketch explain the components and working of M-type combustion chamber.

15 a) With a neat sketch explain working principle of super charging.
   b) Differentiate between super charging and turbo charging.

16 What are the different methods to analyse the exhaust gasses and explain each of them?

17 Write a short notes on the following :
   a) Types of injection pump
   b) Exhaust gas recirculation
   c) Performance maps

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Code No: 11511/CBCS/S

FACULTY OF ENGINEERING

BE V – Semester (CBCS) (CSE) (Supplementary) Examination, May 2019

Subject: Data Communications

Time: 3 Hours **Max. Marks: 70**

Note: Answer ALL questions from Part-A, & any five Questions from Part-B

Part – A (10 x 2 = 20 Marks)

1. Define Data Communication and Channel Capacity. [2M]
2. Why is layered concept needed in Protocol Architecture? [2M]
3. Draw the signals using Manchester, Differential Manchester schemes for the given code – 11001001100011 [2M]
4. What is meant by line configuration? [2M]
5. With a schematic explain how statistical TDM Efficiently utilizes Bandwidth? [2M]
6. What is the need for AAL? [2M]
7. What is the difference between Layer 2 and Layer 3 Switches? [2M]
8. What is MAC Protocol? Where is it needed? [2M]
9. List and briefly define any two transmission techniques for infrared LANs. [2M]
10. Explain IEEE 802.11 MAC Frame format. [2M]

Part – B (5 x 10 = 50 Marks)

11. a) Explain about the functionalities and duties of each TCP/IP layer. [6M]
    b) Differentiate QPSK from OQPSK. [4M]
12. a) Explain in detail CRC error deletion technique. [5M]
    b) Write in detail the frame structure of HDLC. [5M]
13. a) Explain the concept of sliding window protocol. [5M]
    b) Describe the ATM cell header format. [5M]
14. a) Explain the 802.3 frame format. [5M]
    b) Explain the difference between Fast Ethernet and Gigabit Ethernet. [5M]
15. a) Explain IEEE 802.11 Architecture and Services. [5M]
    b) Explain Bluetooth architecture. [5M]
16. a) Explain different transmission improvements. [5M]
    b) Explain types of ARQ'S. [5M]
17. Write short notes on any two of the following.
    a) XDSL [5M]
    b) CSMA/CD [5M]
    c) Principles of Cellular Networks. [5M]

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Code No. 11520 / CBCS / S

FACULTY OF INFORMATICS

B.E. (IT) V-Semester (CBCS) (Suppl.) Examination, May / June 2019

Subject : Database Systems

Time : 3 hours **Max. Marks : 70**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (10x 2 = 20 Marks)

1 List key differences between keyword queries used in web search from database queries.

2 Explain the difference between a weak entity set and a strong entity set.

3 Give an expression in SQL to find the company that has the most employees for the following employee database. Primary keys are underlined.

Employee (employee-name, street, city)
Works (employee-name, company-name, salary)
Company (company-name, city)
Manager (employee-name, manager-name)

4 What is Authorization?

5 Describe the circumstances in which you would choose to use EMBEDDED SQL rather than SQL along or only a general purpose programming language.

6 Why NORMALISATION?

7 When is it preferable to use a dense index rather than a sparse index? Explain your answer.

8 What is a storage structure?

9 Explain Thomas' write rule.

10 Draw the architecture of a Remote Backup System.

PART – B (5 x 10 = 50 Marks)

11 a) Explain the various components of a database system and connection among them with a neat diagram. 5

b) Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with its zero to any number of recorded accidents. Each insurance policy covers one or more cars, and has one or more premium payments associated with it. Each payment is for a particular period of time, and an associated due date and the date when the payment was received. 5

..2

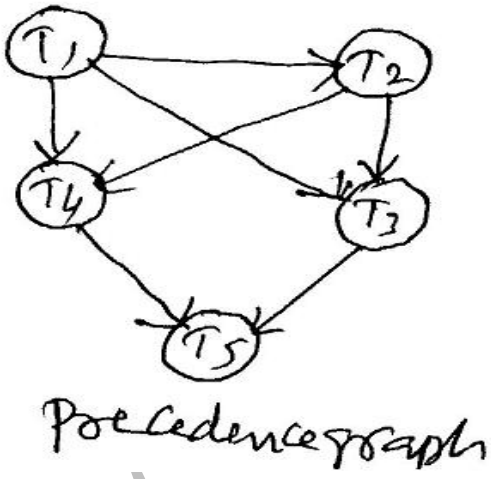
12 a) Explain with examples various fundamental relational algebra operations. 5
b) Describe five built-in aggregate functions in SQL. 5

13 a) Enumerate the differences between embedded SQL and Dynamic SQL. 3
b) Explain 1NF, 2NF, 3NF and BCNF with an example. 7

14 a) Construct a B+ tree for the following search key values with pointer = 4. 5

2 3 5 7 11 17 19 23 29 31

b) Consider the below precedence graph. Is the schedule conflict serializable? Explain you answer. 5



Precedence graph

15 a) Show that the two-phase locking protocol ensures conflict seralizability. 5
b) Explain ARIES recover algorithm. 5

16 Explain with an example the concept of extendable Hashing on a file that contains records with search key values. 10

17 Write short notes on the following :
a) Views 4
b) Bitmap Indices 3
c) Nested sub-queries 3

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