

**FACULTY OF ENGINEERING****B.E. 4/4 (EEE/EIE) II-Semester (Main & Backlog) Examination, May / June 2018****Subject : Electronic 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  | Define Active and Passive Transducers with examples.                               | 3 |
| 2  | Draw the schematic of a 5 bit resistive ladder.                                    | 2 |
| 3  | Explain the principles of operation of a digital time measurement.                 | 3 |
| 4  | Compare with true RMS meter with an average responding meter.                      | 2 |
| 5  | What is the difference between a wave analyzer and a harmonic distortion analyzer? | 3 |
| 6  | State the applications of spectrum analyzer.                                       | 2 |
| 7  | What is the function Relay Switched Attenuator?                                    | 2 |
| 8  | Describe IEEE-488 Data bus.  | 3 |
| 9  | Brief about the magnetic material used for tape.                                   | 3 |
| 10 | Give an example of Automatic Instrumentation.                                      | 2 |

**PART – B (50 Marks)**

- |       |   |        |
|-------|---|--------|
| 11 a) | Draw the circuit of Isolation Amplifier with suitable diagram. Mention types and specification of Isolation Amplifier in detail.  | 5      |
| b)    | With suitable diagram explain ADC successive approximation.   | 5      |
| 12    | Explain the following in detail related to digital meters :   | 10     |
| i)    | Scaling and checking modes  |        |
| ii)   | Input signal conditioning and counting errors.  |        |
| 13 a) | With necessary diagrams discuss Harmonic Distortion analyzer.   | 5      |
| b)    | Explain in detail about Wave Meter.   | 5      |
| 14    | With necessary diagrams explain in detail about IEEE 488 interface bus.   | 10     |
| 15 a) | Explain in detail about possibilities and limitations of improving deflection sensitivity of CRT.   | 5      |
| b)    | With necessary diagrams explain in detail about digital storage oscilloscope.   | 5      |
| 16 a) | In a video cable, a particular channel program is selected at 88.5 MHz. Explain how you measure its harmonics using Spectrum Analyzer. What are different harmonic frequencies for above channel? | 5      |
| b)    | Determine detection sensitivity of a CRO, given that with usual notation, $d = 1.5\text{cm}$ , $L = 30\text{cm}$ , $d = 5.5\text{mm}$ , $V_d = 5\text{V}$ and $V_a = 1000\text{V}$ .              | 1<br>5 |
| 17    | Write short notes on the following :  |        |
| a)    | Dual slope ADC  | 5      |
| b)    | Log IF Amplifier  | 5      |

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## FACULTY OF ENGINEERING

B.E. 4/4 (Mech.) II-Semester (Main & Backlog) Examination, May / June 2018

Subject : Production Drawing

Time : 3 hours

Max. Marks : 75

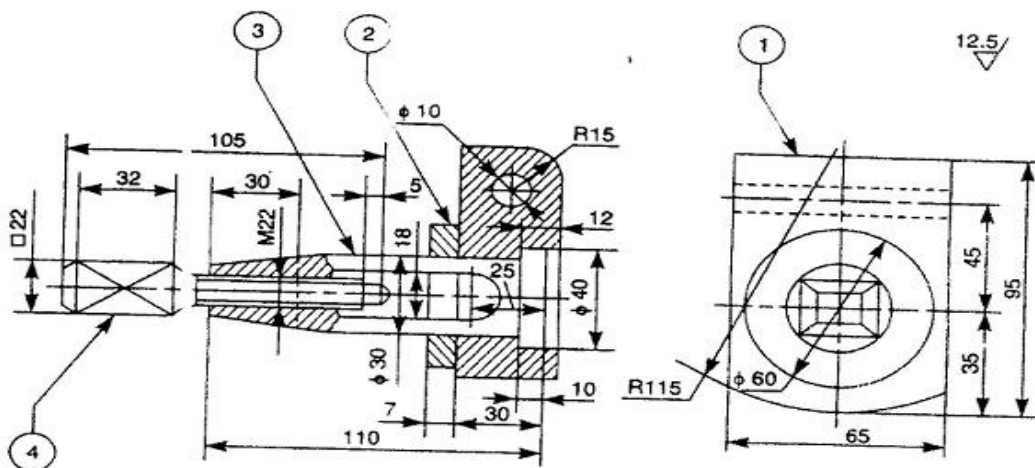
**Note: Answer all questions from Part-A & all questions from Part-B.**

### PART – A (25 Marks)

- |   |     |
|---|-----|
| 1 Explain caulking and fullering.                                     | 3   |
| 2 Explain clearance fit.  | 2.5 |
| 3 What is shaft basis system for fits?                                | 2.5 |
| 4 What is basic size?   | 2   |
| 5 Indicate roughness symbols and values for $N_3$ and $N_4$ .         | 3   |
| 6 Give the conventional representation of cylindrical tension spring. | 3   |
| 7 Write full form of  | 3   |
| a) RB      b) IB      c) IRB  |     |
| 8 What are the elements of production drawing?                        | 3   |
| 9 Indicate the recommended tolerance grades for                       | 3   |
| a) Reaming      b) Grinding      c) Stamping                          |     |

### PART – B (50 Marks)

- |  |    |
|--|----|
| 10 Draw the production drawing of parts                  | 20 |
| a) Clapper      b) Screw                                 |    |
| 11 Indicate the types of fits and finish values between  | 10 |
| a) Clapper and tool holder      b) Screw and tool holder |    |
| 12 Work to tool diagram of clapper block                 | 20 |



#### Parts List

Part No.	Name	Matl.	Qty.
1	Clapper	CI	1
2	Spacer	MS	1
3	Tool holder	MS	1
4	Screw	MS	1

Clapper block

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**FACULTY OF ENGINEERING**

**B.E. 4/4 (Prod.) II – Semester (Main & Backlog) Examination, May / June 2018**

**Subject : Tool Design**

**Time : 3 Hours**

**Max. Marks: 75**

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

**PART – A (25 Marks)**

1. Give the advantages of Jig and fixture.
2. Name a few grinding methods of milling cutters.
3. Briefly explain about redundant location.
4. Sketch a broach with a sketches.
5. Enlist the desired properties of tooling materials.
6. Briefly explain about fool proofing – write about fool proofing.
7. Enlist the applications of spinning.
8. Differentiate between burnishing and ballizing.
9. Briefly explain the principle of USM.
10. Briefly explain the principle of adjustable reamers.

**PART-'B'(50 Marks)**

11. a) Explain classification and coding of carbide tools.  
b) Explain honing and lapping process in machines.
12. a) Sketch a milling cutter and indicate various tool angle and their functions.  
b) Explain briefly various steps involved in designing of reamers.
13. a) Explain the process parameters of EDM with neat diagram.  
b) With a neat sketch explain how rake angle is varied from cutting point to the periphery in a drill.
14. a) Explain the methods of calculating bending allowance in bending process.  
b) Enlist the principles of location and clamping.
15. a) Enlist the principles of clamping.  
b) Differentiate between Jigs and fixtures.
16. a) Differentiate between hydraulic and pneumatic clamps.  
b) Sketch the nomenclature of a twist drill.
- 17 Write short notes on any **two** of the following:
  - (a) Lapping
  - (b) Forging dies
  - (c) Grinding of milling cutters

**FACULTY OF ENGINEERING**

**B.E. 4/4 (AE) II - Semester (Main & Backlog) Examination, May / June 2018**

**Subject : Alternative Fuels and Energy System for Automobiles**

**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 Describe the need for alternate fuels.
- 2 Explain the hazards of methanol.
- 3 Explain the applications of DEE.
- 4 Enumerate some applications of Natural gas.
- 5 Which materials are compatible with CNG?
- 6 Write a short note on emissions from LPG engines.
- 7 What is iodine value? Write its significance.
- 8 What do you mean by alternate power trains?
- 9 List out some components of electric control system.
- 10 Describe some important properties of vegetables oils.

**PART – B (50 Marks)**

- 11 What are the barriers in implementing alternative fuels?
- 12 Describe production of methanol.
- 13 Explain the factors essential in selecting a biogas plant.
- 14 (a) What are the differences between a fixed alone digester and a floating drum digester?  
(b) What are the advantages of using biogas as fuel?
- 15 Explain in detail various batteries used in HEV
- 16 Describe the production of LNG and how it is transported.
- 17 Explain about DME fuel injection equipment in detail.

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**FACULTY OF ENGINEERING****B.E. 4/4 (CSE) II – Semester (Main & Backlog) Examination, May / June 2018****Subject: Information Storage and Management (Elective – II)****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  | Define the terms virtualization and cloud computing? | [3m] |
| 2  | What is Disk service time?                           | [2m] |
| 3  | What is file-level virtualization?                   | [2m] |
| 4  | Write short notes on Data Archive?                   | [3m] |
| 5  | What is three-site replication?                      | [3m] |
| 6  | Write short notes on Back up Targets?                | [2m] |
| 7  | List out the characteristics of cloud computing?     | [2m] |
| 8  | Describe cloud enabling technologies?                | [3m] |
| 9  | What is storage Tiering?                             | [2m] |
| 10 | Define the terms Threat and Vulnerability?           | [3m] |

**PART – B (50 MARKS)**

- |        |   |       |
|--------|---|-------|
| 11 a)  | Explain Disk Drive components?                              | [5m]  |
| b)     | Explain RAID Levels?  | [5m]  |
| 12     | Explain Object-Based and Unified Storage platform in Brief? | [10m] |
| 13 a)  | Explain Data deduplication implementation?                  | [5m]  |
| b)     | Describe LVM Based Remote Replication?                      | [5m]  |
| 14. a) | Explain Cloud Computing Infrastructures briefly?            | [6m]  |
| b)     | Describe cloud deployment models?                           | [4m]  |
| 15 a)  | Explain FC SAN architecture with a neat diagram?            | [5m]  |
| b)     | Describe Information Life cycle management briefly?         | [5m]  |
| 16 a)  | Explain the components and operations of NAS?               | [6m]  |
| b)     | What is zoning? Explain different types of zoning?          | [4m]  |
| 17     | Write short notes on  |       |
| a)     | Storage Provisioning  | [4m]  |
| b)     | Advantages of Cloud computing                               | [3m]  |
| c)     | BC planning life cycle                                      | [3m]  |

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**FACULTY OF INFORMATICS****B.E. 4/4 (IT) II-Semester (Main & Backlog) Examination, May / June 2018****Subject : Information Storage and Management (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 are the various physical components of host?                       | 3 |
| 2  | Explain the benefits of a NAS device.                                   | 3 |
| 3  | Determine the 3 factors which define Information Availability (IA).     | 3 |
| 4  | Write short notes on securing BURAs.                                    | 2 |
| 5  | What is Lun Masking?  | 2 |
| 6  | List out the causes for information unavailability.                     | 2 |
| 7  | Discuss the evolution of storage technology and architecture in detail. | 3 |
| 8  | Differentiate CLI and GUI.  | 3 |
| 9  | What is the importance of information security?                         | 2 |
| 10 | Explain the terms Vulnerability and Data Encryption.                    | 2 |

**PART – B (50 Marks)**

- |    |  |    |
|----|--|----|
| 11 | a) Explain how RAID 5 data protection is done.   | 5  |
|    | b) Explain the impact of RAID on disk performance.   | 5  |
| 12 | a) Describe the various fibre channel topologies.  | 5  |
|    | b) What is zoning? Explain different types of zoning.  | 5  |
| 13 | With the help of a neat diagram explain the various local replication technologies.          | 10 |
| 14 | a) Explain BC planning life cycle.   | 5  |
|    | b) Explain local replication technologies and write the advantages of LVM based replication. | 5  |
| 15 | a) List out the various feature and benefits of CAS.   | 5  |
|    | b) What is information life cycle? How is it managed?  | 5  |
| 16 | a) Explain about various backup topologies in detail.  | 5  |
|    | b) Briefly explain the evolution of networked storage.                                       | 5  |
| 17 | Write short notes on the following :   |    |
|    | a) Assets  | 4  |
|    | b) Threats   | 4  |
|    | c) Vulnerability   | 2  |

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**FACULTY OF INFORMATICS****B.E. 4/4 (I.T.) II – Semester (Main & Backlog) Examination, May / June 2018****Subject: Simulation & Modeling (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 are the advantages and disadvantages of simulation?                     | 3 |
| 2  | What are the types of models?  | 2 |
| 3  | Draw and write about the simple queuing model.                               | 3 |
| 4  | Write the properties of Random Numbers.                                      | 3 |
| 5  | What is Exponential Distribution?  | 2 |
| 6  | What is GIGO?  | 2 |
| 7  | With a neat diagram write about model building, verification and validation. | 3 |
| 8  | What are steady state simulators?  | 2 |
| 9  | Write about frequency test.  | 3 |
| 10 | What is GPSS?  | 2 |

**PART – B (5x10 = 50 Marks)**

- |    |   |   |
|----|---|---|
| 11 | Explain:                                    |   |
|    | a) Steps in simulation study.               | 7 |
|    | b) Components of a system.                  | 3 |
| 12 | Discuss the following:                      |   |
|    | a) SIMAN.                                   | 5 |
|    | ii) SIMSCRIPT.                              | 5 |
| 13 | Explain the following:                      |   |
|    | a) Runs test.                               | 4 |
|    | b) Test for autocorrelation                 | 3 |
|    | c) Gap Test.                                | 3 |
| 14 | Discuss the following:                      |   |
|    | a) Poisson distribution                     | 5 |
|    | b) Discrete distribution.                   | 5 |
| 15 | Explain the following                       |   |
|    | a) Chi square test                          | 3 |
|    | b) Histogram                                | 3 |
|    | c) Quantile Quantile plot.                  | 4 |
| 16 | Explain the following estimation techniques |   |
|    | a) Point estimation                         | 5 |
|    | b) Interval estimation.                     | 5 |
| 17 | Write short notes on:                       |   |
|    | a) Face validity                            | 5 |
|    | b) Optimization via simulation              | 5 |

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**FACULTY OF INFORMATICS****B.E. 4/4 (I.T.) II – Semester (Main & Backlog) Examination, May / June 2018****Subject: Advanced Computer Architecture (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 hazard? State its types. [3]
- 2 Sketch basic model of advanced computer architecture. [3]
- 3 What is pipelining? [2]
- 4 Give some salient features of super scalar processor. [3]
- 5 List primitive operations for AI based symbolic processor. [3]
- 6 What is latency hiding? [2]
- 7 What are limitation of shared memory? [2]
- 8 What is array processor? [2]
- 9 List the limitation of crossbar Networks. [2]
- 10 Define array processors. [3]

**PART – B (5x10 = 50 Marks)**

- 11 a) Explain the architecture of vector super computer with a diagram. [6]  
b) List and describe factors that affect network performance. [4]
- 12 a) Describe the working of linear and nonlinear pipeline processor. [6]  
b) Write short note on Sun Micro system. [4]
- 13 Describe compilation phases in parallel code generation. [10]
- 14 a) Explain briefly branch prediction technique. [5]  
b) Discuss static and Dynamic Topologies. [5]
- 15 a) Explain various parameters of multithreaded MPP system. [5]  
b) Describe the various methods for instruction pipeline design. [5]
- 16 a) Compare Software parallelism and hardware parallelism. [5]  
b) Explain about distributed shared memory. [5]
- 17 Write short note on:  
a) Routing in Omega Network [5]  
b) Synchronization mechanism for Inter-process Communication [5]

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**FACULTY OF INFORMATICS**

B.E. 4/4 (I.T.) II - Semester (Main &amp; Backlog) Examination, May / June 2018

**Subject : Natural Language Processing  
(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 Discover all of the possible meanings of the following sentences by giving a paraphrase of each interpretation. For each sentence, identify whether the different meanings arise from structural ambiguity, semantic ambiguity, or pragmatic ambiguity. (3)
  - (i) Time flies like an arrow
  - (ii) He drew one card
- 2 Give example for Discourse ambiguity. (2)
- 3 Define ontology. (2)
- 4 List any six thematic Roles. (3)
- 5 Write Bottom-up Parsing Algorithm. (3)
- 6 Specify the lexicon for the following (2)
 

"The large can hold the water"
- 7 State why each of the following sentences are ambiguous or not. Specifically, state whether they are ambiguous because of their possible syntactic structures, their word senses, their semantic structures, or a combination of these factors. (3)
 

S1 : A man stopped at every truck stop  
S2 : Several people ate the pizza  
S3 : We saw her duck
- 8 The process of mapping the logical form to the final knowledge representation (KR) language is called\_\_\_\_\_. (2)
- 9 Say we have an acceptable margin of error of between 0.4 and 0.6 for estimating the probability of a fair coin coming up heads. What is the chance of obtaining a reliable estimate for the probability with five flips? (3)
- 10 Write the advantages of best-first parser. (2)

**PART – B (50 Marks)**

- 11 (a) Draw diagram to show flow of information in Natural Language Understanding Systems and explain with the following example, consider the following two sentences: (7)
 

S1 : Visiting relatives can be trying  
S2 : Visiting museums can be trying
- (b) Write short notes on different approaches to studying language. (3)

..2..

- 12 (a) Explain interpretation of verb phrases and prepositional phrases with an example. (5)  
 (b) Discuss different strategies for Machine Translation. (5)
- 13 (a) Consider the following CFG : (7)  
 $S \geq NPV$   
 $S \geq NP AUX V$   
 $NP \geq ART N$   
 Trace one of the chart parsers in processing the sentence: "The man is laughing", with the lexicon entries:  
 The : ART  
 man : N  
 is : AUX  
 laughing : V  
 Show every step of the parse, giving the parse, and drawing the chart each time a non-terminal constituent is added to the chart.  
 (b) Write Top-Down Chart Parsing Algorithm. (3)
- 14 (a) Explain about Semantics and Logical Form with an example. (5)  
 (b) Identify the senses of the word can used in the following sentences, and specify whether the sense is a term, property (unary predicate), n-ary predicate, logical operator, generalized quantifier, predicate operator, or modal operator. Justify your classification and discuss alternate interpretation that could work just as well. Give an example logical form that uses each sense. (5)  
 S1 : The yellow can fell to the ground  
 S2 : He can see it  
 S3 : He wants to can the tomatoes
- 15 (a) Give the Penn Treebank tag set. (3)  
 (b) How to obtain Lexical Probabilities ? Explain with an example. (7)
- 16 (a) Define the minimal set of lexicon entries for the following verbs so that, using the morphological analysis algorithm, all standard forms of the verb are recognized and no illegal forms are inadvertently produced. Discuss any problems that arise and assumptions you make. (6)
- | Base | Present Forms | Past | Past-Participle | Present-Participle |
|------|---------------|------|-----------------|--------------------|
| go   | go, goes      | went | gone            | going              |
| sing | sing, sings   | sang | sung            | singing            |
| bid  | bid, bids     | bid  | bidden          | bidding            |
- (b) Discuss briefly about various elements of Simple Noun Phrases. (4)
- 17 Write short notes on the following: (10)  
 (a) Estimating Probabilities  
 (b) Words Senses and Ambiguity

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