Code No. 194/N

FACULTY OF ENGINEERING

B.E.3/4 (CIVIL) – II SEM (NEW) (SUPPL) EXAMINATION- DECEMBER, 2017

Subject : Environmental Engineering

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 are joints? Write any two requirements of joints. (2)
2. Write down any four physico chemical parameters and its standards for potable water. (2)
3. What is the role of poly electrolyte in the coagnlation of water treatment? (2)
4. Find the setting velocity of the particle in the water, the diameter and specific graving of particle is 2×10^{-3} cm and 2.65 respectively. The water temprative is 35^0c . take kinematic viscosity of water at 35^0c is 1×10^{-2} cm^2 / sec. (3)
5. Write down Burkuziegler formula, mc maths formula and Metcalf and eddy's formula for quantity estimation (3)
6. What are lamp holes? Give reason why lamp holes may be constructed? (2)
7. Mention the various factors for the design of screeners (3)
8. For the two stage filter, write down the formula to calculate efficiency and B.O.D loading for the trickling filters. (3)
9. What is sindge digestion? List the various sources of sindge generation (2)
10. Draw a neat sketch of septic tank & label its component parts & explain each. (3)

PART - B (50 Marks)

11. a) The cencus record of a Hyderabad city snow population as follows present – 4,00,000 before one decade – 3, 71,000 before two decades.
    out population after two and four decades by geometrical increase method. (5)
    b) Explain various factors to be considered for the design of intakes (5)

12. a) Design the dimensions of a suitable sedimentation tank for a maximum daily demand of 20 MLD Assume detension period of 5 hours and velocity of flow 25 cm/min
    b) Explain the method of removal of hardness by reverse osmosis and zeolite method
13. a) Describe the process involved in flushing tanks with a neat sketch (5)
    b) Design the size of a circular sever for a discharge of 780 L/s (Assuming the slope of i =l in 10, 000 & N = 0.015) (5)
14. Design a screen for an average discharge of 0.22 m^3/s. Assume any other required data suitably. (10)

15. a) Explain the various methods of disposal of solid waste (5)
    b) With a neat sketch explain the working of oxidation ponds and RBC. (5)

16. a) Write down the various factors affecting population fore caste. (5)
    b) Describe the design principles of slow sand fitters (5)
17. Write short note on the following
    a) Storm water estimation by rationas method (3)
    b) Unit operations in secondary treatment in ETP (4)
    c**)** Types of solid waste

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Code No. 147 / O

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) II – Semester (Old) Examination, December 2017

Subject: Water and Waste Water Resourcing Engineering

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 The population of a village is 5000 and percapita consumption is75 liters/day. Assuming losses in distribution system as 15%, calculate the daily demand. 3

2 Explain Stokes settling velocity expression. 2

3 What is the safe BOD limit for water supply? 2

4 Define the term: Breakpoint chlorination. 3

5 Determine storm water for a catchment area of 20 hectares and rainfall intensity 2 cm/hr. Assuming run of coefficient of 0.8. 3

6 What are the limiting velocities in sewer pipes? 3

7 Differentiate between BOD and COD. 2

8 State the functions of grid channel. 2

9 What is sludge digesting? 2

10 Mention and explain different sludge disposal methods. 3

PART – B (5x10 = 50 Marks)

11 a) Predict the population of a town by incremental increase method for following data for the year 1981, 2014. 5

Year	1911	1921	1931	1941	1951
Population x 1000	68	73	80	92	105

b) Explain in detail intake structures in water distribution system. 5

12 a) Design a rectangular sedimentation tank to treat 2000 m^3/day assuming the detention period as 3 hours. 5

b) Explain with a neat sketch working of rapid sand filter. 5

13 Explain in detail various methods adopted for disinfection 10

14 a) A sewer pipe with Manning's n = 0.018 laid at a slope of 1/2000 and flowing half full. Determine the discharge. 5

b) A domestic sewage of a town is to be discharge into a stream. Determine the max permissible BOD limit: 5 mg/l. Population of town 50000, DWF 150 LPCD. BOD contribution percapita 0.075 kg/day. Discharge in the river 0.5 m^3/day. 5

15 Explain in detail step aeration in activated sludge process. 10

16 a) Design a septic tank for a hostel building having 80 student residents. 5

b) Explain sludge disposal method by land filling method. 5

17 Write short note on any two of the following: 10

i) Sewer appurtenances
ii) Removal of hardness
iii) Trickling filter

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Code No. 203 / N

FACULTY OF ENGINEERING

BE 3/4 (EIE) II- Semester (New) (Supplementary) Examination, December, 2017

Subject: Biomedical Instrumentation

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 Biopotential	2
2	What is the cause of Heart murmurs	2
3	What is Bremsstrahlung X-ray radiation?	3
4	Draw the generalized biomedical instrumentation system	3
5	What is ventricular fibrillation?	2
6	Discuss Radiography.	3
7	What is monopolar recording in EEG?	2
8	Draw and explain briefly “Einthoven Triangle”	3
9	Define cardiac cycle.	2
10	Write any three applications of Laser in medical field.	3

PART – B (50 MARKS)

11	Explain in detail 12 lead configurations used in ECG recording.	10
12	a) Explain clearly the blook flow measurement using Electromagnetic principle.	5
	b) Mention the features of microphones used in phonocardiography	5
13	a) Explain Thermo sensitive recorder in detail.	6
	b) Explain the need of phase detector in LVDT.	4
14	a) Differentiate between X-rays and Fluoroscopy.	6
	b) Write a short note on Image Intensifier.	4
15	a) Explain the generation of X-ray.	5
	b) Explain how noise problems are eliminated in ECG recording.	5
16	Explain microshock and macroshock in detail and their effect on the physiological behavior of the patient.	10
17	a) Write advantages and disadvantages of CT scan.	5
	b) Discuss the plethysmographic technique of measuring blood flow.	5

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Code No. 156 / O

FACULTY OF ENGINEERING

BE 3/4 (Instrumentation) II- Semester (Old) Examination, December, 2017

Subject: Biomedical Instrumentation

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: (a) Range (b) Stability.	3
2	Mention the advantages of RVDT.	2
3	Mention the principle of EMG	3
4	Define the various heart sounds in a phonocardiogram	2
5	Draw and briefly explain the endoscopy.	3
6	State the Doppler principle of blood flow measurement.	2
7	State the principle of Image Intensifier.	3
8	What is the use of Spectrum-analyzer?	3
9	What are the electric Hazards during Bio-electric monitoring	2
10	What is meant by Holter monitoring?	2

PART – B (50 MARKS)

11	a)	Describe the special features of Thermosensitive recorder with neat diagram.	6
	b)	Explain the need for carrier amplifier in a biomedical recording system.	4
12		Explain the operating principle with the Block diagram of EMG Machine. Mention the design consideration of EMG amplifiers.	10
13	a)	Explain instrumentation involved in microphone, filter and signal conditioner In Phonocardiography.	5
	b)	Explain the origin and characteristics of heart sounds.	5
14	a)	Write short notes on Emission photometry.	5
	b)	Explain in the working of chromatography with neat diagram.	5
15	a)	What is safety codes and standards for Biomedical Instruments? Explain in detail.	5
	b)	Write short notes on Medical Imaging with relevant diagram.	5
16	a)	What are 10-20 Electrode system?	5
	b)	Explain the techniques for direct measurement of Blood pressure.	5
17		Write short notes on following:	10
	a)	EEG	
	b)	X-ray	

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Code No. 161 / O

FACULTY OF ENGINEERING

BE 3/4 (ECE) II- Semester (Old) Examination, December, 2017

Subject: Electronic Instrumentation

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 (i) Accuracy (ii) precision (iii) Resolution and (iv) Sensitivity		3
2	What are the various quality management standards?		3
3	What are the different factors that affect the choice of a transducer?		3
4	Differentiate between photo conductive transducer and photo emissive transducer.		2
5	List various characteristics of sound.		2
6	What is a thermocouple and thermopile? State the applications of each.		3
7	What is meant by spectrum analysis? List out the functions of a spectrum analyzer.		3
8	What is the advantage of CT Scanner over X-ray machine?		2
9	Explain the working principle of X-ray tube.		2
10	What is the difference between ultrasonic imaging and magnetic resonance imaging		2

PART – B (5x10 = 50 MARKS)

11	a)	What are three general classes of errors in the measurement? What are the typical sources of these errors? How do you minimize their effects in measurements?	5
	b)	Discuss in detail about elements of ISO 9001 and IEEE standards.	5
12	a)	Explain in detail the construction and working of LVDT with necessary diagrams. List its applications.	5
	b)	Define sound pressure level, sound power level and sound intensity level. Explain in detail the construction and working of different microphones.	5
13	a)	Under what conditions is a dummy strain gauge used? What is the function of gauge? What are the advantages of using a foil type stain gauge?	5
	b)	What is the effect of temperature changes on a strain gauge? Derive the expression for gauge factor K = 1+2 « .	5
14	a)	What are the specifications and design considerations of DVMs?	5
	b)	Explain the Principle and operation of dual-slope integrating type DVM.	5
15	a)	Distinguish between skin surface electrode and needle electrode. Discuss the Differences between the unipolar and bipolar types of ECG recording electrodes.	5
	b)	What is A-mode, B-mode and M-mode in ultrasonic imaging system? Draw the block diagram for X-ray machine and explain its operation.	5
16	a)	What is the difference between digital storage oscilloscope and mixed Signal oscilloscope? Draw the block diagram for DSO and explain its operation. List its advantages.	5
	b)	What is IEEE 488 or GPIB interface? Explain about SCADA.	5
17	Write short notes on		
	a)	Hygrometers	5
	b)	Spectrum analyzers	5

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Code No. 212/N

FACULTY OF ENGINEERING

BE. 3/4 (Mech) II – Semester (New) (supply) Examination, December 2017

Subject: Control System Theory

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 open loop system
2. What is serve mechanism ?
3. What is the effect of addition of a zero to the losed loop- transfer function?
4. What are the basic properties of signal flow graph?
5. Define gain margin
6. What is phase and gain cross – over frequency?
7. What is polar plot, explain?
8. What is root locus plot ?
9. Explain zero state response
10. What are the two types of compensation

PART – B (50 Marks)

11. Determine the transfer function of the system shown in Fig-1

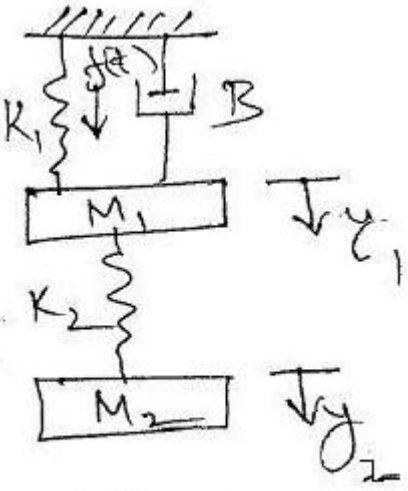

Fig. 1

12. Find the overall transfer function of the system whose signal flow graph is shown in

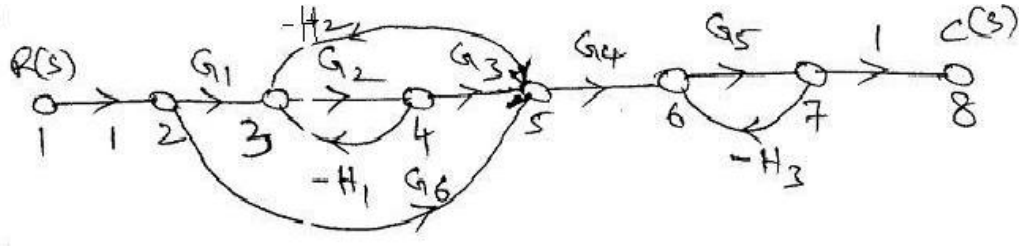

Fig. 2

13 The open loop TF of unity feedback system is given below. Sketch the Nyquist plot and determine the stability of the system G (s) = $\frac{k\,(s+5)(S+40)}{s^3\,(s+2oo)(s+1000)}$

14 Sketch the root locus of the system given below

G (s) $\frac{K\,(S+1)}{S^2\,(S+12)}$

15 Sketch the bole plot for the following Transfer function comment on stability

G (S) =$\frac{K\,S^2}{(1+5)(1+0.is)(1+\ 0.0iS)}$

16 The Transfer Function of a control system is given by

G (S) = $\frac{s+3}{s^4+s^2+2s+1}$

Determine the state space model and find the observability

17 Write short notes on

a) PID controllers
b) What do you mean by nyquist criterion
c) Compute the STM for

$$A = \begin{bmatrix} 0 & 1 \\ -1 & -2 \end{bmatrix}$$

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Code No. 166/O

FACULTY OF ENGINEERING

B.E. 3/4 (Mech) II – Semester (Old) Examination, December 2017

Subject: Control System Theory

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 the differences between Hydraulic and Pneumatic Systems.
2. Find the Inverse Laplace Transform of $F(s) = \frac{2}{s^2 + 5s + 6}$
3. Describe the Block diagram of a Person Playing a Video game. Suppose that the input device is a Joystick and the game is being played on a desktop computer?.
4. Explain Mason's Gain formula?
5. For the system $G(s) = \frac{9}{s^2 + 2s + 9}$, what is the Steady state error for ramp input?
6. Determine the range of values of 'K' so that the system having the following Characteristic Equation will be stable $s(s^2 + 2s + 3)(s + 2) + K = 0$
7. Define the terms: Band width, Cut off rate, Phase Margin and Gain Margin.
8. What is a Lag Compensator?
9. What is Nyquist Stability criteria?
10. Explain the Significance of Controllability and Observability?

PART – B (5 x 10 = 50 Marks)

11. Derive the Transfer function for Armature controlled D.C Servo Motor with neat diagram.
12. Find the overall gain of the system whose Signal Flow Graph is shown in the figure 1.

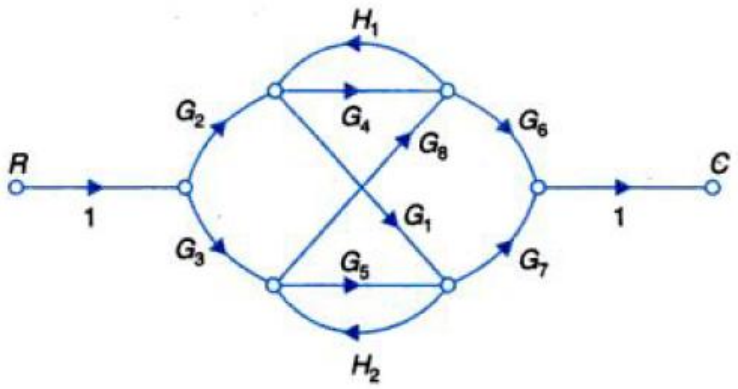

Figure 1

13. The Response of a control system applying unit step input is $c(t) = 1 + e^{-40t} - 2e^{-20t}$. (i)Determine the natural frequency (ii) Damping Ratio and (iii) Settling Time.

14. Draw root locus of the following unity feedback system, having the forward path Transfer Function as $G(s) = \frac{K}{s(s+4)(s^2+4s+20)}$.

15. Sketch the Bode plot for a system having transfer function $G(s) = \frac{Ks(s+10)}{s(s+2)(s+7)}$ and determine the system gain K for the gain cross-over frequency to be 7 rad/sec.

16. The open loop transfer function of a unity feedback system is given by $G(s)H(S) = \frac{50}{s(s+5)}$. Draw the Nyquist plot and comment on the stability of the closed-loop system.

17. Check for state and output controllability and observability of a system represented by unity feedback system $G(s) = \frac{2s^3+7s^2+12s+8}{s^3+6s^2+11s+63}$

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Code No. 219 / N

FACULTY OF ENGINEERING

BE 3/4 (AE)II- Semester (New)(Supplementary) Examination, December, 2017

Subject: Automotive Air-Conditioning

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 a psychrometer? List different types of psychorometers.	3
2	Define the relative humidity and specific humidity	2
3	Define room sensible heat factor	2
4	What factors to be considered for cooling load estimation?	3
5	List the components involved in vapour compression refrigeration system?	2
6	State the function of condenser and classify the different condenser.	3
7	How the refrigerants are classified?	2
8	What do you mean by automotive heaters? List the advantages.	3
9	Why ducts are used in air conditioning system?	2
10	What are the causes for compressor noisy? List the remedies.	3

PART – B (50 MARKS)

11	a)	Describe humidification and dehumidification process with a neat sketch	4
	b)	The pressure and temperature of the air in a room are 1 bar and 28^{o}C. i) The partial pressure of water vapour ii) Dew point temperature and iii) Specific humidity	6
12	a)	Explain difference between winter air conditioning and summer air conditioning	4
	b)	A room has a sensible heat gain of 24kW and a latent heat gain of 5.2kW and it has to be maintained at 26^{o}C DBT and 50%RH. 180m^{3}/min of air is delivered to the room. Determine state of supply air.	6
13	a)	What factors are considered for selecting a condenser for a car for air conditioning system.	5
	b)	Explain about different types of expansion devices used in refrigeration system And how evaporator temperature may be controlled?	5
14		What is meant by charging and evacuation? Explain how charging and evacuation done for automotive air conditioning?	10
15		Explain about the air distribution system used in automobile air conditioning system.	10
16		Explain how trouble shooting is done for automotive air conditioning system?	10
17		Explain with a neat sketch the working of any two types of heater systems.	10

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Code No. 174 / O

FACULTY OF ENGINEERING

BE 3/4 (AE) II- Semester (Old) Examination, December, 2017

Subject: Automotive Air-Conditioning

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 specific humidity ratio and relative humidity.	2
2	When is dehumidification of air necessary and how it is achieved?	3
3	Define grand sensible heat factor	2
4	List the factors effecting air conditioning system	3
5	What is the function of compressor in refrigeration system?	2
6	Explain about sub-cooling and superheating.	3
7	List some chemical properties of refrigerants.	2
8	Explain about automotive heaters.	3
9	Why the dues are used in air-conditioning system?	2
10	State the two causes for compressor runs continuously and overcooling of space.	3

PART – B (10 x 5 = 50 MARKS)

11 Draw all the psychrometric processes on psychrometric chart and explain about each process.

12 The following data refer to a space to be air conditioned:
Inside conditions = 25°C DBT and 50% RH
Out-door conditions = 22°C DBT and 65% RH
Room sensible heat gain = 46.5kW
Room latent heat gain = 17.5kW
By-pass factor for the cooling coil = 0.1
The return air from the pace is mixed with the outside air before entering the cooling coil in the ratio of 4:1 by mass. Determine
(a) apparatus dew point temperature;
(b) condition of air entering and leaving the coil;
(c) dehumidified air quantity;
(d) fresh air mass flow and volume flow rate; and
(e) total refrigeration load on the air-conditioning plant.

13 Explain various types expansion devices used in refrigeration system and how evaporator temperature may be controlled.

14 a) Distinguish between primary and secondary refrigerants.
b) Explain with sketch Ford air-conditioning circuit.

15 Explain about automobile air-conditioner maintenance and service.

16 Explain with neat sketch the design consideration of year round air-conditioning system.

17 What are the various types of temperature control systems in automobile air-conditioning?

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Code No. 231/N

FACULTY OF ENGINEERING

BE. 3/4 (I.T) II – Semester (New) (Suppl) Examination, December 2017

Subject: Computer Graphics

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	Define a Pixel and Screen Resolution	2
2	What are the advantages the DDA algorithm	2
3	Briefly describe about the text attributes	3
4	Write about composite transformations	3
5	What is point clipping?	2
6	Write about different types of coordinates in 2D view	3
7	Write about PHIGS.	2
8	What are the six logical classifications of input devices?	2
9	State the properties of B- spline curve	3
10	Write about geometric tables used in 3D object representation	3

PART – B (5x 10 = 50Marks)

11.	a) Explain about inside – outside test to identify interior regions of polygon	5
	b) Write the mid – point circle algorithm	5
12.	a) Find the transformation matrices for basic transformations	4
	b) Show that two consecutive rotate transformations are additive and commutative	6
13.	a) Describe about 2D viewing pipeline	4
	b) Explain about the Cohen – Sutherland line clipping algorithm with an example	6
14	Explain interactive picture construction techniques with examples	10
15	Write short notes on i) Depth sorting method ii) Area subdivision method	(5+5)
16	a) Describe about the boundary – fill algorithm	5
	b) Explain Bresnham's algorithm	5
17	Write short notes on	
	a) Bezier curves	3
	b) Homogeneous coordinates	3
	c) Curves in Open GL	4

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Code No. 232 / N

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II-Semester (New) (Supplementary) Examination, December 2017

Subject : Digital Signal Processing (Elective-I)

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 symmetric and anti symmetric signals.	2
2	What is meant by impulse response?	3
3	State the Sampling theorem.	3
4	Why need of FFT?	3
5	List the direct form realizations of FIR systems.	3
6	What are the design techniques available for IIR filter?	3
7	Why FIR filters are always stable?	2
8	What is the role of a barrel-shift register?	2
9	Define data compression.	2
10	Explain the concept of decimation of data-samples by a factor D.	2

PART – B (5 x 10 = 50 Marks)

11 The specification of the desired low pass digital filter are A_{min} = 12.4 dB and A_{max} = 0.915 dB ω_p = 0.25* pi radians and ω_s = -0.5* pi radians Design a Chebyshev digital filter using bi-linear transformation. (A_{min} and A_{max} are attenuations). 10

12 Highlight the special blocks of the Digital Signal processor architecture over the regular Micro-controller based Architectures. 10

13 a) What is an aliasing? How to overcome this effect? 5
b) Compare linear and circular convolution. 5

14 a) What are the advantages of DSP over analogue signal processing? 4
b) Determine the pole and zero plot for the system described with difference equation y(n) = x(n) + 2x(n-1) -4x(n-2) + x(n-3). 6

15 Find the output sequence y(n) if h(n) = (1, 1, 1) and x(n) = (1, 2, 3, 1) using a circular convolution. 10

16 a) Explain briefly Hamming window. 5
b) What is bit reversal FFT and how it is implemented in a DSP chip? 5

17 a) What is a linear phase filter and where it is used? 5
b) Mention the properties of Butterworth filter. 5

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Code No. 233 / N

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II-Semester (New) (Supplementary) Examination, December 2017

Subject : Software Testing (Elective-I)

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 a) Bug b) Error c) Test incident	3
2	What are the different types of testing? Differentiate among them.	3
3	What is Integration Testing? Explain its importance.	2
4	List few challenges in testing Web-based software.	3
5	List few issues in testing Object Oriented Software.	3
6	What are the different types of testing metrics for monitoring and controlling the testing process?	2
7	What are the source code testing utilities in Unix?	2
8	Explain the significance of Debugging.	2
9	What is Test Script Language?	2
10	Explain Win Runner features and uses.	3

PART – B (5 x 10 = 50 Marks)

11	a) Explain the principles of software testing.	5
	b) Differentiate between verification and validation.	5
12	a) Explain Software Testing Methodology.	5
	b) Explain Gilb's and Humphrey's inspection process.	5
13	a) Explain Software Testing Life Cycle with diagram.	5
	b) Explain Software Metrics in detail.	5
14	a) How unit testing is performed in an Object Oriented Software?	5
	b) Explain Software Testing process involved in testing Web Based Application.	5
15	a) Write short notes on Efficient Test Suit Management.	5
	b) Explain state of a Bug with diagram.	5
16	a) Explain State Table-Based Testing process.	5
	b) Mention the uses of Load Runner and JMeter.	5
17	Explain the architecture, features, and uses of Silk Test.	10

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Code No. 234 / N

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II-Semester (New) (Supplementary) Examination, December 2017

Subject : Natural Language Processing (Elective-I)

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 Classify these sentences along each of the following dimensions, given that the person uttering the sentence is responding to a complaint that the car is too cold: i) syntactically correct or not; ii) semantically correct or not; iii) pragmatically correct or not. 3

2 Which component is crucial for Natural Language understanding? 2

3 List the problems of Machine Translation. 2

4 Identify every major phrase (noun, verb, adjective or adverbial phrases) in the following sentences.
"The man played his fiddle in the street" 3

5 What is the INV value of the following? "Did Jack laugh". 2

6 Differentiate between top-down and bottom-up parsers. 3

7 Identify the senses of the word can used in the following sentences. 3
S1 : The yellow can fell to the ground
S2 : He can see it
S3 : He wants to can the tomatoes

8 The process of mapping a sentence to its logical form is called ---------- 2

9 Prove Baye's rule by using the definition of conditional probability. Also prove that if A and B are independent then PROB (A | B) = PROB (A). 3

10 For instance, consider a category C, where the grammar contains m rules, RI…Rm, with the left-hand side C. Could you give the formula to estimate the probability of using rule Rj to derive C. 2

PART – B (50 Marks)

11 a) Classify the applications of Natural Language Processing and explain with examples. 6

b) Give two syntactic structural representations for the following:
"I saw the man on the hill with a telescope" 4

12 a) Discuss different strategies for Machine Translation. 5

b) How is the syntax of spoken language different from that of written language? 5

13 Consider the following CFG that generates sequences of letters : 10
s -> a x c
s -> b x c
s -> b x d
s -> b x e
s -> c x e
x -> fx
x -> g

a) If you had to write a parser for this grammar, would it be better to use a pure top-down or a pure bottom up approach? Why?

b) Trace the parser of your choice operating on the input *bffge*.

..2

14 a) Specify the roles for each NP in the following sentences. Give a plausible logical form for each sentence. 5

We returned the ring to the store.
We returned to he party.
The owner received a ticket.

b) How do you construct a simple grammar and lexicon with semantic interpretation? Explain with an example. 5

15 a) Explain about probabilistic language processing. 6

b) Write Viterbi Algorithm. 4

16 a) Write the lexical rules for common suffixes on verbs and nouns used for designing lexicon. 5

b) Describe different levels of language analysis. 5

17 Write short notes on the following : 10

a) Part-of-speech Tagging
b) Parsing with Features

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Code No. 186 / O

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II-Semester (Old) Examination, December 2017

Subject : Data Warehousing and Data Mining (Elective-I)

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 steps involved in data mining process? 3
2 Why data preprocessing is an important issue for both data mining and data ware housing? 3
3 List out various types of schemas based in warehouse. 2
4 Define concept of hierarchies. 2
5 Define support and confidence with example. 2
6 Describe principal of clustering. 2
7 Define gain ratio. 2
8 How is descriptive and predictive data mining? 3
9 List any four data mining applications. 3
10 What are the goals of time series analysis? 3

PART – B (50 Marks)

11 a) Describe different preprocessing steps in data mining. 5
b) Explain various major issues in data mining. 5

12 a) Explain various OLAP operations with example. 5
b) Discuss about Apriori algorithm with suitable example. 5

13 a) How do you choose best split while constructing a decision tree? 4
b) Explain various attribute selection measure in classification. 6

14 What is hierarchical clustering with an example dendrogram representation for hierarchical clustering of data objects? 10

15 a) Explain briefly text mining. 5
b) What is meant by spatial database? Mention its features. 5

16 a) Summarise the role of data mining in web. 5
b) Write short note on mining multimedia database. 5

17 Write short notes on :
a) Outlier Analysis 5
b) Warehouse schemas 5

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B.E. 3/4 (IT) II-Semester (Old) Examination, December 2017

Subject : Computer Graphics (Elective-I)

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 Persistence.	2
2	What is meant by Affine Transformations?	2
3	List the major elements of graphics systems.	2
4	Specify the types of input modes.	3
5	Briefly explain display list.	3
6	Give the transformation matrix of viewing transformation.	3
7	Define Aliasing.	2
8	State the parametric continuity conditions.	3
9	What are BSP trees?	2
10	What is global illumination?	3

PART – B (50 Marks)

11	a)	What are the applications of computer graphics?	4
	b)	Explain in detail synthetic camera model.	6
12	a)	What are input functions? Write the steps for various interactive picture construction techniques.	6
	b)	Explain about frames in open GL.	4
13	a)	Prove that scaling transformations are commute.	4
	b)	Derive the matrix for parallel projection.	6
14	a)	Explain phong lighting model.	4
	b)	Explain Bresenham line generating algorithm for all quadrants.	6
15	a)	Write about B-spline curves and surfaces. Explain in detail about types and properties of B-splines.	5
	b)	Discuss about structures and modeling.	5
16	a)	Write and explain an algorithm for hidden surface removal.	5
	b)	Explain any one algorithm for clipping a polygon.	5
17	Write short notes on :		
	a)	BSP-Tree methods	4
	b)	Polygon shading	3
	c)	Bezier curves	3

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B.E. 3/4 (IT) II-Semester (Old) Examination, December 2017

Subject : Software Testing (Elective-I)

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 testing? What are the objectives of testing?	2
2	What are long term goals of software testing?	2
3	Is effective testing hard? Justify.	2
4	Define a) Path b) Segment c) length of path	3
5	Compare product Vs Process metrics.	3
6	What is performance testing? When is it conducted?	3
7	What are various issues in OO testing?	3
8	Illustrate some guidelines of debugging.	3
9	What are the source code testing utilities in Unix?	2
10	What type of applications can be tested by JMETER?	2

PART – B (50 Marks)

11	a)	Explain life cycle of a Bug. How the bugs are classified?	5
	b)	What is V-diagram? What are its benefits? What is the need for verification and validation?	5
12		What is white box testing? Explain static testing. Explain unit/code functional testing strategy for structural testing.	10
13	a)	Explain different integration testing methods.	5
	b)	Write short notes on efficient test suit management.	5
14	a)	What is role of invariants in class testing? Discuss with example.	5
	b)	What are the quality aspects of web testing to be considered?	5
15	a)	How to test an application using win runner?	5
	b)	Discuss various software metrics.	5
16	a)	Describe the architecture and use of silk test.	5
	b)	Compare alpha and beta testing.	5
17	Explain :		
	a)	Regression testing	5
	b)	State based testing strategy	5

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B.E. 3/4 (IT) II-Semester (Old) Examination, December 2017

Subject : Digital Instrumentation and Control (Elective-I)

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 sensitivity with respect to process control.	2
2	Draw the characteristics of an SCR.	2
3	Give the basic principle behind RTD.	2
4	What are the objectives of a control system?	3
5	List 5 analog signal conditioning circuits using OP amps.	3
6	Define critical frequency with respect to filters.	2
7	A 10 bit DAC uses a 10 v reference. Determine the resolution.	3
8	What is the function of an actuator?	3
9	List 2 real time application of an optical sensor.	2
10	List the composite controller modes.	3

PART – B (50 Marks)

11	a)	Explain the use of driver and bridge circuits as signal conditioning circuit.	5
	b)	Explain the use of bridge circuits for converting resistance to voltage. List the sensors used in bridge circuits.	5
12	a)	Explain the principle of operation of 3 analog signal conditioning circuits for signal-level and basis changes, linearization, filtering and impedance matching. Give suitable examples wherever possible.	5
	b)	Explain the operation of an LVDT.	5
13	a)	What is sample and hold circuit?	5
	b)	Explain the operation of an dual slope ADC.	5
14		Explain the constructional details, characteristics of RTD, thermistor, thermocouples. How the signal conditioning circuits are selected for each application?	3+3+4
15		With a neat diagram explain the function and use of strain guages. Derive the impression for a guage factor. What are its applications?	4+3+3
16	a)	Explain the operation of 2-position control with an example.	5
	b)	Discuss different design considerations in analog controllers.	5
17		Explain the implementation details of PID controller made. What is tuning?	8+2

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