ASEA3/19

Booklet Serial No. :

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Examination : ASSISTANT SYSTEM
ENGINEER/ASSISTANT
SYSTEM ANALYST

Subject : PAPER – III
(CS, ECE, EEE AND IT)
(DESCRIPTIVE TYPE)

Date of Examination : 07.04.2019 AN

Register No. :

Signature of the candidate with date.

Certificate

I have issued this booklet to this candidate after verifying his / her Register No., Photo and Signature in the hall ticket.

Signature of the Invigilator with date.

Certificate

(To be signed after the completion of the exam.)

I have struck out all the unanswered blank spaces in the question-cum-answer booklet by using pen of the same colour ink which I have used for writing the answers.

Signature of the candidate with date.

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PAPER – III

CS, ECE, EEE AND IT

(Degree Standard)

Duration : 2 Hours   Total Marks : 150

<u>(This question-cum answer booklet consists of 56 pages)</u>

<u>Instructions</u>

<u>(Candidates shall comply with the following instructions)</u>

1. There is no reservation of marks for neatness of execution and correctness of spelling in respect of this examination.

2. Candidates shall first ensure that this question-cum-answer booklet contains 56 pages. In case, if any defect is found in this booklet, they can request for replacement from the invigilator immediately.

3. Space has been provided to write the answer for each question. Candidates have to answer the questions only in the space provided for that question. Candidates should not write anything outside the box provided.

4. Candidates should write their register number only in the space provided for the same. If they violate the above instruction, their answer book will be invalidated, as per Para 22 of Commission's, **'Instructions to Applicants'**.

5. Candidates should not tear off any leaves from this question-cum-answer booklet.

6. Candidates should answer as many number of questions as instructed in the question paper in each section. If more than the required number of questions are answered, the answers written at the end of each section will not be taken into account.

7. Candidates should not Write their name, register number while answering letter type questions. Putting signature in their name is also not permitted. To answer such questions, the name & address given in the questions alone should be used.

   If no name is given in the questions, they should write the general names like ABC or XYZ or XXX in 'From' and 'To' addresses.

PAPER – III
SECTION — A
(Brief Answer Type)

Note : i) Answer **not exceeding 100 words**.
　　　 ii) Each question carries **five marks**.
　　　 iii) Answer any **ten** questions only, out of **sixteen** questions.

$(10 \times 5 = 50)$

Q.No. 1	Derive the frequency of oscillation and the condition for oscillation for Wien bridge oscillator.
ANSWER	

Q.No. 2	Discuss on priority queue with suitable examples.

ANSWER

Q.No. 3	Convert the following function into canonical form $Y = AB + AC + AD + BCD$

ANSWER

| Q.No. 4 | If X is a Poisson random variable such that $P(X=1)=\dfrac{3}{10}$, $P(X=2)=\dfrac{1}{5}$. Find $P(X=0)$ and $P(X=3)$. |

ANSWER

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Q.No. 5	What are the three main components of a Linux system?

ANSWER

Q.No. 6	Specify the functions of Database Administrator.

ANSWER

Q.No. 7	List down the procedure to implement Binary search.

ANSWER

Q.No. 8	What is a virtual function and explain pure virtual functions?

ANSWER

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Q.No. 9	Three processes, their execution times and their periods are given below.

Process	Period	Execution time
P1	1.0×10^{-3}	1.0×10^{-4}
P2	1.0×10^{-3}	2.0×10^{-4}
P3	5.0×10^{-3}	3.0×10^{-4}

If P1 and P2 are each executed five times while P3 is executed once in one hyper period, Determine the utilization over the hyper period.

ANSWER

Q.No. 10	Write short notes types of listeners in Java.

ANSWER

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Q.No. 11	Explain about different types virtualization of cloud computing.

ANSWER

Q.No. 12	Describe the steps involved in RSA public-key cryptography.

ANSWER

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Q.No. 13	Explain Bayesian Belief network with an example.

ANSWER

Q.No. 14	Explain about Remote procedure call.

ANSWER

| Q.No. 15 | What are the qualities that should be possessed by a Team Leader? |

ANSWER

Q.No. 16	Compare traditional Business Intelligence (BI) with Big data.

ANSWER

SECTION — B

(Detailed Answer Type)

Q.No. 17	Describe different types of biasing and derive an expression for its stability factor.
ANSWER	

Q.No. 18	Illustrate the working of merge sort algorithm on a sample data set.

ANSWER

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Q.No. 19	Design a Binary-to-Gray code converter and implement using logic gates.
ANSWER	

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Q.No. 20	The joint PMF of random variables X and Y are given in the following matrix.

$P_{X,Y}(x, y)$	$y = 0$	$y = 1$	$y = 2$
$x = 0$	0.01	0	0
$x = 1$	0.09	0.09	0
$x = 2$	0	0	0.81

Find the following :

(i) $E(X)$ and var (X)

(ii) $E(Y)$ and var (Y)

(iii)   Correlation $r_{X,Y} = E(XY)$

(iv)   Covariance, cov (X, Y)

(v)   Correlation coefficient $\rho_{X,Y}$

ANSWER

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Q.No. 21	Define segmentation. Explain how logical address is mapped to physical address in a segmentation system.

ANSWER

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Q.No. 22	Narrate the different phases in processing a query.

ANSWER

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Q.No. 23	Explain about the declaration of a pointer to a function and the method of initialising the function pointer.

ANSWER

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Q.No. 24	Explain about sequence diagram in detail.

ANSWER

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Q.No. 25	Design an elevator controller using the principles of distributed system design.

ANSWER

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Q.No. 26	Write an overview about methods defined by Applet.

ANSWER

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Q.No. 27	Discuss about advantages of cloud storage.

ANSWER

Q.No. 28	Describe the process of WEP (Wired Equivalent Privacy) shared key authentication.

ANSWER

[Turn over

Q.No. 29	Explain support vector machine training and its principle.

ANSWER

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Q.No. 30	Explain the functions of various layers in the OSI model.

ANSWER

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Q.No. 31	Explain the basic software design principles.

ANSWER

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Q.No. 32	Explain the types of NOSQL databases.

ANSWER

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