Total No. of Questions : 6]

SEAT No. : ____

P3954

[Total No. of Pages : 2

[5462]-678

M.E. (Computer Engineering)
RESEARCH METHODOLOGY
(2017 Pattern) (Semester-I) (510101)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat diagrams where necessary.***

Q1) a) Explain the meaning of research. What are objectives and outcomes of research? With an example of research work, state the two significant objectives and outcomes. **[9]**

OR

b) What is need of code of ethics in research? State code of ethics for Employer, General Public and nation. **[9]**

Q2) a) Explain the purpose of literature survey. Explain with example the purpose and use of three different literature sources. **[8]**

OR

b) What is a research plan? What is use and relevance of Numerical Modeling, theoretical derivation & calculations and curve marching? **[8]**

Q3) a) Explain need for statistical analysis. With example state the one dimensional and two dimensional measures used in research. **[8]**

OR

b) State the use of following tools: **[8]**

i) PSPP

ii) SOFA

iii) AQUAD

iv) CAT

OR

P.T.O.

Q4) a) State the importance of optimization in Engineering Research. What is gradient optimization? Explain with example. **[9]**

OR

b) What are advantages and limitations of Simplex method for optimization? Explain with example the terms Cost function and constraints with respect to simplex method. **[9]**

Q5) a) When to use surveys in research? Discuss the ergonomics and human factors to be taken care in surveys with examples. **[8]**

OR

b) Discuss the guidelines for conducting surveys. comment on survey delivery, respondents selection and timelines. **[8]**

Q6) a) What are methods to report research findings? What are guidelines for ensuring the Quality of thesis? **[8]**

OR

b) State the guidelines for ensuring the Quality of Research paper. What are expectations for research presentation? **[8]**

Total No. of Questions : 7]

SEAT No. :

P3955

[Total No. of Pages : 1

[5462] - 679
M.E. (Computer Engineering)
Bio-Inspired Optimization Algorithms
(2017 Course) (Sem - I) (510102)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Q.No.7 is compulsory, solve any 5 from Q.No 1 to Q.No.6***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is natural computing? **[1]**

b) Write simulated annealing algorithm. **[4]**

c) What is positive feedback? List examples of positive feedback. **[3]**

Q2) a) Discuss selection and mutation of Evolutionary Programming **[4]**

b) Discuss selection and crossover of Evolutionary Strategies. **[4]**

Q3) a) Interpret the biological terminology into Ant colony Optimization and Ant Clustering Algorithm. **[4]**

b) Write Ant clustering algorithm. **[4]**

Q4) a) Write pseudocode of flower pollination algorithm and discuss idealized rules of flower pollination algorithm. **[4]**

b) Discuss self tuning framework and self tuning of firefly algorithm **[4]**

Q5) a) Interpret the immunological terminology into the computational domain of AIS. **[4]**

b) Illustrate procedure to generate antibodies from gene libraries. **[4]**

Q6) a) Discuss architecture of Framstick. **[4]**

b) Illustrate boid flocking. **[4]**

Q7) a) What is artificial life? What are the goals of artificial life. **[4]**

b) Discuss ant system for Travelling salesman problem. **[6]**

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Total No. of Questions : 12]

SEAT No. :

P3956

[Total No. of Pages : 2

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M.E. (Computer Engineering)

SOFTWARE DEVELOPMENT AND VERSION CONTROL

(2017 Course) (Semester - I) (510103)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) What are the limitations of linear development process? Explain the incremental and reactive software development process. **[9]**

OR

Q2) Explain in detail quality attributes of the design product. What are the techniques used for assessing the design quality? **[9]**

Q3) Describe the components of the data centered software architecture. What are the benefits and limitations of data centered architectures? **[8]**

OR

Q4) What are the various distributed architecture styles? Explain them with suitables examples. **[8]**

Q5) Explain in detail the architecture reconstruction process. **[8]**

OR

Q6) Explain the following terms. **[8]**

a) Module views

b) Component - and - connector views.

P.T.O.

Q7) a) Explain the principles of source code management. **[4]**

b) Write short note on: Improving quality of processes by system virtualization. **[4]**

OR

Q8) a) Explain the configuration management framework. **[4]**

b) Write short note on: Environment configuration control. **[4]**

Q9) Explain version control best practices on Git for management of files. **[8]**

OR

Q10) What are the different types of version control systems? Explain them in detail. **[8]**

Q11) Explain the setup of any version control tool with respect to. **[9]**

a) basic configuration
b) commits
c) branching

OR

Q12) Compare the features of the following version control tools. **[9]**

a) GIT
b) GitHub
c) CVS

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Total No. of Questions : 12]

SEAT No. :

P3957 **[5462] - 681** [Total No. of Pages :2

M.E. (Computer Engineering)

EMBEDDED AND REAL TIME OPERATING SYSTEM

(2017 Pattern) (Semester-I) (510104)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Attempt Q.No1 or Q.No2, Q.No3 or Q.No4, QNo.5 or Q.No.6, Q.No.7 or Q.No.8, Q.No9 or Q.No.10, Q.No.11 or Q.No.12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) Explain with diagram different characteristics of embedded systems. **[8]**

OR

Q2) Explain the need of watchdog timer and reset after the watched time. **[8]**

Q3) Describe build process for embedding software. **[8]**

OR

Q4) Explain embedded system design technologies. **[8]**

Q5) Describe and compare RS232C and SDIO Devices. **[9]**

OR

Q6) Explain types of serial communication with examples. **[9]**

Q7) How precedence constraint decides in real time tasks? Explain. **[8]**

OR

Q8) What are the function parameters and resource of real time process? Explain in brief. **[8]**

P.T.O.

Q9) Explain shared data problem while handling interrupts in detail. **[8]**

OR

Q10) What are the advantage and disadvantage of disabling interrupts during the running of a critical section of a process? Explain. **[8]**

Q11) Describe the features of QNX Neutrino. **[9]**

OR

Q12) Explain the process for developing embedded software. **[9]**

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