MCA/SEM I/(CBSGS) Choice Base / MAY 2018

Object Oriented Programming

Q.P. Code :02553

[Time: Three Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B: 1. **Question.No.1** is Compulsory.
2. Attempt any **three** from reaming **five** questions.

Q.1 a) Explain ambiguity in multiple inheritance with suitable program. **10**

b) Write a C++ program to create a class with two member variables and member functions. Add constructors to demonstrate call by value and call by reference. Create an array of objects and call member functions on each object. **10**

Q.2 a) Explain use of try, catch and throw keyword with a suitable example. **10**

b) What are rules for use of static? Write a program to demonstrate use of static keyword. **10**

Q.3 a) What is used of friend function? With suitable program demonstrate friend as a bridge to access private variables of two classes. **10**

b) Write a program to overload >> and << operator. **10**

Q.4 a) Explain use of function template and class template with suitable program. **10**

b) What are pitfalls of operator overloading. **10**

Q.5 a) Write a steps to demonstrate the database connectivity to mysql database. **10**

b) What is polymorphism? Write a program to demonstrate how it is achieved at run time. **10**

Q.6 a) Differentiate between **10**
1) Constructors and destructor

2) New and delete

b) Write a short note on **10**
1) STL

2) Namespaces.

MCA | sem-I (choice based) | Software Engg & project Mgr

Q. P. Code: 36051

M-18

Time: 3 Hours **Total Marks: 80M**

N.B. : 1) Question No.1 is **compulsory.**
2) Attempt any **Three** from the remaining **five** questions.
3) Figures to the right indicate full marks.

Q1. (a) Write an SRS for an Attendance management system **[10]**
(b) A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project **[10]**

Q2. (a) Explain three "R" in software engineering and with project management framework **[10]**
(b) Explain RAD and Agile model in software engineering **[10]**

Q3. (a) Explain different requirement elicitation techniques **[10]**
(b) Explain feasibility study and its types **[10]**

Q4. (a) What is Business case? Explain with an example **[10]**
(b) Discuss various types of outsourcing relationships **[10]**

Q5. (a) Explain the process of acquiring the project team **[10]**
(b) Explain the SEI Capability Maturity Model **[10]**

Q6. Short Note **(any 4 out of 5)** **[20]**
(a) Degree of Rigor
(b) Risk management
(c) McCall's Quality model
(d) Fishbone diagram
(e) Change management

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MCA / SEM I (Choice Base) / COA / MAY 2018

Q. P. Code : 03674

(3 Hours) Total Marks : 80

N.B. : 1) Question No.1 is **compulsory.**
2) Attempt any **three** the remaining five questions.
3) Answer to sub-questions should be grouped together.

1. (a) What is flipflop? Explain working of JK flipflop **(05)**
   (b) Simplify the following expression using K-maps **(05)**
   $F(A,B,C,D) = \sum(1,7,10,13,14)+d(0,5,8,15)$
   (c) Compare SRAM and DRAM **(05)**
   (d) Explain principle and structure of cache memory **(05)**

2. (a) Explain bus interconnection structures. Explain bus arbitration? **(10)**
   (b) Explain different addressing mode **(10)**

3. (a) Explain Programmed I/o, Interrupt I/O and DMA **(10)**
   (b) Explain six stage instruction pipelining with suitable diagram **(10)**

4. (a) Explain superscalar organization and discuss the various superscalar instruction Issue Policies **(10)**
   (b) What is RAID? Explain any three levels of RAID **(10)**

5. (a) Explain the different organization of multicore processors **(10)**
   (b) List and explain the different addressing modes **(10)**

6. Write Short note on (**any four**) **(20)**
   (a) Register Organization
   (b) 1:4 Demultiplexer
   (c) Flynn's classification
   (d) Micro programmed and Hard wired control
   (e) RISC and CISC architectures

MCA|Choice Based|SEM I|ITM|MAY 18

Q.P. Code: 38605

(3 Hours) Total Marks 80

Note:

1) Question No. 1 is compulsory.

2) Attempt any three questions from Q.2 to Q.6

Q.1 Write a Short Note on Following(any 4) **20**

1. Current Trends in IT
2. Outsourcing
3. Technology Acquisition
4. M- Commerce
5. Business in Digital Economy

Q.2 a) Explain a framework for the strategic use of Information Technology. **10**

b) Explain stepwise process to manage IT internationally. **10**

Q.3 a) Explain Roles of IT in E-commerce and M-commerce? **10**

b) Explain Need to acquire technology? **10**

Q.4 a) Define Data, Information and knowledge with an example. **10**

b) Explain the elements of IT Infrastructure with an example. **10**

Q.5 a) What is Value Chain as per Michael Porter? **10**

b) List the drawbacks of workplace monitoring. **10**

Q.6 a) Explain E-governance with suitable example? **10**

b) How should managers introduce organizational changes that employ technology? **10**

MCA/ Sem-I [CHOICE BASED] / Statistics & Probability /

May-2018 **Q.P. CODE: 38183**

Duration: 3 Hrs **Total Marks: 80**

N.B: (1) Question 1 is **compulsory.**

(2) Attempt any **Three questions** out of remaining **Five questions.**

(3) Assume any **additional data,** if required , but **justify the same.**

(4) **Figures** to the **right** indicate **full marks** for that question.

(5) Use of **Scientific calculator** is **allowed.**

Q.1) a) The Mean & standard deviation of 300 items are found to be 50 and 20 respectively. It is found that at the time of the calculation two items were wrongly taken as 7 and 52 instead of 15 and 26,Find the correct mean and Standard deviation. **[5]**

b) The probability that a person stopping at a petrol pump will ask for petrol is 0.8, will ask for water is 0.7 and for both 0.65.Find the probability that a person will ask for i)either petrol or water ii)neither petrol nor water iii)only petrol **[5]**

c) Calculate the model marks of the following **[5]**

Marks	10-30	30-50	50-70	70-90	90-110	110-130
No. of students	4	10	14	12	8	6

d) Find the missing frequency of the following **[5]**
If mode= 136 cms

Class interval	120-125	125-130	130-135	135-140	140-145	145-150
frequency	7	10	18	?	12	7

Q.2)a) The Joint probability density function of the two dimensional random variable (X,Y) is given by

$f(x,y)=8/9xy, \quad 1\le x\le y\le 2$

$=0, \quad$ otherwise

a)Find the marginal densities of X and Y.

b)Find the conditional density function of Y given X=x.and conditional density function of X given Y=y. **[10]**

b) Compute the inter quartile, semi-inter quartile range and coefficient of quartile deviation from the following data. **[10]**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No.of students	65	45	120	25	90	80	120	60

Q.3) a) The age of husband and wives in seven couples were as follows: **[10]**

Age of husband	45	44	50	53	66	30	48
Age of wife	42	40	41	42	56	30	43

Find the Karl Pearson's coefficient of correlation between age of husband and age of wife.

b) i) A Man is equally likely to choose any one of the routes A,B,C from his house to railway station this choice of route A,B,C from his house to railway station and this choice of routes is not affected by whether. If whether is dry the probability of missing train by routes A,B,C are
respectively 1/20,1/10,1/5.He sets out on dry day and missed the train.
What is the probability that train chosen was C? **[5]**

ii) The probability mass function of a random variable x is zero
Expect at the points x=0,1,2 At these points it has the values
$P(0)=3c^2$,$P(1)=4c-10c^2$ and $P(2)=5c-1$,for some $c>0$
i)Determine the value of c ii) Compute the $P(X<2)$ **[5]**

Q.4)a) Calculate Bowley's coefficient of skewness for the following distribution. **[10]**

Class	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	7	9	16	22	14	12	3

b) Weights in kg of 10 students are given below
38,40,45,53,47,43,55,48,52,49
Can we say that the variance of the normal distribution from which the above sample is drawn is 20 kg?
(Given: The value of χ^2 at 5% level of significance for 9 degree of freedom is 16.99) **[10]**

Q.5)a) i) What is the probability that 4 A's come consecutively in arrangements of the letters in the word 'MAHARASHTRA' ? **[5]**

ii) Consider an experiment "three coins are tossed". Let the random variable X='number of heads' **[5]**

a) Find the values of X
b) Find the probability of X
c) Find the probability mass function d) Find the cumulative distribution function

b) Find the Spearman's rank correlation of the following data **[10]**

Marks in D.M	64	50	44	42	56	65	59
Marks in C.O.A	80	60	37	51	30	75	44

Q.6)a) i) Find the probability of constructing two-digit even number using the digits 1,2,3,4,5,6,7,8,9.

If 1) Repetition of digits is allowed 2) Repetition of digits is not allowed. **[5]**

ii) Find the coefficient of variation for the following distribution. **[5]**

Age in years	20-25	25-30	30-35	35-40	40-45	45-50
No of policyholders	2	7	5	2	4	5

b) i) Ram plays 12 game of chess with computer and he wins 6 games while computer wins 4 games and 2 games end in a tie. Ram again decides to play 3 games more.

Find the probability that-

i)Ram wins all three games.

ii)Two games end in a tie. **[5]**

ii) Calculate the mean, median & mode for the following **[5]**

i)16,19,27,10,5,7,12,15

ii)4,1,3,2,3,4,3,3,1,2,5,2,0,1,6

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