

**GURU NANAK INSTITUTE OF TECHNOLOGY**  
**An Autonomous Institute under MAKAUT**  
**2020-2021**  
**SOFTWARE ENGINEERING (Backlog)**  
**IT502**

**TIME ALLOTTED: 3 Hours**

**FULL MARKS: 70**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable*

**GROUP – A**

**(Multiple Choice Type Questions)**

**1. Answer any *ten* from the following, choosing the correct alternative of each question: 10×1=10**

		<b>Marks</b>	<b>CO No</b>
(i)	Identify the disadvantage of Spiral Model. a) Doesn't work well for smaller projects b) High amount of risk analysis c) Strong approval and documentation control d) Additional Functionality can be added at a later date	01	CO2
(ii)	Which of the following is not an advantages of software reuse? a) lower costs b) faster software development c) high effectiveness d) lower risks	01	CO2
(iii)	Efficiency in a software product does not include _____ a) responsiveness b) licensing c) memory utilization d) processing time	01	CO2
(iv)	What is the major advantage of using Incremental Model? a) Customer can respond to each increment b) Easier to test and debug c) It is used when there is a need to get a product to the market early d) Easier to test and debug & It is used when there is a need to get a product to the market early	01	CO2
(v)	Identify the disadvantage of Spiral Model. a) Doesn't work well for smaller projects b) High amount of risk analysis c) Strong approval and documentation control d) Additional Functionality can be added at a later date	01	CO2
(vi)	Which of the following is a black box testing strategy? a) All Statements Coverage b) Control Structure Coverage c) Cause-Effect Graphs d) All Paths Coverage	01	CO3
(vii)	Which of the following is/are White box technique? a) Statement Testing b) Decision Testing c) Condition Coverage d) All of the mentioned	01	CO3

## B. TECH/ IT//ODD/SEM-V/IT502/R16/2020-2021

(viii)	The context diagram is also known as a) Level-0 DFD b) Level-1 DFD c) Level-2 DFD d) All of the mentioned	01	CO1
(ix)	SDLC stands for a) Software Development Life Cycle b) System Development Life cycle c) Software Design Life Cycle d) System Design Life Cycle	01	CO1
(x)	Which of the following property does not correspond to a good Software Requirements Specification (SRS)? a) Verifiable b) Ambiguous c) Complete d) Traceable	01	CO1
(xi)	To achieve a good design, modules should have a) weak cohesion and low coupling b) weak cohesion and high coupling c) strong cohesion and low coupling d) strong cohesion and high coupling	01	CO4
(xii)	Quality Management in software engineering is also known as a) SQA b) SQM c) SQI d) SQA and SQM	01	CO3

### GROUP – B\*

#### (Short Answer Type Questions)

Answer any *three* from the following:  $3 \times 5 = 15$

		Mark s	CO No
2.	(a) Design context diagram and Level 1 diagram for the following supermarket problem:  A supermarket needs to develop the following software to encourage regular customers. For this, the customer needs to supply his/her residence address, telephone number, and the driving license number. Each customer who registers for this scheme is assigned a unique customer number (CN) by the computer. A customer can present his CN to the check out staff when he makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket intends to award surprise gifts to 10 customers who make the highest total purchase over the year. Also, it intends to award a 22 caret gold coin to every customer whose purchase exceeded Rs.10,000. The entries against the CN are the reset on the day of every year after the prize winners' lists are generated.	5	CO3
3.	(a) What is Software Reliability?	2	CO1

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- (b) What are the different matrices involved in Software Reliability? 3 CO2
4. What are the different type of Testing? 5 CO2
5. Suppose a project was estimated to be 400 KLOC. Calculate the effort and development time for the suitable model. 5 CO3
6. **World's Trend - 1000 International Lane Cornwall, CT 06050** 5 CO3

World's Trend is a mail order supplier of high-quality, fashionable clothing. Customers place orders by telephone, by mailing an order form included with each catalog, or via the Web site.

**Summary of Business Activities**

- a) When customer orders come in, the item master and the customer master files are both updated. If an item is out of stock, the inventory control department is notified.
- b) If the order is from a new customer, a new record is created in the customer master file.
- c) Picking slips are produced for the customer order and sent to the warehouse.
- d) A shipping statement is prepared.
- e) The process of shipping a customer order involves getting the goods from the warehouse and matching up the customer shipping statement, getting the correct customer address, and shipping it all to the customer.
- f) The customer statement is generated and a billing statement is sent to a customer once a month.
- g) An accounts receivable report is sent to the accounting department.

**Design Level0 & Level1 DFD**

**GROUP – C\***

**(Long Answer Type Questions)**

Answer any *three* from the following: **3×15=45**

- |    |     |   | <b>Mark<br/>s</b> | <b>CO<br/>No</b> |
|----|-----|---|-------------------|------------------|
| 7. | (a) | Differentiate between 'code walkthrough' and 'code inspection'.             | 2                 | CO3              |
|    | (b) | What are the difference between regression testing and smoke testing?       | 3                 | CO4              |
|    | (c) | Design a structure chart for payroll management system.                     | 4                 | CO1              |
|    | (d) | Define decision table. Design Decision Table for Library management system. | 6                 | CO1              |
| 8. | (a) | Design Gantt Chart  | 7                 | CO3              |

Task	Prec Tasks	Description	Time(hrs)
A	none	decide on date for party	1
B	A	book bouncy castle	1
C	A	send invitations	4
D	C	receive replies	7
E	D	buy toys and balloons	1
F	D	buy food	3
G	E	blow up balloons	2
H	F	make food	1
I	H, G	decorate	1
J	B	get bouncy castle	1
K	J, I	have party	1
L	K	clean up	4
M	K	send back bouncy castle	1
N	L	send thank you letters	3
O	M	donate unwanted gifts	3

- (b) Design PERT chart: (i) Draw the PERT network for the project. 8 CO3  
(ii) Prepare the activity schedule for the project. (iii) Determine

the critical path.

Activity	Activity Description	Immediate Predecessors	Estimated Duration
A	Excavate	—	2 weeks
B	Lay the foundation	A	4 weeks
C	Put up the rough wall	B	10 weeks
D	Put up the roof	C	6 weeks
E	Install the exterior plumbing	C	4 weeks
F	Install the interior plumbing	E	5 weeks
G	Put up the exterior siding	D	7 weeks
H	Do the exterior painting	E, G	9 weeks
I	Do the electrical work	C	7 weeks
J	Put up the wallboard	F, I	8 weeks
K	Install the flooring	J	4 weeks
L	Do the interior painting	J	5 weeks
M	Install the exterior fixtures	H	2 weeks
N	Install the interior fixtures	K, L	6 weeks

9. (a) What are the differences between black box testing and white box testing? 5 CO3
- (b) Discuss the roles of stubs and drivers in integration testing. 5 CO4
- (c) Define quality assurance and quality control. 5 CO3
10. (a) What is SDLC? Explain all the phases? 5 CO3
- (b) Write down the disadvantages of classical waterfall model 5 CO1
- (c) Define Cyclomatic Complexity with proper example 5 CO4
11. Write short notes on any *three* of the following: 15 CO1, CO2
- (a) Waterfall Model
- (b) Feasibility analysis
- (c) Verification and Validation
- (d) Case tools and its applications
- (e) Alpha and Beta Testing