Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT)
Gandhinagar, Gujarat.

BTech (ICT, CS) Sem VII / MTech (ICT) Sem III / MSc (IT, DS) Sem III Final Examination
IT414: Software Project Management

Date: Dec 10, 2022 **Duration: 3 hours** **Max. Marks: 100**

Instructions:

- All questions are compulsory.
- Figures to the right indicate full marks.
- Do not insist or make requests about talking or interacting with your course instructors during the examination. No such requests would be considered.

Q.1. Answer the following questions briefly. (10 x 2) = 20

a) What is the criticality of padded estimates and self-fulfilling prophecy in the context of software projects? How could it be addressed?
b) What do you understand by project transparency? How it could be achieved to prevent project failures?
c) How could we make sure that our software projects succeed?
d) Define – Positive risk, Negative risk. List response strategies for both risk types.
e) What is project inspection? How are typical software project inspection meetings run?
f) What is software process improvement? How it could be realized?
g) What is scope creep in projects? What are the underlying causes for it? How it could be avoided?
h) Define – Risk Register, Risk Probability/Impact Matrix.
i) Differentiate between slack and overhead in software projects for schedule management.
j) List important components for good estimation in software projects.

Q.2. Answer the following questions in detail. (5 x 3) = 15

a) List key problems with software projects which make project management difficult.
b) What are the major reasons for software projects to fail? How it could be avoided?
c) Why change in IT / software organizations fails? How to make change succeed in software development organizations?
d) Narrate your conceptual understanding about desk checks and pair programming.
e) What should be kept in mind in managing outsourced software projects?

Q.3. Answer the following questions based-on our classroom case-study discussions. (5 x 3) = 15

a) What problems were targeted in the Fujitsu case study? What type of solutions were proposed?
b) Which challenges were identified in the Vodafone case study? What project management approach was suggested through the case-study?
c) What type of critical problems were faced by the e-books publishing start-up Global Greens Books Publishing? How did they address it?
d) What risks could you identify in the Global Greens Books Publishing case-study? Why are they a risk to the e-book start-up?

e) Summarise a Work Breakdown Structure (WBS) for an e-books project based-on your understanding from the Global Greens Books Publishing case-study.

Q.4. Visualize following concepts using suitable diagram(s) for each of the following. (5 x 5) = 25

a) All possible project task dependency types along with an example task dependency graph.
b) Flowchart for Wide-band Delphi estimation along with necessary graphs.
c) Performance metrics on Earned Value Management (EVM) along with different EV curves, and its comparison to PV and AC curves.
d) Activity diagram for creating project schedule in software projects.
e) Elements of Function Point (FP) analysis in typical software projects along with a flowchart for FP computation.

Q.5. Solve each of the following. (10+8+7) = 25

a) For the following software project tasks, compute critical path using necessary computations of ES and LS on the task dependency graph.

Task ID	Task Description	Dependency	Estimated Time
A	Requirements Gathering & Analysis	-	5 weeks
B	UI / UX Design and Customer Approval	A	6 weeks
C	Report Preparation & Generation	A	7 weeks
D	DB Design & 3NF Normalization	B, C	2 weeks
E	User Documentation (Manual & Videos)	D	6 weeks
F	Development and Unit Testing	D	5 weeks
G	Integration Testing	F	3 weeks
H	Deployment and Operationalization	E, H	1 week

b) For the following software project, calculate SV, CV, SPI, and CPI at the end of second month.

Month	1	2	3	4
Planned Value	INR 11.1 lacs	INR 6 lacs	INR 25 lacs	INR 8 lacs
Earned Value	INR 10 lacs	INR 7.5 lacs		
Actual Cost	INR 12.5 lacs	INR 5 lacs		

Give your conclusions about the project progress based on your computations.

c) Prepare a Gantt chart for the tasks listed in 5(a) above. Project progress at the point of status computation at the end of week 18 as per the information available with the project manager is summarised below.

i. Task A is fully complete while Task B is 80% complete.
ii. Task C is 90% complete while Task D is 30% complete.
iii. Tasks E and F are 50% complete.
iv. Tasks G and H are yet to start.

The project manager is interested to find out the project status at the end of 18 weeks. Using necessary computations on the Gantt chart find out which tasks have completed on time, ahead of time, delayed or behind schedule. What could you conclude about the project estimates and future progress of this project?

-x-x-x-