TYBSC (IT)

Paper / Subject Code: 53704 / Artificial Intelligence

(2½ Hours) [Total Marks: 75]

N. B.: (1) All questions are compulsory.
(2) Make suitable assumptions wherever necessary and state the assumptions made.
(3) Answers to the same question must be written together.
(4) Numbers to the right indicate marks.
(5) Draw neat labeled diagrams wherever necessary.
(6) Use of Non-programmable calculators is allowed.

1. Attempt *any three* of the following: **15**

a. Elaborate artificial intelligence with suitable example along with its applications.
b. Discuss the historical evolution of Artificial Intelligence.
c. State the relationship between agents and environment.
d. Explain the concept of Rationality.
e. Explain types of environments.
f. Explain reflex agents with state.

2. Attempt *any three* of the following: **15**

a. Write the procedure for tree search.
b. Explain the algorithm for breadth first search algorithm.
c. Give the outline of Uniform-cost search algorithm.
d. Explain A* algorithm for the shortest path.
e. Give the outline of Hill climbing algorithm.
f. Explain the working mechanism of genetic algorithm.

3. Attempt *any three* of the following: **15**

a. What is alpha-beta pruning? Explain the function of alpha beta pruning.
b. Give the outline of min-max algorithm.
c. Write a note on card games.
d. What is knowledge based agent? Explain its role and importance.
e. Write a note on Wumpus world problem.
f. Give the outline of resolution algorithm.

4. Attempt *any three* of the following: **15**

a What are predicates? Explain its syntax and semantics.
b What are Quantifiers? Explain the types with syntax and example.
c Convert the following into predicate form:
  i. Virat is software engineer.
  ii. All vehicles have wheels
  iii. Some-one speaks some language in this class.
  iv. Everybody loves somebody sometime.
  v. All software engineer develops software.
d Explain the process of knowledge engineering.
e What is unification? Explain the process of unification.
f Give the outline of simple forward chaining algorithm.

5. Attempt *any three* of the following: **15**

a. What is planning? Explain the need of planning.
b. Explain block world problem for the following start state and end state.
c. Write a note on planning graph.
d. What are events? Explain its importance.
e. Write a note on semantic network.
f. Write a note on Truth maintenance system.

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TYBSC(IT) Sem V

Paper / Subject Code: 53706 / Enterprise Java

(2½ Hours) **[Total Marks: 75**

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt *any three* of the following:** **15**

a. What is Java Enterprise Edition (Java EE)? Explain.
b. Write a note on Multi Tire EE application architecture.
c. List and explain the tasks that Servlet can do.
d. Explain the life cycle of servlet.
e. Write a servlet code to display Square and Square root of numbers between 25 and 365 in tabular form.
f. List and explain four types of JDBC drivers.

2. **Attempt *any three* of the following:** **15**

a. Explain Cookie class with its constructor and any five methods.
b. Write a servlet program to create a session and display the following:
i) Session ID ii) New or Old iii) Creation Time
c. Write a servlet program **GradeServlet.java** that accepts Grade through radio buttons from **index.html** page, if the string is "A", "B", "C" OR "D", the program should dispatch the direct to the **Success.html** page containing message ***"Congratulations !!!, You Passed SEM V exam"***, else display ***"Try Again"*** and load index.html page in current servlet. **(Make suitable assumptions, Only Write the Servlet Code)**
d. Explain the following w. r. t. working with files in Servlet.
i) @MultipartConfigure
ii) fileSizeThreshold
iii) location
iv) maxFileSize
v) maxRequestSize
e. Explain using a code snippet the onDataAvailable() and onAllDataRead() methods of ReadListener interface.
f. What is RequestDispatcher? Explain the two methods of RequestDispatcher.

3. **Attempt *any three* of the following:** **15**

a. Explain the reasons to use JSP.
b. What are directives? Explain page directive with any of its four attributes.
c. Develop a simple JSP application to accept values from html page and display on next page. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).
d. Explain the <jsp:useBean > tag with its attribute. Support your answer with suitable code snippet.
e. List the name of JSP implicit objects. Explain any Two in details.
f. What is wrong in using JSP scriptlet tag? How JSTL fixes JSP scriptlet shortcomings?

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4.	**Attempt *any three* of the following:**	**15**
a	Explain benefits of EJB.	
b	Write a note on different types of session beans.	
c	Explain life cycle of a message driven bean using suitable diagram.	
d	Write a stateless session bean code to represent BookInformation. (BookId integer, BookName String, Pages integer, Price double)	
e	What is an interceptor? How an interceptor is defined and how aroundInvoke () is added to it?	
f	What is Java Naming and Directory Interface? Explain.	
5.	**Attempt *any three* of the following:**	**15**
a.	What is Persistence? Explain.	
b.	Explain with suitable diagram architecture of Java Persistence API.	
c.	Write a JSP code to add guest feedback using JPA in GuestBook table in database. (Make suitable assumptions)	
d.	What is Hibernate? Explain Object Relational Mapping.	
e.	Explain the architecture of Hibernate with suitable diagram,	
f.	Write a JSP code to add visitor's feedback using Hibernate in FeedBack table in database. (Make suitable assumptions)	

(2½ Hours) [Total Marks: 75]

N. B.: (1) All questions are compulsory.
(2) Make suitable assumptions wherever necessary and state the assumptions made.
(3) Answers to the same question must be written together.
(4) Numbers to the right indicate marks.
(5) Draw neat labeled diagrams wherever necessary.
(6) Use of Non-programmable calculators is allowed.

1. Attempt *any three* of the following: 15

a. Define a term project and give the importance of Software Project Management
b. Explain the stages involved in project management life cycle in detail.
c. Write a note on Project portfolio management.
d. What is the importance of identifying the scope and objectives of a project?
e. How is resource allocation managed in an activity of programme management?
f. Write a note on risk evaluation and management.

2. Attempt *any three* of the following: 15

a. Explain different approaches used for fast delivery of a project.
b. What are the advantages and disadvantages of a Spiral model?
c. Discuss the common problems faced during effort estimation.
d. State and explain Capers Jones estimating rules.
e. Explain the top down approach associated with parametric models.
f. Write a note on COCOMO II model.

3. Attempt *any three* of the following: 15

a. What is the necessity of activity planning?
b. Explain network planning model and the concept of backward pass.
c. Define the term risk and discuss the ways to deal with them.
d. Describe Monte Carlo simulation.
e. Explain the nature of resources and their scheduling.
f. What are the factors considered while allocating tasks to the individuals?

4. Attempt *any three* of the following: 15

a Give the benefits of review in the process of project monitoring and control.
b Write a note on change control.
c Explain the advantages and disadvantages of fixed price contracts.
d Explain the stages in contract placement.
e Write a note on ethical and professional concerns as a member of any organization
f Explain Taylor's model of motivation.

5. Attempt *any three* of the following: 15

a. Describe a virtual team and the advantages of forming a virtual team.
b. Write a role of different types of people needed to form a balanced team.
c. Define the term quality. Explain McCall's quality model.
d. State and explain different levels of Capability Maturity Model (CMM).
e. Explain the metrics correlated with Software reliability.
f. Discuss the reasons for project closure.

TYBSC (IT)

T4SCIT Sem V 2019 - 20 (Regular)

Paper / Subject Code: 53702 / Internet of Things

(2½ Hours)

[Total Marks: 75]

N.B. (1) All questions are compulsory.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1.	**Attempt *any three* of the following:**	**15**
a.	Define and explain Ubiquitous Computing (ubicom),	
b.	List and explain the roles of people making IOT.	
c.	What is manufactured normalcy field? Explain.	
d.	"Data available through IOT device belongs to public or company which implement the IOT device". Discuss.	
e.	What is DNS? How does it work?	
f.	What are TCP n UDP ports? Explain with examples.	
2.	**Attempt *any three* of the following:**	**15**
a.	What is sketching? Explain its role in prototyping.	
b.	"Open source has a competitive advantage". Discuss	
c.	How can one tap into the community for promoting IoT devices? Explain.	
d.	With the help of an example explain the process of Scaling up the electronics.	
e.	Explain the following IoT devices built with Arduino:	
f.	i) The Good night lamp. ii) Botanicals iii) Baker treat	
3.	**Attempt *any three* of the following:**	**15**
a.	Explain the sketch iterate and explore process in prototyping.	
b.	Write a short note on laser cutters.	
c.	What is milling? Explain.	
d.	What are the legalities associated with scrapping ?	
e.	What is comet? Explain	
f.	Explain HTML5 web socket	
4.	**Attempt *any three* of the following:**	**15**
a	Explain different types of memory.	
b	With the help of examples, compare stack and heap.	
c	What are libraries? Explain with examples	
d	Define business model .Explain different factors in the definition.	
e	With the help of a diagram, explain business model canvas.	
f	What is venture capital? How can one exit?	
5.	**Attempt *any three* of the following:**	**15**
a.	Explain in details the process of designing the kits.	
b.	Write a short note on mass-producing the case and other fixtures.	
c.	Discuss the issues in scaling up the software for large scale IOT devices.	
d.	Discuss the advantage and disadvantages of technology.	
e.	"The internet destroys the state". discuss	
f.	What is environmental cost of Internet service for IOT device? What is the solution?	

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TYBSC(CT) TBSC (T·T) Sem V 2017

Paper / Subject Code: 53605 / Linux Administration

(2½ hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any two* of the following: **10**

a. Write the purpose of following directories of /
i. home ii. boot iii. bin iv. root v. etc
b. Write a short note on runlevel.
c. List duties of System Administrator. Explain any two.
d. Write the steps required to boot system.

2. Attempt *any two* of the following: **10**

a. Write the importance of cron files.
b. Explain the concept of DHCP.
c. What is subnetting? Explain with suitable example.
d. Write the purpose of exports file.
Consider the following sample /etc/exports file:

```
/usr/local      *.example.com(rw)
/usr/devtools   198.18.16.0/24(ro)
/home           195.15.0.0/255.255.255.0(rw)
/var/spool/mail 197.27.0.1(ro)
```

Write the meaning of these lines.

3. Attempt *any two* of the following: **10**

a. Write the steps to configure network time server.
b. Explain smbclient and smbmount commands of samba.
c. What is catching proxy server? Explain proxy server configuration in short.
d. Write the purpose of home section of samba configuration file.

4. Attempt *any two* of the following: **10**

a. List and explain different types of domain name servers.
b. Explain the zone file with suitable example.
c. Explain scp and sftp secure services.
d. List various less secure services. Write the purpose of any four.

5. Attempt *any two* of the following: **10**

a. Differentiate between IMAP4 and POP3.
b. Write the use of MUA and MTA components used in mail delivery process.
c. Write the purpose of ftpusers and user_list files of ftp.
d. List any five options of ftp configuration file. Also write the purpose of the same.

6. **Attempt *any two* of the following:** **10**

a. What is the use of <Directory> block in configuring apache server?
b. Explain the use of rpmquery command.
c. Explain the useradd command with suitable example.
d. What necessary changes are to be carried out in httpd.conf file to enable CGI?

7. **Attempt *any three* of the following:** **15**

a. Write a short note on RAID.
b. Explain the concept of NFS with suitable example.
c. List NTP utility programs. Write purpose of any four.
d. Explain the concept of domain with example.
e. List various configuration files of ftp. Also write the purpose of each.
f. What is the purpose of /etc/passwd file?

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TABSC(77)

TABSC 7 2019

Paper / Subject Code: 88701 / Quality Assurance

(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: **15**

a. Define the term quality and elaborate different views on quality.
b. Explain the lifecycle of quality improvements
c. What are the quality principles of Total Quality Management (TQM)?
d. Explain the structure of quality management system.
e. How the quality and productivity are related with each other?
f. Write a short note on continual improvement cycle.

2. Attempt *any three* of the following: **15**

a. Explain the lifecycle of software testing.
b. Write a note on requirement traceability matrix.
c. State and explain any 5 principles of software testing.
d. Explain the relationship between error, defect and failure with a proper example.
e. Discuss the challenges in software testing.
f. Describe the structure of a testing team.

3. Attempt *any three* of the following: **15**

a. Explain boundary value testing and its guidelines.
b. Write a note on improved equivalence class testing.
c. Describe the decision table testing technique in detail.
d. Write a note on DD path testing.
e. Explain the concept and significance of cause and effect graphing technique.
f. Compare weak robust and strong robust equivalence class testing.

4. Attempt *any three* of the following: **15**

a Explain different methods of verification.
b Explain the steps involved in management of verification and validation.
c Describe the benefits of review technique.
d List and explain how the formal review is carried out.
e Explain the VV model of testing.
f What are the roles and responsibilities of a reviewer

5. Attempt *any three* of the following: **15**

a. What is integration testing? Explain the Big bang approach.
b. What is the need of a Security Testing?
c. What is performance testing? List different types of performance testing.
d. Explain the concept of inter system testing and its Importance.
e. Explain the significance of Usability testing.
f. Explain Commercial off-the-shelf software testing.

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TYBSc(IT)

TYBSc (IT) Sem 2 2019

Paper / Subject Code: 88702 / Security in Computing

(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt *any three* of the following:** **15**

a. What are the importance of information protection? Explain with example.
b. Explain various components used to build a security program.
c. What are the three recognized variants of malicious mobile code? Explain.
d. Write a short note on Network-Layer Attack.
e. Explain the two most common approaches of security.
f. Explain the best practices for network defence.

2. **Attempt *any three* of the following:** **15**

a. Define authentication. Explain two parts of authentication.
b. Explain the authorization systems.
c. Explain public key Cryptography.
d. What are the three primary categories of storage infrastructure in modern storage security? Discuss.
e. Write a short note on integrity risks.
f. Explain Database-Level Security.

3. **Attempt *any three* of the following:** **15**

a. Explain the Cisco Hierarchical Internetworking model.
b. Explain network availability and security.
c. Write a short note on hubs and switches.
d. Explain the features of firewall.
e. Explain the five different types of wireless attacks.
f. What are the countermeasures against the possible abuse of wireless LAN?

4. **Attempt *any three* of the following:** **15**

a Explain intrusion Defense System types and detection models.
b Write a short note on Security Information and Event Management.
c What are components of Voice Over IP? Explain.
d Write a short note on Private Bank Exchange.
e Explain different classic security models.
f Write a short note on trustworthy computing.

5. **Attempt *any three* of the following:** **15**

a. Define virtual machine. How is hypervisor responsible for managing all guest OS installations on a VM server?
b. What is cloud computing? Explain the types of cloud services.
c. Explain the application security practices and decisions that appear in most secure development lifecycle.
d. Explain the reasons for remote administration security. What are advantages of web remote administration?
e. Explain the security considerations for choosing a secure site location.
f. Explain the different factors for securing the assets with physical security devices.

14BSC (IT) Sem 2

Paper / Subject Code: 88703 / Business Intellitgence

(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: **15**

a. What is business intelligence? Explain architecture of the business intelligence.
b. Explain different phases in development business intelligence system.
c. What is decision support system (DSS)? What are the factors that affect the degree of success of the DSS?
d. Explain classification of decisions according to their nature and scope.
e. Define system. Explain closed cycle and open cycle system with suitable example.
f. Describe different phases in the development of a decision support systems(DSS).

2. Attempt *any three* of the following: **15**

a. What are the phases in the development of mathematical models for decision making?
b. Explain the divisions of mathematical models according to their characteristics, probabilistic nature, temporal dimension.
c. What is data mining? List the real life applications of data mining.
d. Explain categorical and numerical attributes with proper example.
e. Differentiate between supervised and unsupervised learning.
f. Explain the following normalization techniques:
   (i) Decimal scaling
   (ii) Min-max

3. Attempt *any three* of the following: **15**

a. What are the criteria used to evaluate classification methods?
b. Explain top-down induction of decision tree. Examine the components of the top-down induction of decision trees procedure.
c. Write a short note on Naive Bayesian classifiers.
d. Write k-means algorithm for clustering.
e. Explain the 'Rosenblatt perceptron' form of neural network with diagram.
f. Write a short note on confusion matrix.

4. Attempt *any three* of the following: **15**

a. Write a short note on market basket analysis.
b. What is use of web mining methods? What are the different purposes of web mining?
c. Explain "tactical planning" optimization model for logistics planning.
d. Explain the Charnes–Cooper–Rhodes (CCR) model.
e. Write a short note on efficient frontier.
f. What is relational marketing? What are the data mining applications in the field of relational marketing?

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5. Attempt *any three* of the following: **15**

a. Define knowledge management. What are data, information and knowledge?
b. Describe the knowledge management system (KMS) cycle.
c. Describe how AI and intelligent agents support knowledge management. Relate XML to knowledge management and knowledge portals.
d. List and explain characteristics of artificial intelligence.
e. What is knowledge engineering? Explain the process of knowledge engineering.
f. What are the areas for expert system applications?

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TYBSC(IT)

-TY BSc IT (Sem V)

Paper / Subject Code: 88705 / Enterprise Networking

(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1.	**Attempt *any three* of the following:**	**15**
a.	Explain in detail Architectures for the enterprise.	
b.	Discuss the PPDIOO phases in detail.	
c.	Explain different layers of hierarchical Network design.	
d.	What are different redundancy techniques ? Discuss in detail.	
e.	Explain HSRP, VRRP and GLBP	
f.	Explain in details different Network Audit Tools.	
2.	**Attempt *any three* of the following:**	**15**
a.	Compare and Contrast between Switches, Routers and Layer 3 switches	
b.	What are data center foundation components?	
c.	What are different types of Virtualization?	
d.	Explain Spanning Tree Protocol.	
e.	What is Campus LAN Design? What are the Best Practices for the same?	
f.	Discuss different strategies for Load Balancing in the Data Center.	
3.	**Attempt *any three* of the following:**	**15**
a.	Write a short note on different WLAN Standards.	
b.	Explain in detail WLAN Controller Components.	
c.	Write Short notes on i) Frame Relay ii) Metro Ethernet	
d.	Discuss WAN and Edge Design Methodologies	
e.	What are the different methodologies for Optimizing Bandwidth Using QoS? Explain.	
f.	Explain various DMZ Connectivity implementation techniques.	
4.	**Attempt *any three* of the following:**	**15**
a	Explain IPV4 Header structure.	
b	Write short notes on i) BOOTP ii) DHCP	
c	Explain IPV6 Unicast Address, Anycast Address and Multicast Address	
d	Discuss IPv6 Address-Assignment Strategies.	
e	What are the techniques for IPv4-to-IPv6 Transition Mechanisms?	
f	What are Routing Protocol Metrics and Loop Prevention techniques?	
5.	**Attempt *any three* of the following:**	**15**
a.	What are different Network security threats?	
b.	Explain Security Risks.	
c.	Write short note on Risk assessment.	
d.	Write short notes on i) RMON ii) NetFlow	
e.	What are the techniques for Detecting and Mitigating Threats?	
f.	Compare and contrast IPS and IDS .	

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Paper / Subject Code: 88707 / Cyber Laws

(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1.	**Attempt *any three* of the following:**	**15**
a.	Explain the difference between cognizable and non-cognizable offense.	
b.	Discuss the 'Necessity of Arrest without warrant from any place'.	
c.	Explain the end of Draco's law code.	
d.	List of offences and the corresponding penalties in IT Act 2000.	
e.	Explain defamation in India.	
f.	What is cyber-crime? Explain different strategies to tackle cybercrimes and trends.	
2.	**Attempt *any three* of the following:**	**15**
a.	What is a contract? Explain seven essential elements of endorsable contract.	
b.	Explain different types of electronic contracts.	
c.	What is civil law? Explain jurisdiction of civil court in India.	
d.	Define and explain foreign judgment in India.	
e.	Explain the Status under the Indian Contract Act, 1872.	
f.	Explain jurisdiction dispute w.r.t. the internet in the United States of America.	
3.	**Attempt *any three* of the following:**	**15**
a.	Write a short note on cyber squatters.	
b.	Explain the battle between freedom and control on the internet.	
c.	What is copyright? Explain copyright Act, 1957.	
d.	Explain how does the copyright license work.	
e.	Explain liability of ISPs for copyright violation in the cyber world.	
f.	Explain computer software piracy with its different types.	
4.	**Attempt *any three* of the following:**	**15**
a	Explain the concept of Permanent Establishment.	
b	Explain Income Tax Act 1961.	
c	Explain who is non-resident Indian? Explain non-resident Indian under Income Tax Act 1961.	
d	Explain section 80QQB-Royalty Income deduction under	
e	Explain digital signature certificate.	
f	Write a short note on A Warning to Babudom!	
5.	**Attempt *any three* of the following:**	**15**
a.	Discuss the Indian evidence act of 1872.	
b.	Explain proof of electronic agreement in Indian evidence act.	
c.	Explain bankers' books evidence act 1891.	
d.	Explain unfair trade practices.	
e.	Discuss the consumer terms under the consumer protection Act 1986.	
f.	Explain Reserve bank of India Act, 1934	

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(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following:

a. Define project. Discuss some characteristics of software project which make them more difficult to manage compared to other projects.

b. Name different. Give very brief description of all the phases of Project Management Life Cycle (2 to 3 lines) and explain W5HH principle.

c. Define Business Case. Specify the content of business case document.

d. Write a short note on Portfolio Management.

e. Define Net Profit, Payback Period and Returns on Investment. Calculate these values for the following cash flow forecast of a project.

Year	Cash-flow
0	- 1,00,000
1	20,000
2	30,000
3	20,000
4	30,000
5	60,000

f. Outline the general approach that might be taken for project planning in an organized step by step manner.

2. Attempt *any three* of the following: **15**

a. Describe briefly five steps of project analysis.

b. Explain Scrum. What do you understand by the term 'ceremonies' in a Scrum project? Explain different types of ceremonies observed in a Scrum Project.

c. Discuss eight core Atern principles.

d. Discuss Capers Jones estimating rules of thumb.

e. What are the problems generally faced during effort estimation?

f. Explain briefly Albrecht/IFPUG function points and solve the following :-
For an organization, the following table summarizes the weightings to be used for computing function points measures of a software development project. The organization has undertaken the development of a software having the following characteristics:-

Number of user inputs	-	10(simple)
Number of user outputs	-	7 (simple)
Number of user inquiries	-	3 (average)
Number of files	-	6 (average)
Number of external interfaces	-	1 (complex)

Calculate unadjusted function point measure of the size of the software system?

[TURN OVER]

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3. Attempt *any three* of the following: **15**

a. Using the data in the following table, answer the questions given below

ACTIVITY	DURATION	PREDECESSORS
A	6	-
B	8	-
C	3	A
D	5	B
E	4	C, D

i) Create a precedence activity network
ii) What is the total project duration?
iii)Calculate earliest start date, latest start date and float of all the events.
iv) Identify the critical path.

b. Define activity. Discuss three approaches to identify the activities.

c. Suppose four risks namely R1, R2, R3 and R4 have been identified and assigned the probabilities of occurrence of 0.1, 0.2, 0.3 and 0.4 respectively. The likely damages due to the four risks are Rs. 50, 000; Rs. 1, 00,000; 70,000; 60,000 respectively. Calculate the risk exposure of al the risks.

d. Define Risk and discuss the ways of dealing with them.

e. Explain the process of scheduling resources.

f. Discuss the factors to be taken into account while allocating individuals to task.

4. Attempt *any three* of the following: **15**

a Explain the change control process.

b Define the following:- i) Schedule Variance ii) Cost Variance iii) Earned Value iv) Schedule performance index v) Cost performance index

c Explain briefly all the stages in Contract Placement.

d Define Contract. Classify contracts on the basis of payment to suppliers.

e Explain general recruitment process.

f Discuss the factors of job satisfaction given by Oldham-Hackman. Also state the methods of improving motivation.

5. Attempt *any three* of the following: **15**

a What do you mean by team structure? Explain different types of team structures.

b Explain five basic stages of Team development. Also state the different types of people needed to form a balanced team.

c What is the importance of Software Quality? Discuss six major external software quality characteristics identified by ISO 9126.

d State four popular process capability models and explain any one of them.

e Give a brief explanation of the main activities involved in Software Testing

f Discuss the main reasons for project closure.

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