

Duration: 3hrs

[Max Marks: 80]

- N.B. : (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1** Attempt any Four **[20]**
- a** A $45^\circ-45^\circ-90^\circ$ Prism is immersed in alcohol ($n_1=1.45$), what is the minimum refractive index of the prism must have if a ray incident normally on one of the short faces is to be totally reflected at the long phase of the prism **05**
- b** An optical fiber is made up of glass with a refractive index of 1.55 and its cladding with a refractive index of 1.51.Launching takes place from air.What numerical aperture does the fiber have? What is the acceptance angle? And what is the value of Δ ? **05**
- c** With a neat sketch explain the optical bands and windows? Which band is known as extended “C” band? **05**
- d** With a neat sketch explain Photonic crystal fiber and state its applications **05**
- e** Compare SONET and SDH networks with PDH **05**
- f** Compare optical Packet switching and Optical burst switching networks. **05**
- 2 a** How do you classify Optical fiber based on the number of modes guided and refractive index profile. Elaborate it with proper dimension ,neat sketch and the colour codes for the optical fiber **[10]**
- b** With a neat sketch explain micro bending and macro bending losses in optical fiber? How it can be minimized? **[10]**
 An optical signal at a specific wavelength has lost 55% of its power after traversing 3.5Km of fiber.What is the attenuation in dB/Km of this fiber
- 3 a** Compare LED and LASER in detail. **[10]**
 A p-n junction LED has an injection efficiency of 60% ,light extraction efficiency of 50% and $\tau_{nr}=10^{-8}$ Second.Calculate τ_r
- b** Differentiate between PIN and APD. **[10]**
 Define quantum efficiency, Responsivity and long wavelength cut off for photo detector
- 4 a** With a neat sketch explain FSO network,its applications and challenges **[10]**
- b** Write a short note on Elastic optical Network **OR** Data center network **[10]**
- 5 a** Briefly Explain Optical Transport Network.Also explain the OTN layers hierarchy model with a diagram **[10]**
- b** What are the elements of WDM network.With a neat sketch explain the WDM access Network **[10]**
- 6 a** Write a short note on FTTH network **[10]**
- b** With a neat sketch explain the working of EDFA and its applications **[10]**

(Time: 3 Hours)

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- Q1 a) Explain how communication is being done between Web client and Web server [5]
b) What are the different types of web services? What are the essential features of Web services? [5]
c) Write a PHP program to find the factorial of a given number. [5]
d) Differentiate between GET and POST method in Java Servlet [5]
- Q2 a) What is Bootstrap? Explain following terms related to bootstrap: [10]
1. Typography
2. Breadcrumbs
3. Pagination
4. Container
b) What is CSS? Differentiate between inline, embedded and external style sheets with example [10]
- Q3 a) What is Session Tracking? Explain various ways of session tracking in servlet? [10]
b) What is AJAX? Explain the working of AJAX with diagram [10]
- Q4 a) Explain different web services communication models [10]
b) Explain three tier web architecture with proper diagram [10]
- Q5 a) What is Servlet? Demonstrate the Servlet architecture and explain its working principle [10]
b) Explain Model View Controller architecture with diagram. [10]
- Q6 a) List and explain various properties for CSS Animation with example [10]
b) What are different types of arrays created in PHP? Explain with examples [10]

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- 1** Attempt any **FOUR** [20]
- a** Classify various wireless networks. Illustrate it with a systematic diagram.
 - b** Compare link types in Bluetooth.
 - c** List the advantages of deploying WLAN.
 - d** Discuss characteristics of VANETs.
 - e** State the characteristics of WBAN.
- 2** **a** Construct WiMAX network architecture. Review the features of WiMAX. [10]
- b** Compare SPIN and LEACH routing Protocol [10]
- 3** **a** Illustrate network establishment in Bluetooth. Explain each mode of operation. [10]
- b** Determine Hidden and Exposed Node Problem in WLAN with suitable diagrams. [10]
- 4** **a** Classify categories of applications of NFC and List out Applications of 6LoWPAN [10]
- b** Calculate the uplink throughput for data service only for a WCDMA cell using the following information: [10]
Required $E_b/N_t = 1\text{dB}$
Required interference margin = 3 dB (cell loading = 0.5)
Interference factor due to other cells = 0.5
Channel activity factor = 1.0
Chip rate (R_c): 3.84 Mcps
- 5** **a** Explain the working principle of UWB in the time and frequency domain. Draw the UWB frequency spectrum. [10]
- b** Describe Wireless Sensor Network Architecture. Differentiate wireless sensor networks and wireless ad hoc networks. [10]
- 6** **a** Illustrate architecture components of RFID and explain them in brief. Discuss any one practical application of RFID. [10]
- b** Discuss architecture of IoT with any one example. Explain M2M communication [10]

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Maximum Marks: 80

N.B.:

1. Question No.1 is compulsory.
2. Out of the remaining five questions attempt any three questions.
3. Assume suitable data if required and state it clearly.
4. Figures in brackets to the right indicate full marks.

- 1 Attempt **any FOUR** (20)
 - a What is LAN emulation? (5)
 - b What are different services provided by TMN service architecture? (5)
 - c Explain probe functions for remote monitoring. (5)
 - d Difference between MIB and MDB? (5)
 - e Why do we need network management? (5)
 - 2 a List and describe network management architecture? (10)
b Describe two-tier and three-tier network management organization model.. (10)
 - 3 a What is SNMP Proxy server. (10)
b What are the functional requirements of NMS design. (10)
 - 4 a Draw a neat diagram of TMN layered architecture and explain details? (10)
b What is fault management? Describe five steps process in fault management? (10)
 - 5 a Explain various M-interfaces used between an ATM end user or device and an ATM network? (10)
b Explain different types of event correlation techniques. (10)
 - 6 a Write a short note on **any TWO** (20)
 - a) Policy Based Network Management.
 - b) TNM Conceptual Model
 - c) Common Management Information Services
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(3 Hours)

Total Marks: 80

Note:

1. Question No. 1 is compulsory.
2. Attempt any **THREE** out of the remaining **FIVE** questions.
3. Assume suitable data if necessary.

- Q. 1.** Answer any **FOUR** of the following: **(20)**
- (a) Differentiate between Sales Budget and Marketing Budget?
 - (b) Explain the uses of Project Report for Entrepreneur.
 - (c) Write short note on PMEGP and its advantages.
 - (d) Explain any three characteristics of sole proprietorship.
 - (e) Explain about Women Entrepreneurship
- Q. 2.** (a) Entrepreneurs are “Dreamers with vision”. State how. **(10)**
(b) Explain the factors involved in the growth of an Enterprise. **(10)**
- Q. 3.** (a) State any four primary activities that are essential for a firm to have a competitive advantage as given by Porter. **(10)**
(b) Explain in short about Industrial Investment Bank of India Ltd. (IIBI) **(10)**
- Q. 4.** (a) Explain the forms of Business Ownership **(10)**
(b) What are the steps involved in Marketing plan? **(10)**
- Q. 5.** (a) What is Business Plan? State the importance of writing business plan for the Entrepreneur Group. **(10)**
(b) Idea germination is the seeding stage of a new idea in the creative process. Explain the next four steps in the process. **(10)**
- Q. 6.** **Attempt the following:-** **(20)**
- (a) Write in short about MSMED Act 2006.
 - (b) Who are Angel Investors? State any four features of Angel Investors.
 - (c) Explain the factors affecting channels of distribution with relation to market Considerations.
 - (d) Enlist two points as to why private company is more desirable than a public company.

Time: 3-hour

Marks: 80

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 (5) Notations carry usual meaning.

Q1. Answer the following (**Any FOUR.**) [20M]

- What are the contents of project charter? who prepares and authorizes the project charter?
- Compare the top-down budgeting and bottom-up budgeting.
- What is Goldratt's critical chain method?
- Explain the significance of IRR method in project selection.
- Briefly describe the purchasing cycle.
- Explain the risk breakdown structure.

- Q2.** (a) A consulting project has an actual cost of Rs. 35000, Scheduled cost Rs. 27000, and completed work is Rs. 31000. Find the Scheduled and Cost Variance. Also find SPI and CPI. [5M]
- (b) What is a contract? Explain different types of contracts in brief. [5M]
- (c) Consider a project having following cash flow stream. The cost of capital (r) for the firm is 10% . Calculate NPV of project and decide whether to accept or reject the project. [10M]

Year	0	1	2	3	4	5
CASH Flow in Rs.	10,00,000	2,00,000	2,00,000	3,00,000	3,00,000	3,50,000

- Q3.** (a) What is project life cycle? how does cost of change, risk and influence of stakeholders are affected with Project time during the life cycle of project? [10M]
- Q3.** (b) Explain probability and impact matrix. What are the risk response strategies foe negative risks (threats) and positive risks(opportunities). [10M]

Q4. (a) A small project is composed of 8 activities, whose time estimates are listed below.

Activity	Predecessor	t_o	t_m	t_p
A	-	3	6	9
B	-	5	7	8
C	A	6	9	12
D	A	6	12	15
E	B	9	12	18
F	B	12	18	24
G	C, D, E	6	9	12
H	C	3	6	9

i) Draw the project network diagram. Find the critical path and expected project duration.

ii) If the due date is 30 days. What is the probability that the project will be completed within the due date?

iii) Find the probability of completing project between 26 to 31 days. [10M]

Q4. (b) What are the non-numeric models of project selection? Explain in brief. [5M]

Q4. (c) Explain importance of ethics in projects. [5M]

Q5. (a) How communication is planned and managed in project management? [10M]

Q5. (b) What is life cycle of a project audit? what are responsibilities of project auditor? What is essential for successful project audit? [10M]

Q6. (a) What are four stages of team development and growth? What are the barriers to team effectiveness? [10M]

Q6. (b) List and briefly describe the ways project may be terminated. What are some non-technical reasons for project termination? [10M]
