

Post Graduate Diploma in Management (Hospital & Health Management)**PGDM – 2025-2027 Batch****1st Year – 2nd Semester End Examination**

Subject & Code	: Introduction to Digital Health-II (IDH-II)-CC 618	Reg. No.	:
Semester & Batch	: II, 2025-2027	Date	: April 30, 2026
Time & Duration	: 10:30 A.M.-01:30 P.M. (3 Hrs.)	Max. Marks	: 60

Instructions:

- Budget your time as per the marks given for each question and write your answer accordingly.
- Don't write anything on the Question Paper except writing your Registration No.
- Mobile Phones are not allowed even for computations.

Part-A: Q. 1 to Q.10 (10 questions*1 marks = 10 marks). (One liner, MCQs, True/False)

1. Which of the following is the PRIMARY distinction between a Hospital Information System (HIS) and an Electronic Health Record (EHR)?
 - a) An HIS is used only for billing, while an EHR is used for clinical documentation.
 - b) An HIS focuses on administrative and financial workflows, while an EHR is a longitudinal record of a patient's clinical data.
 - c) An EHR is a module within an HIS, but not vice-versa.
 - d) An HIS stores imaging data (PACS), while an EHR stores laboratory data (LIS).
2. A Clinical Decision Support System (CDSS) alert warns a physician about a potential severe drug interaction when prescribing a new medication. This is an example of which type of CDSS functionality?
 - a) Diagnostic assistance
 - b) Preventive care reminders
 - c) Drug-drug interaction checking
 - d) Guidelines and protocol support
3. A patient uses a continuous glucose monitor (CGM) that automatically sends blood sugar readings to their physician's cloud-based dashboard. This is a direct application of:
 - a) Teleradiology
 - b) Mobile Health (mHealth) only
 - c) Remote Patient Monitoring (RPM)
 - d) Blockchain technology
4. Which of the following is a PRIMARY disadvantage of store-and-forward telehealth (asynchronous) compared to real-time telehealth (synchronous)?
 - a) It requires a higher bandwidth internet connection.
 - b) It does not allow for immediate back-and-forth dialogue for clarification or physical examination.
 - c) It is not compliant with most telemedicine legal guidelines.
 - d) It cannot be used for dermatology or ophthalmology.

Contd...2..

5. A patient's smartwatch detects atrial fibrillation and sends a notification to the user. This function primarily falls under which category?
 - a) Remote Patient Monitoring (RPM) ordered by a clinician
 - b) Direct-to-consumer (DTC) wellness and Mobile Health (mHealth)
 - c) A formal telemedicine consultation
 - d) An IoMT device used for hospital asset tracking
6. Which ethical principle in telemedicine is MOST directly challenged by a potential breach of a video conferencing platform used for a patient consultation?
 - a) Beneficence (doing good)
 - b) Non-maleficence (avoiding harm)
 - c) Confidentiality (privacy)
 - d) Justice (fair access)
7. In digital health, the primary value of a "Digital Twin" of a specific patient's heart is to:
 - a) Create a generic 3D model for medical student training.
 - b) Securely store the patient's ECG data on a blockchain.
 - c) Simulate and test different treatment strategies (e.g., stent placement) before performing the actual procedure.
 - d) Enable remote surgery using a robotic arm.
8. A hospital uses AI-based alerts to detect early signs of sepsis in ICU patients. This represents:
 - A. Billing system
 - B. Smart ICU technology
 - C. Manual monitoring
 - D. Telecommunication only
9. Within the WHO Digital Health Interventions (DHI) classification, sending automated SMS reminders to clients about their next clinic appointment is an example of which type of intervention?
 - a) Targeted client communication
 - b) On-demand information services to clients
 - c) Client financial transactions
 - d) Health worker decision support
10. Which of the following best describes continuum of care?
 - A. Single visit treatment
 - B. Care provided only in hospitals
 - C. Integrated care across different stages of health
 - D. Emergency care only

Part-B: Q.11 to Q.15 (4 questions *5 Marks = 20 Marks). Attempt any Four.

11. A 60-year-old hypertensive patient in a semi-urban area uses a wearable device that continuously monitors blood pressure and sends alerts to a mobile app accessed by both the patient and doctor. Analyze how connected health and IoT technologies in this scenario support continuum of care and improve patient outcomes.

12. A district hospital lacks a full-time radiologist. X-ray and CT images are digitally transmitted to a city-based specialist for interpretation. Evaluate the role of Radiology Information Systems (RIS) and telemedicine in improving diagnostic services in this setting.
13. Define the three main types of Telehealth (store-and-forward, real-time, remote patient monitoring) and give one clinical example for each.
14. A hospital has introduced a mobile app that allows patients to book appointments, access lab reports, receive medication reminders, and communicate with doctors. Examine the role of patient engagement tools in improving healthcare delivery and patient satisfaction in this case
15. A Primary Health Centre in a rural area uses video consultation to connect patients with specialists in a district hospital. The service includes follow-up consultations and e-prescriptions. Discuss the applications, benefits, and ethical considerations of telemedicine in this scenario.

Part-C: Q.16 to Q.17 (2 questions *15 Marks = 30 Marks). Attempt any Two.

16. (a) A state health department in India is implementing digital health interventions such as telemedicine services, mHealth applications, EHR systems, and clinical decision support tools. The program has shown:
- 30% increase in maternal health service utilization
 - 45% improvement in immunization tracking
 - 50% reduction in data reporting delays
 - Ongoing interoperability challenges

Evaluate the effectiveness of the implemented digital health interventions in improving healthcare delivery outcomes related to maternal health service utilization, immunization tracking, and data reporting and justify whether the benefits outweigh the challenges posed by interoperability issues.

(OR)

- (b) A 300-bed tertiary hospital in India has implemented an integrated system including HIS, EHR, LIS, RIS, and Clinical Decision Support Systems (CDSS). Based on the MIS reports the following data has been identified for few key performance indicators.
- OPD waiting time reduced from 120 min to 60 min
 - Lab turnaround time reduced by 30%
 - Medication errors reduced by 20%
 - ICU mortality improved only by 5%

Evaluate the effectiveness of integrating core healthcare technologies in improving hospital efficiency, patient safety, and clinical outcomes. Support your answer with justification based on the given data.

17. (a) A 300-bed tertiary hospital in India has implemented an integrated system including HIS, EHR, LIS, RIS, and Clinical Decision Support Systems (CDSS). Based on the MIS reports the following data has been identified for few key performance indicators.

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- Lab turnaround time reduced by 30%
- Medication errors reduced by 20%
- ICU mortality improved only by 5%

Design a comprehensive strategy to further enhance clinical outcomes, particularly reducing ICU mortality, by optimizing the use of integrated healthcare technologies. Your plan should include system improvements, workflow redesign, staff training, and advanced technology integration.

(OR)

(b) A hospital network in India has introduced blockchain-based EHRs, robotic surgery, AR/VR training, and digital twin technology in Neuro department. In a recent board meeting, the CEO was requested to justify his proposal to implement the same in Oncology department. He justifies based on the following data.

- Data breaches reduced by 40%
- Surgical accuracy improved by 25%
- Training efficiency increased by 35%
- Operational cost increased by 20%

Create a strategic implementation plan for adopting these advanced digital health technologies in the Oncology department. Your plan should address clinical benefits, cost management, scalability, ethical considerations, and sustainability in the Indian healthcare context.