Reg. No	R	A	2	3	1	1	0	5	3	0	1	0	0	1	5

B.Tech/M.Tech(Integrated) DEGREE EXAMINATION, DECEMBER 2023

First Semester

21GNH101J - PHILOSOPHY OF ENGINEERING

(For the candidates admitted during the academic year 2022-2023 onwards)

Note:

i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours **Max. Marks: 75**

PART - A (20 × 1 = 20 Marks) — Answer **all** Questions

		Marks	BL	CO
1.	_____ is the discipline and profession of applying technical and scientific knowledge and utilizing natural laws and physical resources in order to design and implement materials (A) Arts (B) Mathematics (C) Engineering (D) Science	1	1	1
2.	Engineers apply the sciences of physics and mathematics to find suitable solutions to problems using_____ (A) Philosophy (B) Methodology (C) Marketability (D) Flexibility	1	1	1
3.	Engineering is considered a branch of applied _____ (A) Mathematics and science (B) Physics and mathematics (C) Imaginative and creative (D) Art and Technology	1	1	2
4.	The_____ mechanism is the earliest known model of a mechanical computer in history (A) Antikythera (B) Pneumatic (C) Phaistos (D) Cosmos	1	1	3
5.	Researchers assert that the introduction stage where design takes place determines between _____ and _____ percent of the life cycle costs. (A) 40,60 (B) 50,50 (C) 70,60 (D) 70,90	1	1	2
6.	_____describe concepts depending both on a particular domain and task (A) Application ontology (B) Reference ontology (C) Domain ontology (D) Foundational ontology	1	1	1
7.	_____ is natural extension of PLM, and creates a truly full life cycle that takes your obsolete or used products back into raw materials (A) Half loop cycle (B) Semi loop cycle (C) Open loop cycle (D) Closed loop cycle	1	1	1
8.	Ontology is sometimes referred as _____ (A) Reference (B) science of being (C) philosophy (D) Metaphysics	1	1	3
9.	_____ is creation based on the scientific knowledge put together, and technology is the set of engineered creations put together (A) Engineering (B) Science (C) Mathematics (D) Arts	1	1	2

10. _____ is the preferred modus operandi of this dimension, where the discovery of first principles is seen as the activity leading to higher recognition — 1 | 1 | 2
(A) Research (B) Scientific
(C) Experimental (D) Testing

11. Engineering is creating new tools, devices, and processes based on _____ knowledge — 1 | 1 | 1
(A) Practical (B) Scientific
(C) Experimental (D) Testing

12. _____ as activity is related to the conceptualization (pre-execution) stages of making new products. — 1 | 1 | 2
(A) Design (B) Implementation
(C) Creation (D) Thinking

13. Hypothesis Testing _____ method — 1 | 1 | 2
(A) Engineering (B) Scientific
(C) ADDIE (D) CDIO

14. The _____ of the data the system operates on is of the highest consideration when designing a reliable and fault-tolerant architecture. — 1 | 1 | 3
(A) Security (B) Integrity
(C) Consistency (D) Reliability

15. An engineer identifies a specific need _____ need(s) _____ because _____? And then, he or she creates a solution that meets the need. — 1 | 1 | 1
(A) Who,what,Why (B) Who,Why,What
(C) What,Why,Who (D) What,Who,Why

16. The _____ model is the generic process traditionally used by instructional designers and training developers — 1 | 1 | 3
(A) ADDIE (B) CDIO
(C) Engineering (D) Scientific

17. In _____ phase the project is reviewed and revised according to any feedback given. — 1 | 1 | 1
(A) Development (B) Requirement Analysis
(C) Deployment (D) Testing

18. Good designers _____ possible solutions before opting to start a design, building a list of as many solutions as possible — 1 | 1 | 3
(A) Research (B) Explore
(C) Identify (D) Brainstorm

19. Design _____ is distinct from analytic methodologies, which is crucial to develop scientific initiatives. — 1 | 1 | 3
(A) Developers (B) Testers
(C) Thinkers (D) Epistemology

20. Design as _____ is more affiliated with management of a wide range of fields from business to military and from hospitals to academy. — 1 | 1 | 2
(A) Engineering (B) Epistemology
(C) Planning (D) Activity

PART - B (4 × 10 = 40 Marks) — Marks | BL | CO
Answer **any 4** Questions

21. What are the different stages of engineering history? Explain the historical development of engineering with required diagrams. — 10 | 2 | 2

22. Differentiate Reference ontology and application ontology with an example. — 10 | 3 | 2

23. Compare the four dimensions of Engineering. — 10 | 4 | 2

		Marks	BL	CO
24.	With neat sketch explain the engineering design process.	10	3	2
25.	what are the essential engineer role to achieve the sustainable development.	10	4	2
26.	Sketch the STEAM pyramid diagram and explain the most significant aspect of STEAM?	10	4	1

PART - C (1 × 15 = 15 Marks)

Answer **any 1** Questions

		Marks	BL	CO
27.	Classify the desired attributes of an Engineer with a minimum of ten key points.	15	4	1
28.	Explain the four stages of Product Life Cycle with neat sketch.	15	5	1

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