**M.TECH IT (COURSEWARE ENGINEERING) FIRST YEAR FIRST SEMESTER EXAMINATION - 2024**

**Subject : PRINCIPLES OF EDUCATION TECHNOLOGY**

Time : Three hours | Full Marks : 100

Answer ***any five*** questions.

| | | | |
|---|---|---|---|
| 1 | (a) | What are the critical elements to be considered in courseware design? Briefly explain. | 10+10 |
| | (b) | Discuss about the phases in courseware design. | |
| 2 | (a) | Show the major principle of Instruction in mastery learning. | 4+(6+6)+4 |
| | (b) | What is 'Multimodal approach' in instruction design? Explain the concept of knowledge management in instruction design. | |
| | (c) | Discuss about the application of Cybernetics in education | |
| 3 | (a) | A five rupee coin is tossed 100 times in the air and the recorded results of these 100 throws indicate 40 heads and 60 tails. Using the Chi-square test, find out the significant difference exist or not. [Assuming critical value as 3.84 and 6.63 for 5% and 1% significance level respectively.] | 10+10 |
| | (b) | Distinguish between Relative frequency distribution and Cumulative frequency distribution. | |
| 4 | (a) | Compare between-<br>(i).Scenario based Learning with Blended Learning.<br>(ii).Criteria applied to Intelligent Computer Assisted Instruction with Internet Based Instruction. | (5+5)+5+5 |
| | (b) | What do you mean by Expositive and Experiential strategies? | |
| | (c) | In the Asian meet finals 24 people are running on the 200m dash. How many different arrangements can be seen on the awards platform? | |
| 5 | | Use the following passage to develop a Programmed Instruction (PI) of at least 10 frames.<br>"**Basics of Cellular Technology** - take the example where each user is allocated a channel. Each channel needs to have a bandwidth of around 25KHz to enable sufficient audio quality to be carried as well as enabling there to be a guard band between adjacent signals to ensure there are no undue levels of interference. Using this concept it is only possible to accommodate 40 users in a frequency band 1MHz wide. Even of 100MHz were allocated to the system this would only enable 4000 users to have access to the system. Today cellular systems have millions of subscribers and therefore a far more efficient method of using the available spectrum is needed. The method that is employed is to enable the frequencies to be re-used. Any radio transmitter will only have a certain coverage area. Beyond this the signal level will fall and cannot be used and will not cause significant interference to users associated with a different radio transmitter. This means that it is possible to re-use a channel once outside the range of the radio transmitter. The same is also true in the reverse direction for the receiver, where it will only be able to receive signals over a given range. In this way it is possible to arrange split up an area into several smaller regions, each covered by a different transmitter/receiver station. These regions are conveniently known as cells and give rise to the name of a "cellular" technology used today." | 20 |

6 (a) The president of SMP Corporation has obtained some raw data from a survey that her company conducted to determine the effectiveness of a new company slogan. The question asked was how many pieces of the item they purchased per month before and after the campaign. 10+10

The responses were as follows :

| Before | After | Before | After | Before | After | Before | After |
|---|---|---|---|---|---|---|---|
| 4 | 3 | 2 | 1 | 5 | 6 | 8 | 10 |
| 4 | 6 | 6 | 9 | 2 | 7 | 1 | 3 |
| 1 | 5 | 6 | 7 | 6 | 8 | 4 | 3 |
| 3 | 7 | 5 | 8 | 8 | 4 | 5 | 7 |
| 5 | 5 | 3 | 6 | 3 | 5 | 2 | 2 |

(i). Create the both frequency distribution for the before and after responses using as classes 1 to 2, 3 to 4, 5 to 6, 7 to 8, 9 to 10.
(ii). State whether or not the new slogan has helped sales with reasons to support your conclusion.

(b) "Education Technology connotes three meanings"-describe what are these three meanings respectively.

7 (a) The aim of an experimental study is to determine the effect of three different techniques of training on the learning of a particular skill. Three groups of each consisting seven students of class X assigned randomly as they were given training through these different techniques. The scores obtained on a performance test were recorded as follows- 15+5

| **Group-I** | **Group-II** | **Group-III** |
|---|---|---|
| 3 | 4 | 5 |
| 5 | 5 | 5 |
| 3 | 3 | 5 |
| 1 | 4 | 1 |
| 7 | 9 | 7 |
| 3 | 5 | 3 |
| 6 | 5 | 7 |

Apply the analysis of variance technique to find the significant difference exist or not amongst these groups. [Assuming critical value at 5% significance level is 3.56.]

(b) Discuss about the Prescriptive approach of teaching.

8 Write short notes on (***any four***) 4X5

(a) Inter Fractile range and Inter Quartile Range.
(b) Interoperability and Reusability.
(c) Components of CBT.
(d) Videotape as a media.
(e) Sensing and Intuitive Learners.
(f) Aspects of evaluation for a courseware.