

Delhi Technological University, Delhi



GUIDELINES FOR SETTING GOOD QUALITY QUESTION PAPERS

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- | | |
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**Delhi Technological University,
Delhi**

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QUESTION PAPERS**

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Introduction

The guidelines are framed for setting a good quality question paper. However, it is a difficult task to frame such guidelines applicable to all courses. A slight modification may be required to adopt these guidelines for specific courses. The crux of these guidelines is given in the following Table.

| S. No. | Criterion | Weightage | Score* | Weighted Score |
|--------|-------------------------|-----------|--------|----------------|
| 1 | Coverage of Syllabus | 0.2 | A | $0.2 \times A$ |
| 2 | Level of difficulty | 0.3 | B | $0.3 \times B$ |
| 3 | Order of thinking skill | 0.3 | C | $0.3 \times C$ |
| 4 | Uniform Marking | 0.1 | D | $0.1 \times D$ |
| 5 | Choice in Attempt | 0.1 | E | $0.1 \times E$ |
| 6 | | | TOTAL | TES |

$$TES = 0.2 \times A + 0.3 \times B + 0.3 \times C + 0.1 \times D + 0.1 \times E$$

TES stands for total evaluation score. An adherence index (AI) of the question paper is computed that indicates adherence to guidelines. AI is given as:

$$AI = 1 - \left(\frac{TES}{Max. Marks (M)} \right)$$

***Note:** To compute score of a question paper, use data sheet given in the following section.

1. **Coverage of Syllabus (A):** It is expected that 40% coverage of the syllabus (Syllabus-I) should be completed till Mid Semester Examination, and remaining 60% of the syllabus (Syllabus-II) should be completed before the last day of teaching.
 - a. Question paper of the Mid Semester Examination should be uniformly distributed over the Syllabus-I.
 - b. Question paper of the End Semester Examination should carry 30% weightage from Syllabus-I and 70% weightage from Syllabus-II. For example, a question paper of total marks 50, should carry 15 marks questions from Syllabus-I and 35 marks questions from Syllabus-II.

For the illustrations in this document, the contact hours for each unit are assumed to be equal. However, normally contacts hours prescribed in the syllabus for different units are unequal. Thus, to arrive at the **desired allocation** of marks for different units of the syllabus, the weightages for each unit shall be calculated using marks per contact hours (α). It should be noted that marks per contact hour would be different for Syllabus-I and Syllabus-II. The same is illustrated below.

H: Total contact hour as per syllabus

T: Total Marks (including choices)

$$\rho = T/H$$

| S. No. | Syllabus | Contact Hours | Marks | Marks per Contact hours |
|--------|-------------|----------------|----------------|---|
| 1. | Syllabus-I | $0.4 \times H$ | $0.3 \times T$ | $\alpha_1 = \left(\frac{3}{4}\right) \times \rho$ |
| 2. | Syllabus-II | $0.6 \times H$ | $0.7 \times T$ | $\alpha_2 = \left(\frac{7}{6}\right) \times \rho$ |

Example: Consider a subject CO-203, $H = 42$, Syllabus-I = 17 hours,
Syllabus-II = 25 hours.

MID Semester Examination:

Total Marks should be uniformly distributed over units covered in Syllabus-I

END Semester Examination:

Let a question paper is set of total marks (T) = 56,

$$\rho = 4/3, \quad \alpha_1 = 1, \quad \alpha_2 = 14/9$$

Desired distribution of the Marks is shown in the following table:

| S. No. | Unit | Contact Hours | Desired Marks distribution |
|--------------|------|---------------|---|
| 1. | I. | 8 | $\alpha_1 \times 8 = 8$ |
| 2. | II. | 7 | $\alpha_1 \times 7 = 7$ |
| 3. | III. | 6 | $\alpha_1 \times 2 + \alpha_2 \times 4 = 8$ |
| 4. | IV. | 6 | $\alpha_2 \times 6 = 10$ |
| 5. | V. | 7 | $\alpha_2 \times 7 = 11$ |
| 6. | VI. | 8 | $\alpha_2 \times 8 = 12$ |
| Total | | 42 | 56 |

2. **Level of difficulty (B):** The paper should have questions with different difficulty levels viz. easy, moderate, and difficult.
 - a. Easy 35% (approx.)
 - b. Moderate 30% (approx.)
 - c. Difficult 35% (approx.)

3. **Order of thinking skill (C):** Most of the questions in the paper should be based on varying order of thinking skills viz. apply, analyse and evaluate (as per revised Bloom's taxonomy). Questions based on lower order of thinking skills (remember, understand) should be limited to 30% (approx.). To simplify the process, above order of thinking levels are categorized into three classes:
 - a. Memory based (remember, understand) 30% (approx.):
 - b. Application based (apply) 50% (approx.)
 - c. Analysis based (analyse, evaluate) 20 % (approx.)

4. **Uniform Marking (D):** In order to help the examiners to evaluate the answer scripts, all questions should carry **equal** marks.

5. **Choice in attempt (E):** There shall be no choice in Mid Semester Examination. The question paper for End Semester Examination may have choice not more than 30%.

A question paper should fulfil all the above requirements. But, still in order to evaluate question paper according to the said requirements, numerical values should be assigned to all these aspects. A criterion for evaluating the quality of question papers has been developed by the Committee, which is explained and illustrated with the help of some question papers.

Data sheet for Evaluation of the Question Paper

M = Maximum Marks;

T = Total Marks; and

T₀ = **M / 0.7**

1. Coverage of Syllabus (A):

| Unit | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| I | | | | |
| II | | | | |
| III | | | | |
| IV | | | | |
| V | | | | |
| Score (A) | | | | |

2. Level of difficulty (B):

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Easy | | | | |
| Moderate | | | | |
| Difficult | | | | |
| Score (B) | | | | |

3. Order of thinking skill (C):

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Memory/ Understanding based | | | | |
| Skill/ Application based | | | | |
| Analysis/Design based | | | | |
| Score (C) | | | | |

4. Uniform Marking (D):

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|--------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| Score (D) | | | | |

5. Choice in attempt (E):

$$T_0 = \frac{M}{0.7}$$

$$\text{Score(E)} = \begin{cases} 0, & \text{if } T \leq T_0 \\ T - T_0, & \text{else} \end{cases}$$

► Total Evaluation Score (TES) = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E

► Adherence Index (AI) = $1 - \left(\frac{TES}{\text{Max. Marks (M)}} \right)$

**Evaluation
of
End Semester
Question Paper**

Pattern-A

Total No. of Pages: 2

Roll No.

SECOND SEMESTER**B. Tech. (ECE)****END SEMESTER EXAMINATION****May-2018****CO-102 PROGRAMMING FUNDAMENTALS****Time: 3:00 Hours****Max. Marks: 40**

Note: Answer *ALL* questions. All questions carry equal Marks
Assume suitable missing data, if any.

1 Answer all the following questions:

- | | |
|--|-------|
| [a] [Difficult] (Memory/Understanding) {UNIT-I} | [1.5] |
| [b] [Difficult] (Skill/Application based) {UNIT-II} | [1.5] |
| [c] [Easy] (Memory/Understanding based) {UNIT-III} | [1.5] |
| [d] [Easy] (Memory/Understanding based) {UNIT-IV} | [1.5] |
| [e] [Moderate] (Skill/Application based) {UNIT-V} | [2] |

2 Attempt any TWO questions out of the following

- | | |
|--|-----|
| [a] [Easy] (Memory/Understanding based) {UNIT-I} | [4] |
| [b] [Moderate] (Skill/Application based) {UNIT-I} | [4] |
| [c] [Easy] (Skill/application based) {UNIT-II} | [4] |

3 Attempt any TWO questions out of the following

- | | |
|---|-----|
| [a] [Difficult] (Analysis/Design based) {UNIT-II} | [4] |
| [b] [Difficult] (Skill/Application based) {UNIT-III} | [4] |
| [c] [Moderate] (Memory/Understanding based) {UNIT-III} | [4] |

- 4 Attempt any TWO questions out of the following
- [a] [Easy] (**Memory/Understanding based**) {UNIT-IV} [4]
 - [b] [Moderate] (**Skill/Application based**) {UNIT-IV} [4]
 - [c] [Difficult] (**Skill/Application based**) {UNIT-IV} [4]
- 5 Attempt any TWO questions out of the following
- [a] [Easy] (**Skill/Application based**) {UNIT-V} [4]
 - [b] [Moderate] (**Analysis/Design based**) {UNIT-V} [4]
 - [c] [Difficult] (**Analysis/Design based**) {UNIT-V} [4]

Note: BOS/Course coordinator shall divide syllabus in 5 logical Units having equal weightages in terms of course content

Data Sheet for Evaluation of Question Paper- Pattern A

$M = 40;$

$T = 56;$

$T_0 = M/0.7 = 40/0.7 = 57$

1. Unit-wise Coverage of syllabus:

| Unit | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| I | 1-a, 2-a, b | 8 | 9.5 | 1.5 |
| II | 1-b, 2-c, 3-a | 9 | 9.5 | 0.5 |
| III | 1-c, 3-b, c | 13 | 9.5 | 3.5 |
| IV | 1-d, 4-a, b, c | 13 | 13.5 | 0.5 |
| V | 1-e, 5-a, b, c | 13 | 14 | 1 |
| Total Score (A) | | | | 7 |

2. Level of Difficulty-wise Analysis:

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------------|--------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Easy | 1-c, d, 2-a, c, 4-a, 5-a | 19.6 | 19 | 0.6 |
| Moderate | 1-e, 2-b, 3-c, 4-b, 5-b | 16.8 | 18 | 1.2 |
| Difficult | 1-a, b, 3-a, b, 4-c, 5-c | 19.6 | 19 | 0.6 |
| Total Score (B) | | | | 2.4 |

3. Quality (Order of thinking skill)-wise Analysis:

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|----------------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Memory/Understanding based | 1-a, c, d 2-a, 3-c, 4-a | 16.8 | 16.5 | 0.3 |
| Skill/ Application based | 1-b, e, 2-b, c, 3-b, 4-b, c, 5-a | 28 | 27.5 | 0.5 |
| Analysis/Design based | 3-a, 5-b, c | 11.2 | 12 | 0.8 |
| Total Score (C) | | | | 1.6 |

4. Question-wise uniform distribution of Marks

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|------------------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | | 11 | 8 | 3 |
| 2. | | 11 | 12 | 1 |
| 3. | | 11 | 12 | 1 |
| 4. | | 11 | 12 | 1 |
| 5. | | 12 | 12 | 0 |
| Total Score (D) | | | | 6 |

5. Percentage of choice

$$M = 40; \quad T = 56; \text{ and} \quad T_0 = 57;$$

As $T < T_0$ the Score $E = 0$

$$\blacktriangleright \text{Total Evaluation Score (TES)} = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E$$

$$= 0.2 (7) + 0.3 (2.4) + 0.3 (1.6) + 0.1 (6) + 0.1 (0)$$

$$= 1.4 + 0.72 + 0.48 + 0.6 = 3.20$$

$$\blacktriangleright \text{Adherence Index (AI)} = 1 - \left(\frac{\text{TES}}{\text{Max. Marks (M)}} \right) = 0.92 \text{ i.e. } 92\%$$

Pattern-B

Total No. of Pages: 2

Roll No.

FIRST SEMESTER

B. Tech. (CO)

END SEMESTER EXAMINATION

May-2018

CO-102 PROGRAMMING FUNDAMENTALS

Time: 3:00 Hours

Max. Marks: 40

Note: Answer *ALL* questions. All questions carry equal Marks
Assume suitable missing data, if any.

- 1 [a] Attempt any TWO of the following {UNIT-I} [2+2]
(i) [Easy] (**Memory/Understanding based**)
(ii) [Easy] (**Memory/Understanding based**)
(iii) [Easy] (**Skill/Appliacation based**)
(iv) [Moderate] (**Skill/Application based**)
[b][Moderate] (**Skill/Application based**) {UNIT-I} [4]
- 2 [a] Attempt any TWO of the following {UNIT-II} [2+2]
(i) [Easy] (**Memory/Understanding based**)
(ii) [Easy] (**Memory/Understanding based**)
(iii) [Moderate] (**Skill/Application based**)
(iv) [Difficult] (**Analysis/Design based**)
[b][Moderate] (**Skill/Application based**) {UNIT-II} [4]

- 3 [a] Attempt any TWO of the following {UNIT-III} [2+2]
(i) [Easy] (**Memory/Understanding based**)
(ii) [Easy] (**Skill/Application based based**)
(iii) [Moderate] (**Analysis/design based**)
(iv) [Difficult] (**Analysis/Design based**)
[b] [Difficult] (**Skill/Application based**) {UNIT-III} [4]
- 4 [a] Attempt any TWO of the following {UNIT-IV} [2+2]
(i) [Easy] (**Memory/Understanding based**)
(ii) [Easy] (**Memory/Understanding based**)
(iii) [Moderate] (**Skill/Application based**)
(iv) [Difficult] (**Analysis/Design based**)
[b][Difficult] (**Skill/Application based**) {UNIT-IV} [4]
- 5 [a] Attempt any TWO of the following {UNIT-V} [2+2]
(i) [Easy] (**Memory/Understanding based**)
(ii) [Easy] (**Memory/Understanding based**)
(iii) [Moderate] (**Analysis/Design based**)
(iv) [Difficult] (**Analysis/Design based**)
[b] [Difficult] (**Skill/ Application based**) {UNIT-V} [4]

Note: BOS/Course coordinator shall divide syllabus in 5 logical Units having equal weightages in terms of course content

Data Sheet for Evaluation of the Question Paper CO-102 (*Pattern-B*)

$M = 40;$

$T = 60;$

$T_0 = T/0.7 = 57$

1. Unit-wise Coverage of syllabus:

| Unit | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| I | 1 | 9 | 12 | 3 |
| II | 2 | 9 | 12 | 3 |
| III | 3 | 14 | 12 | 2 |
| IV | 4 | 14 | 12 | 2 |
| V | 5 | 14 | 12 | 2 |
| Total Score (A) | | | | 12 |

2. Level of Difficulty-wise Analysis:

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------------|---|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Easy | 1(a)-i, ii, iii; 2(a)-i, ii; 3(a)-i, ii; 4(a)-i, ii; 5(a)-i, ii; | 21 | 22 | 1 |
| Moderate | 1(a)-iv, 1(b); 2(a)-iii, 2(b); 3(a)-iii; 4(a)-iii; 5(a)-iii; | 18 | 18 | 0 |
| Difficult | 2(a)-iv; 3(a)-iv, 3(b); 4(a)-iv, 4(b); 5(a)-iv, 5(b); | 21 | 20 | 1 |
| Total Score (B) | | | | 2 |

3. Quality (Order of thinking skill)-wise Analysis:

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|---|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Memory/ Understanding based | 1(a)-i, ii; 2(a)-i, ii; 3(a)-i; 4(a)-i, ii; 5(a)-i, ii; | 18 | 18 | 0 |
| Skill/ Application based | 1(a)-iii, iv, 1(b); 2(a)-iii, 2(b); 3(a)-ii, 3(b); 4(a)-iii, 4(b); 5(b) | 30 | 30 | 0 |
| Analysis/Design based | 2(a)-iv; 3(a)-iii, iv; 4(a)-iv; 5(a)-iii, iv; | 12 | 12 | 0 |
| Total Score (C) | | | | 0 |

4. Question-wise uniform distribution of Marks

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|------------------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | | 12 | 12 | 0 |
| 2. | | 12 | 12 | 0 |
| 3. | | 12 | 12 | 0 |
| 4. | | 12 | 12 | 0 |
| 5. | | 12 | 12 | 0 |
| Total Score (D) | | | | 0 |

5. Percentage of choice

$$M = 40;$$

$$T = 60;$$

$$T_0 = 57$$

$$\text{As } T > T_0$$

$$\text{the Score } E = 60 - 57 = 3$$

$$\blacktriangleright \text{ Total Evaluation Score (TES)} = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E$$

$$= 0.2 \times 12 + 0.3 \times 2 + 0.3 \times 0 + 0.1 \times 0 + 0.1 \times 3$$

$$= 2.4 + 0.6 + 0 + 0 + 0.3 = 3.3$$

$$\blacktriangleright \text{ Adherence Index (AI)} = 1 - \left(\frac{\text{TES}}{\text{Max. Marks (M)}} \right)$$

$$= 1 - (3.3/40) = 1 - 0.0825 = 0.9175 \text{ i.e. } 91.75 \%$$

Pattern-C

Total No. of Pages: 2

Roll No.

SECOND SEMESTER

B. Tech. (ECE)

END SEMESTER EXAMINATION

May-2018

CO-102 PROGRAMMING FUNDAMENTALS

Time: 3:00 Hours

Max. Marks: 40

Note: Answer FIVE questions. Question No. 1 is compulsory
Assume suitable missing data, if any.

- 1 Answer all the following questions: [12]
 - [a] [Easy] (**Memory/Understanding based**) {UNIT-I}
 - [b] [Moderate] (**Analysis/Design based**) {UNIT-II}
 - [c] [Moderate] (**Analysis/Design based**) {UNIT-III}
 - [d] [Moderate] (**Skill/Application based**) {UNIT-IV}
 - [e] [Difficult] (**Skill/Application based**) {UNIT-V}
 - [f] [Difficult] (**Skill/Application based**) {UNIT-III}

- 2 Answer all the following questions:
 - [a] [Easy] (**Memory/Understanding based**) {UNIT-I} [3]
 - [b] [Moderate] (**Memory/Understanding based**) {UNIT-I} [4]

- 3 Answer all the following questions:
 - [a] [Easy] (**Skill/Application based**) {UNIT-II} [3]
 - [b] [Moderate] (**Skill/Application based**) {UNIT-II} [4]

- 4 Answer all the following questions:
- [a] [Easy] (**Skill/Application based**) {UNIT-III} [3]
 - [b] [Moderate] (**Skill/Application based**) {UNIT-III} [4]
- 5 Answer all the following questions:
- [a] [Easy] (**Memory/Understanding based**) {UNIT-IV} [3]
 - [b] [Difficult] (**Skill/Application based**) {UNIT-IV} [4]
- 6 Answer all the following questions:
- [a] [Easy] (**Memory/Understanding based**) {UNIT-V} [3]
 - [b] [Difficult] (**Analysis/Design based**) {UNIT-V} [4]
- 7 Answer all the following questions:
- [a] [Easy] (**Skill/Application based**) {UNIT-IV} [3]
 - [b] [Difficult] (**Analysis/Design based**) {UNIT-V} [4]

Note: BOS/Course coordinator shall divide syllabus in 5 logical Units having equal weightages in terms of course content

Data Sheet for Evaluation of Question Paper- Pattern C

$M = 40;$

$T = 54;$

$T_0 = M/0.7 = 57$

1. Unit-wise Coverage of syllabus:

| Unit | Related Question(s) Desired (d) | Marks Allocated | | Evaluation Score |
|------------------------|------------------------------------|-----------------|------------|------------------|
| | | Actual (a) | d-a | |
| I | 1(a), 2(a, b) | 8 | 2+3+4=9 | 1 |
| II | 1(b), 3(a, b) | 8 | 2+3+4=9 | 1 |
| III | 1(c), 1(f), 4(a, b) | 12 | 2+2+3+4=11 | 1 |
| IV | 1(d), 5(a, b), 7(a) | 13 | 2+3+4+3=12 | 1 |
| V | 1(e), 6(a, b), 7(b) | 13 | 2+3+4+4=13 | 0 |
| Total Score (A) | | | | 4 |

2. Level of Difficulty-wise Analysis:

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------------|--|-----------------|----------------------|------------------|
| | | Desired (d) | Actual (a) | |
| Easy | 1(a), 2(a), 3(a), 4(a), 5(a), 6(a), 7(a) | 18.9 | 2+3+3+3+3+3 + 3 = 20 | 1.1 |
| Moderate | 1(b), 1(c), 1(d), 2(b), 3(b), 4(b) | 16.2 | 2+2+2+4+4+4 = 18 | 1.8 |
| Difficult | 1(e), 1(f), 5(b), 6(b), 7(b) | 18.9 | 2+2+4+4+4=16 | 2.9 |
| Total Score (B) | | | | 5.8 |

3. Quality (Order of thinking skill)-wise Analysis:

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|--|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | |
| Memory/ Understanding based | 1(a), 2(a, b), 5(a), 6(a) | 16.2 | 15 | 1.2 |
| Skill/ Application based | 1(d), 1(e), 1(f), 3(a, b), 4(a, b), 5(b), 7(a) | 27 | 27 | 0 |
| Analysis/Design based | 1(b, c), 6(b), 7(b) | 10.8 | 12 | 1.2 |
| Total Score (C) | | | | 2.4 |

4. Question-wise uniform distribution of Marks

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|------------------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | 2+2+2+2+2+2=12 | 12 | 12 | 0 |
| 2. | 3+4=7 | 7 | 7 | 0 |
| 3. | 3+4=7 | 7 | 7 | 0 |
| 4. | 3+4=7 | 7 | 7 | 0 |
| 5. | 3+4=7 | 7 | 7 | 0 |
| 6. | 3+4=7 | 7 | 7 | 0 |
| 7. | 3+4=7 | 7 | 7 | 0 |
| Total Score (D) | | | | 0 |

5. Percentage of choice

$$M = 40;$$

$$T = 54;$$

$$T_0 = 57$$

As $T < T_0$ the score $E = 0$

$$\blacktriangleright \text{Total Evaluation Score (TES)} = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E$$

$$= 0.2 \times 4 + 0.3 \times 5.8 + 0.3 \times 2.4 + 0.1 \times 0 + 0.1 \times 0$$

$$= 0.8 + 1.74 + 0.72 + 0 + 0 = 3.26$$

$$\blacktriangleright \text{Adherence Index (AI)} = 1 - \left(\frac{\text{TES}}{\text{Max. Marks (M)}} \right)$$

$$= 1 - 3.26/40 = 1 - 0.0815 = 0.9185 \text{ i.e. } 91.85 \%$$

**Evaluation
of
Mid Semester
Question Paper**

Pattern-D*Total No. of Pages**Roll No.***FIRST SEMESTER****B. Tech. (CO)****Mid SEMESTER EXAMINATION****DEC-2018****Subject :****Time: 1:30 Hours****Max. Marks: 30**

Note: Answer **ALL** questions. All questions carry equal Marks
Assume suitable missing data, if any.

- | | | |
|---|--|-------|
| 1 | [a] [Easy] (Memory) {UNIT-I} | [7.5] |
| | [b] [Moderate] (Skill/Application based) {UNIT-I} | [7.5] |
| 2 | [a] [easy] (Skill/Application based) {UNIT-II} | [7.5] |
| | [b] [difficult] (Analysis/Design) {UNIT-II} | [7.5] |

Data Sheet for Evaluation of the Question Paper

M = 30;

T = 30;

T₀ = 30

1. Coverage of Syllabus (A):

| Unit | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| I | 1ab | 15 | 15 | 00 |
| II | 2ab | 15 | 15 | 00 |
| III | | | | |
| IV | | | | |
| V | | | | |
| Score (A) | | | | 00 |

2. Level of difficulty (B):

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Easy | 1a, 2a | 12 | 15 | 3 |
| Moderate | 1b | 12 | 7.5 | 4.5 |
| Difficult | 2b | 6 | 7.5 | 1.5 |
| Score (B) | | | | 9 |

3. Order of thinking skill (C):

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Memory/ Understanding based | 1a | 9 | 6 | 1.5 |
| Skill/ Application based | 1b, 2a | 15 | 15 | 00 |
| Analysis/Design based | 2b | 6 | 7.5 | 1.5 |
| Score (C) | | | | 3 |

4. Uniform Marking (D):

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|------------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | | 15 | 15 | 00 |
| 2. | | 15 | 15 | 00 |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| Score (D) | | | | 00 |

5. **Choice in attempt (E):** It is suggested to have no choice in Mid-Sem examination. But if the question paper consists of choice, it should be given a score.

Otherwise, put

$$E = 0$$

$$\blacktriangleright \text{Total Evaluation Score (TES)} = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E$$

$$= 0.2 \times (0.0) + 0.3 \times (9) + 0.3 \times (3) + 0.1 \times (0.0) + 0.1 \times (0.00)$$

$$= 0.0 + 2.7 + 0.9 + 0.0 + 0.0 = 3.6$$

$$\blacktriangleright \text{Adherence Index (AI)} = 1 - \left(\frac{TES}{\text{Max. Marks (M)}} \right)$$

$$= 1 - (3.6/30) = 1 - 0.12 = 0.888 \text{ i.e. } 88 \%$$

Pattern-E

Total No. of Pages: 1

Roll No.

SECOND SEMESTER**B. Tech. (ECE)****Mid SEMESTER EXAMINATION****DEC-2018****Subject:****Time: 1:30 Hours****Max. Marks: 30****Note:** Answer all questions. Assume suitable missing data, if any.

- 1 Answer all the following questions: **[2×5]**
- [a] [Moderate] (**Memory/Understanding based**) {UNIT-I}
 - [b] [Easy] (**Memory/Understanding based**) {UNIT-I}
 - [c] [Difficult] (**Analysis/Design based**) {UNIT-II}
 - [d] [Difficult] (**Analysis/Design based**) {UNIT-II}
 - [e] [Difficult] (**Analysis/Design based**) {UNIT-I}
- 2 Answer all the following questions:
- [a] [Moderate] (**Memory/Understanding based**) {UNIT-I} **[5]**
 - [b] [Easy] (**Skill/Application based**) {UNIT-I} **[5]**
- 3 Answer all the following questions:
- [a] [Moderate] (**Skill/Application based**) {UNIT-II} **[5]**
 - [b] [Easy] (**Skill/Application based**) {UNIT-II} **[5]**

Data Sheet for Evaluation of the Question Paper

M = 30;

T = 30;

T₀ = 30

1. Coverage of Syllabus (A):

| Unit | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| I | 1abe, 2ab | 15 | 16 | 1 |
| II | 1cd, 3ab | 15 | 14 | 1 |
| III | | | | |
| IV | | | | |
| V | | | | |
| Score (A) | | | | 2 |

2. Level of difficulty (B):

| Level | Related Question(s) | Marks Allocated | | Evaluation Score |
|------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Easy | 1b, 2b, 3b | 12 | 12 | 00 |
| Moderate | 1a, 2a, 3a | 12 | 12 | 00 |
| Difficult | 1c, 1d, 1e | 6 | 6 | 00 |
| Score (B) | | | | 00 |

3. Order of thinking skill (C):

| Quality (Order of thinking skill) | Related Question(s) | Marks Allocated | | Evaluation Score |
|-----------------------------------|---------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| Memory/ Understanding based | 1ab, 2a | 9 | 9 | 00 |
| Skill/ Application based | 2b, 3ab | 15 | 15 | 00 |
| Analysis/Design based | 1c., 1d, 1e | 6 | 6 | 00 |
| Score (C) | | | | 00 |

4. Uniform Marking (D):

| Question No. | Marks of subparts (if any) | Marks Allocated | | Evaluation Score |
|------------------|----------------------------|-----------------|------------|------------------|
| | | Desired (d) | Actual (a) | d-a |
| 1. | | 10 | 10 | 00 |
| 2. | | 10 | 10 | 00 |
| 3. | | 10 | 10 | 00 |
| 4. | | | | |
| 5. | | | | |
| Score (D) | | | | 00 |

5. **Choice in attempt (E):** It is suggested to have no choice in Mid-Sem examination. But if the question paper consists of choice, it should be given a score.

Here, Score **E=0**

➤ **Total Evaluation Score (TES) = 0.2 A + 0.3 B + 0.3 C + 0.1 D + 0.1 E**

$$= 0.2 \times (2) + 0.3 \times (0.0) + 0.3 \times (0.0) + 0.1 \times (0.0) + 0.1 \times (0.0) = 0.4$$

➤ **Adherence Index (AI) = $1 - \left(\frac{TES}{Max. Marks (M)} \right)$**

$$= 1 - (0.4/30) = 1 - 0.0133 = 0.9867 \text{ i.e. } \mathbf{98.67\%}$$

CONCLUSIONS

Now, the aspect remains to be addressed is as to who should evaluate the question paper?

At the first instant, the teacher (who has taught the subject currently) should evaluate the question paper him/herself. If the Adherence index comes out to be above the minimum permissible level (0.85), then the question paper is acceptable. However, if AI is below permissible level, some questions should be changed to meet the requirements.

Finally, University may consider evaluating a few randomly selected question papers from each department, after the exam has been conducted. This will ensure the quality of question papers at the University level. A feedback may be given to the concerned teachers/ Head of the Department.



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