ANSWER KEY

FLUID COUPLING VERSUS VFDs FOR HIGH INERTIA ROTATING DRIVEN LOADS

I. READING COMPREHENSION **(9 marks)**

A. *Circle the most adequate explanation for the adage below*. **(1 mark/1x1)**
   1. "There is more than one way to skin a cat" *means*: system designers agree that:
      c. applications are varied when dealing with high inertia rotating driven loads.

B. *Which sentence in the first paragraph shows the real meaning of the adage?* **(1 mark/1x1)**
   2. "**system designers are faced with choices; whether they are designing a new application or retrofitting an old one**"

C. *What do the words and phrases in bold in the text refer to?* **(1.5 marks/0.5x3)**
   3. "*this style of system*": **a high inertia rotating driven load**
   4. "*these factors*": **massive potential energies, potential shock loads, resonance issues or any other**
      number of other concerns
   5. "*these technologies*": **fluid coupling and VFDs**

D. *All the statements are **FALSE**. Find the justification for each in the text.* **(1.5 marks/0.5x3)**
   6. FALSE: "**or retrofitting an old one**"
   1. FALSE: "**Applications can vary from large conveyor systems, crushers, pumps, fans or any number**
      of equipment types."
   2. FALSE: "**In fluid couplings, for example, the oil enables an automatic transmission vehicle to be at rest**
      while the engine is running."

E. *Write each word under the correct category in the chart.* **(2**
mar efficient / mitigate / slowdown / design / ramp up / retrofit / high / dampen

MOTION	CHARATERISTICS	CONSTRUCTION	CONTROL
9. slowdown	**11.** efficient	**13.** design	**15.** mitigate
10. ramp up	**12.** high	**14.** retrofit	**16.** dampen

F. *Read the text carefully and use information in the box to complete the table.* **(2 marks/0.25x8)**

Table: STAGES IN ANY SYSTEM DESIGN

17. Basic situation which all system designers are confronted with.	**a.** being faced with options
Stage 1 **18.** Options available to system designers	**b.** design a new application **c.** retrofitting an old one

Stage 2 **19.** Two criteria the choice is based on.	d. **define most efficient way of completing tasks** e. **define most economical way of completing tasks**
Stage 3 **20.** End result after option analysis	f. **better and more robust design**
21. Consequences if these stages are not followed.	g. **project delays** h. **budget overruns**

II. LINGUISTIC COMPETENCE   (6.5 marks)

G. _Rewrite the following sentences using the given prompts._   _(3 marks/075X4)_

22.   They had never applied such a sophisticated design system before.

It was the first time such **a sophisticated design system had been applied.**

23.   With the invention of electronic components, the costs of devices are increasing.

With the development of electronic components, **the costs of devices are getting higher and**

higher.

24.   Startup and slowdown are the major concerns in high inertia rotating driven loads, but attention must be paid to equipment behaviour while running.

Although **startup and slowdown are the major concerns in high inertia rotating driven loads, attention must be paid to equipment behaviour while running.**

25.   Both fluid couplings and VFDs have inherent benefits and drawbacks.

Fluid couplings have inherent benefits and drawbacks, so **do VFDs.**

H. _Fill in the gaps with the correct prepositions._   _(1.5 marks/0.25x6)_

WITH / AROUND / AS / TO / OF / FROM /

26. from

27. to

28. of

29. with

30. around

31. as

 I. _Match **A** and **B** with the appropriate connectors to complete the sentences_.   (**2 marks**)

32.   (…) **while** also controlling current.

33.   (…) **but** it should not be overlooked

34.   (…) **thanks to** an observer control system that offers excellent results by using algorithms.

35.   (…) **as** a speed sensor for high inertia rotating driven loads is used.

III. WRITING   _(4.5 marks)_

   36. _Choose a topic and write a passage of not more than 150 words._

Relevance: **1 mark**

Accuracy: **1 mark**

Coherence: **1 mark**

Contents: **1.5 marks**