Roll No. .....

97676

BCA. 4th Semester

Examination – April, 2018

SOFTWARE ENGINEERING

Paper : BCA-209

Time : Three Hours] *[Maximum Marks : 80*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all. Question No. **1** is ***compulsory*** and attempts ***four*** more questions by selecting ***one*** question from each Unit. All questions carry equal marks.

1. (a) Define software engineering ? What are its goals ?

(b) What is the goal of problem analysis ?

(c) Define the structure of Software Requirement Specification (SRS).

(d) Where do we use reverse engineering ?

(e) What is object oriented testing ?

(f) What are the main approaches of requirement analysis ?

(g) What is the software architecture and what are the attributes of good design ?

(h) Differentiate between coupling and cohesion.

$8 \times 2 = 16$

UNIT – I

2. Explain waterfall model linear sequential classical life cycle model traditional software life cycle model of software engineering is not accurate of software development activities. Limitations of waterfall model. 16

3. (a) What do you mean by software crisis ? What is its reason ? 8

(b) What do you mean by SRS ? What are its characteristics ? What are its components ? What are the needs of SRS ? 8

UNIT – II

4. (a) What do you understand cost estimation ? What are the major factors used in cost estimation model ? 8

(b) Explain the role of management in software development. 8

5. What are the factor affecting the cost of the software ? Give a detailed description of basic COCOMO, intermediate COCOMO and advanced COCOMO. 16

UNIT – III

6. (a) List the main advantages of using object oriented techniques over function oriented approach. 8

(b) Elaborate the concept why software design is useful ? 8

7. (a) Enumerate the important steps involved in developing a software system using object oriented methodology. 8

(b) Outline the criteria of for selecting a software design method. 8

UNIT – IV

8. What is software maintenance ? Why is too costly ? Also describe factors techniques through which software maintenance can be minimized. When it starts and why it is costly ? 16

9. (a) What do you mean by integration testing ? What are different approaches for it ? Discuss any ***three*** approaches with its merits and demerits. 8

(b) What are the process metrics which may be useful for accessing maintainability ? 8

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Note : Question No. 1 is ***compulsory***. Attempt ***five*** questions in all, at least ***one*** from each Unit. All questions carry equal marks.

1. (a) What is a software crisis ? Discuss the main reason of software crisis. 2

(b) What is Data Dictionaries ? Explain. 2

(c) What do you mean by software requirement specification document ? Explain. 2

(d) What is Object Oriented Design ? Explain. 2

SECTION – A

2. (a) Discuss the different ways of producing refrigeration. 10

(b) What are secondary refrigerants ? Explain. 10

3. A Bell-Coleman gas refrigeration cycle is working between the pressure limits of 1 Bar and 8 Bar. Temperature of gas at entry to compressor is 20°C and at entry to expander is 30°C. Law of expansion and compression are both according to the law $P.V^{1.3} = C$. Find the net workdone per cycle, refrigerating effect and CoP. Assume $r = 1.4$ and $C_p = 1.05$ kJ/kgK.

If the system is designed to produce 10 tons of refrigeration having actual CoP as 60% of the theoretical CoP, find actual power required to run the machine. 20

SECTION – B

4. The following data refer to a two stage compression NH_3 refrigerating system with water intercooler. Condenser pressure = 14 bar

Evaporator pressure = 2 Bar, Intercooler Pressure = 5 Bar, Load in the evaporator = 2 TR.

If the temperature of the desuperheated vapour and sub cooled liquid refrigerant are limited to 30°C. Find :

(a) Power required

(b) CoP. 20

5. Write about :

(a) Electrolux Refrigeration. 10

(b) Steam jet Refrigerating system. 10

SECTION – C

6. Explain the following :

(a) Psychrometric chart 10

(b) Cooling with adiabatic humidification of air. 10

7. The room SH and LH loads for an air conditioned space are 25 KW and 5 KW respectively. The room condition is 25°C DBT and 50% RH. The outdoor condition is 40°C DBT and 50% RH. The ventilation requirement is such that on mass flow rate basis 20%

9. **(a)** What is Software Maintenance ? What is the importance of Software Maintenance ? What are various types of Software maintenance ? Discuss in detail. 8

(b) What is Software Configuration Management ? Discuss the importance of software configuration management in detail. 8