Code No. 3122 / O/S

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) I-Semester (Old) Examination, May / June 2017

Subject : Building Technology and Services

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (10 x 2.5 = 25 Marks)

1 Write briefly about air changes and humidity.
2 Explain the term 'Orientation' of a building.
3 Classify sound absorbing materials.
4 What is 'Optimum Time of Reverberation'?
5 What are the different measures taken to reduce spread of fire?
6 Describe briefly about plumbing system in a residential building.
7 Explain the necessity of green buildings.
8 List out the different low energy materials used in green buildings.
9 Explain the procedure to draw a 'Pyramid' using Auto Cad.
10 What is 3D drafting?

PART – B (50 Marks)

11 a) State the principles underlying Buildings Bye laws.
b) What are the principles to be considered in judging building plans?

12 a) Write the requisites for good acoustics.
b) Explain in detail about Resonant Panel Absorbents and Cavity Resonators.

13 a) Define 'circulation', and discuss in detail different measures for improving circulation in rooms.
b) Explain the significance of aspect and prospect for residential buildings.

14 a) What are the different sanitary fittings normally used in buildings? Explain in detail about the function of flushing cistern.
b) Write a short note on Fire resistance in structural elements.

15 a) Explain the meaning of Green building. State the different ratings of green building under LEED.
b) Suggest various methods to make a building 'a Green Building'.

16 a) Explain the design considerations for comfort in a building.
b) What are the different systems of ventilation? Briefly explain.

17 Write short notes on the following :
a) Effective water conservation systems
b) Different views in Auto CAD 3D.

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Code No. 3401 / N/S

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) I - Semester (New)(Suppl.) Examination, May / June 2017

Subject : Building Technology and Services

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

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 What are the different measures used to get artificial ventilation in buildings?
2 What is the importance of building bye laws?
3 Discuss the importance of Acoustic in buildings.
4 Explain the optimum time of reverberation.
5 What are the precautionary measures taken for the fire resistance in buildings?
6 What are the different communication services used in building?
7 Explain the necessity of green buildings?
8 List out different low energy materials used in green buildings.
9 Explain the step by step procedure to draw a cylinder using Auto CAD.
10 Write about the command Extrude.

PART – B (50 Marks)

11 (a) List out different principles of planning of buildings, and explain any two in detail.
(b) As per buildings bye-laws, state different provisions for lighting and ventilation in buildings.

12 (a) What is meant by frequency of sound? Explain in detail the process of measurements of sound.
(b) Explain the phenomenon of sound distribution in an auditorium.

13 Draw a typical water supply arrangement inside a house. Show supply arrangements clearly with all features indicated in diagram.

14 (a) What is the concept of green building? Explain the factors considered in selecting a site for green building.
(b) Explain the technology of green buildings through a certification system 'LEED'?

15 Plan a residential building, given the sizes of different rooms. Building face East.
(i) Master bed room = 14m^2 (ii) Living room = 20 m^2
(iii) Dining area = 8 m^2 (iv) Kitchen = 10 m^2
(v) Verandha = 8 m^2
Sketch the plan, sectional elevation showing maximum details. Provide doors and windows wherever necessary with suitable dimensions.

16 (a) Define 'Circulation'. And explain the design process of a small stair case in a residential building.
(b) Discuss different design considerations for comfort in buildings.

17 Write short notes on the following:
(a) Various certification systems for green buildings
(b) Solid editing commands in Auto CAD 3D

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Code No. 3128 / O/S

FACULTY OF ENGINEERING

B.E. 3/4 (EEE/Inst.) I - Semester (Old) Examination, May / June 2017

Subject : Digital Electronics and Logic Design

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

Note: Answer all questions from Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1 State De Morgan's theorem. (2)
2 Express the function F(x,y z) = (xy + z) (xz + y) as product of maxterms. (3)
3 Differentiate between multiplexer and de-multiplexer. (3)
4 What is Fan-in? (2)
5 Distinguish between a half-subtractor and full-subtractor. (3)
6 Give an example of 2's complement arithmetic. (2)
7 What is a ripple counter? (2)
8 Give the excitation table for SR and JK flip-flops. (3)
9 What is a state diagram? Give an example. (3)
10 Discuss about PROM. (2)

PART – B (50 Marks)

11 (a) Reduce the following expression
f= $\sum_m$(0, 1, 2, 3, 5, 7, 8, 9, 10, 12, 13) and implement the minimal expression using NAND logic. (8)
(b) What is incompletely specified function? (2)

12 Explain about:
(a) Wired AND operation (5)
(b) Open collector output (5)

13 Discuss about :
(a) Half adder (5)
(b) Full subtractor (5)

14 (a) Explain up/down counters. (5)
(b) Describe the operation of ring counters. (5)

15 (a) List out few applications of registers. (3)
(b) Discuss the steps involved in the design of counters. (7)

16 (a) Prove the following: (5)
(i) $AB + \overline{A}C + BC = AB + \overline{A}C$ and
(ii) $AB + \overline{A}C = (A + C)(\overline{A} + B)$
(b) Explain about RTL logic. (5)

17 Write short notes on :
(a) Sequence detector (5)
(b) Debouncing switch (5)

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Code No. 3407 / N /S

FACULTY OF ENGINEERING

B.E. 3/4 (EEE/Inst.) I-Semester (New) (Suppl.) Examination, May / June 2017

Subject : Digital Electronics and Logic Design

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Show that $A \oplus B = A\overline{B} + \overline{A}B$ and construct the corresponding logic diagram.		3
2	What are commutative and distributive laws?		2
3	What is a combinational circuit? Draw the block diagram.		2
4	Subtract 14 from 46 using the 8-bit 2's complement arithmetic.		3
5	Differentiate encoder and decoder.		3
6	What is fan-in?		2
7	What is basic latch circuit?		3
8	Show the JK flip flop and D flip-flop excitation tables.		2
9	What is mealy model? Give an example.		3
10	Explain state diagram.		2

PART – B (50 Marks)

11	a)	Map the expressions i) $f = \overline{A}\overline{B}C + A\overline{B}C + \overline{A}B\overline{C} + AB\overline{C} + ABC$ ii) $f = (A+B+C)(\overline{A}+B+\overline{C})(\overline{A}+\overline{B}+\overline{C})(A+\overline{B}+\overline{C})(\overline{A}+\overline{B}+C)$	5
	b)	Complement the following expression : i) $\overline{A}\overline{B}\overline{C} + \overline{A}B\overline{C} + A\overline{B}\overline{C} + AB\overline{C}$ ii) $(A\overline{B} + A\overline{C})(BC + B\overline{C})(ABC)$ iii) $A + \overline{B}C(A + B + \overline{C})$	5
12	a)	Explain about error detecting codes.	5
	b)	Discuss 4-bit look ahead carry adder.	5
13	a)	Explain ECL.	5
	b)	Discuss about open collector outputs.	5
14	a)	Describe the operation of debouncing switch.	5
	b)	Explain JK flip-flop.	5
15	a)	Explain the design procedure of counters.	5
	b)	Implement full adder using PROM.	5
16	a)	Reduce the expression f = $\overline{\wedge}$M(0, 1, 2, 3, 4, 7) using K-map.	5
	b)	Discuss about half adder.	5
17	a)	Write about wired AND operation.	5
	b)	Explain about programmable logic devices.	5

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Code No. 3414 / N /S

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) I-Semester (New) (Suppl.) Examination, May / June 2017

Subject : Analog Communication

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Enlist the reasons for modulation.	3
2	An AM transmitter radiates unmodulated power of 400W and if two sine waves are modulated simultaneously with modulation indices 0.4 and 0.6. Find the net modulation index, total transmitted power.	2
3	Justify that FM is non-linear modulation.	2
4	Compare NBFM and WBFM.	2
5	Define sensitivity and fidelity.	2
6	Antenna coupling network of AM super heterodyne receiver has a loaded Q of 60. Find the image frequency and it's rejection ratio if the income RF signal frequency is 1200 KHz.	3
7	Briefly explain various external sources of noise.	3
8	In a receiver RF stage has a noise figure of 10 dB and an available power gain of 15 dB, this is succeeded by a mixer stage with a noise figure of 20dB. Calculate the overall noise figure of this cascaded network.	2
9	Suggest a suitable sampling frequency to sample a speech signal of bandwidth 4KHz. Discuss the effect of not obeying sampling theorem.	3
10	In what way PPM is superior to PAM and PWM.	3

PART – B (50 Marks)

11	a)	Explain the generation and demodulation of DSB-SC signal with necessary mathematical analysis.	6
	b)	Define Hilbert transform. What are the properties of Hilbert transform. Find the Hilbert transform of $m(t) = 10 \sin 200\pi t$.	4
12	a)	Explain the generation of FM signal using direct method.	6
	b)	An angle modulated signal is given by $s(t) = 12 \cos [8 \times 10^8 \pi t + 6 \sin 1250t]$ dissipates power across 1Ω resistive load. Determine the i) Total power ii) Maximum phase deviation iii) Maximum phase deviation iv) Transmission bandwidth	4
13	a)	Explain the operation of an super heterodyne receiver with an emphasis on automatic gain control.	5
	b)	With a neat diagram explain the working of direct FM transmitter with an emphasis on Automatic Frequency Control.	5

..2

14 a) Derive the expression for figure of merit of AM system. Find the figure of merit at a modulation depth of m = 0.6. 8

b) The noise figure of an amplifier at room temperature of 27^0c is 5dB. Find the equivalent noise temperature. 2

15 a) State and prove sampling theorem for low pass signals. 5

b) Explain the generation and detection of PWM signal. 5

16 a) Explain how envelope detector performs AM detection. 4

b) Express FM signal in terms of Bessel functions. Draw the spectrum and discuss the transmission bandwidth. 6

17 Write short notes on the following :

a) Types of sampling 4

b) Pre and De-emphasis circuits 3

c) Internal noise sources 3

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Code No. 3135 / O/S

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) I - Semester (Old) Examination, May / June 2017

Subject : Analog Communication

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

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 An unmodulated carrier of 75 W has 100 W of total Power when modulated, then calculate its modulation index (m) in percentage. (2)

2 Derive an expression for single tone FM wave (3)

3 What do you mean by capture effect? (2)

4 Write the properties of Hilbert transform. (3)

5 Explain the importance of AVC. (2)

6 Define Image frequency and write an expression for Image frequency rejection ratio. (3)

7 Compare AM and FM with respect to noise performance. (3)

8 Define thermal and shot noise (2)

9 What is the noise power at room Temp 25°C, when the bandwidth is 1 kHz? (2)

10 Compare natural and flattop sampling. (3)

PART – B (50 Marks)

11 (a) Explain with suitable diagram how DSB-SC signals are generated. (6)
(b) What is the need of AMSSB? Calculate the power transmitted in AMSSB if the modulation index is 60% if the carrier power was 500 watts. If in the same case AMDSB were used what would have been the power? (4)

12 (a) Describe an FM signal. Sketch its spectrum marking important values and from this spectrum give an estimate of the bandwidth of the FM signal. (5)
(b) Draw the block diagram of an Armstrong indirect FM transmitter and describe its operation. (5)

13 (a) Classify AM Transmitters and explain them with block diagram. (6)
(b) When a super heterodyne receiver is tuned to 555KHz, its local oscillator provides the mixer with an input at 1010KHz, what is the image frequency? The antenna at receiver is connected to mixer via a tuned circuit whose loaded Q is 40. What will be rejection ratio for the calculated image frequency? (4)

14 (a) What are external and internal noises? How internal system noise can be arrived at? (4)
(b) Explain using phasor diagram the effect of noise on frequency modulation (6)

15 (a) What is meant by Pulse Position Modulation? Explain the generation of Pulse Position modulation? (6)

(b) Explain the PAM Noise performance. (4)

16 (a) Draw the block diagram of PLL and briefly explain its working. (6)

(b) A transmitter with 20 kW carrier transmits 22.4 kW when modulated with a single sine wave. Calculate the modulation index, if the carrier is simultaneously modulated with another sine wave at 50% modulation. Find the total transmitted power. (4)

17 Write short notes on any **two** of the following: (10)

(a) Vestigial sideband Modulation (VSB)

(b) Noise in Two port network

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Code No. 3141 / O /S

FACULTY OF ENGINEERING

B.E. 3/4 (Mech.) I-Semester (Old) Examination, May / June 2017

Subject : Hydraulic Machinery and Systems

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 Classify any three types of hydraulic machines. 2

2 A jet of water of 100mm diameter impinges normally on a fixed plate with a velocity of 30 m/s. The force exerted on the plate is 3
a) 7.07 kN b) 7.70 kN c) 7.71 kN d) 7.17 kN

3 Define specific speed of pump. Also write its expression. 2

4 Define priming. Explain in detail. 2

5 Explain the construction details of oil reservoir. 2

6 Briefly explain cavitation and its effect on pump. 3

7 Explain unit quantities in Hydraulic turbines. 2

8 Define gross head, net head and efficiency of turbine. 3

9 Differentiate between Kaplan and propeller turbine. 3

10 Explain the selection criteria for pumps and actuators. 3

PART – B (50 Marks)

11 a) Find an expression for the efficiency of a series of moving curved vanes when a jet of water strikes the vanes at one of its tips. 5

b) A jet of water of diameter 40mm moving with a velocity of 20 m/s strikes a fixed plate in such a way that the angle between the jet and the plate is 60^{o}. Find the force exerted by the jet on the plate i) in the direction normal to the plate ii) in the direction of jet. 5

12 A centrifugal pump having outer diameter equal to two times the inner diameter and running at 1200 rpm works against a total head of 75m. The velocity of flow through the impeller is constant and equal to 3 m/s. The vanes are set back at an angle of 300 at outlet. If the outer diameter of the impeller is 600 mm and which at outlet is 50 mm, determine a) vane angle at inlet, b) work done per second by impeller, c) manometric efficiency. 10

13 a) What is negative slip in reciprocating pump? Explain with neat sketches the function of air vessels in reciprocating pump. 6

b) List out the differences between centrifugal pump and reciprocating pump. 4

14 A Pelton wheel is to be designed for the following specification. Power = 735.75 kW, S.P. Head = 200 m, speed = 800 rpm, η_0 = 0.86 and jet diameter is not to exceed one-tenth the wheel diameter. Determine : i) Wheel diameter, ii) The number of jets required and iii) Diameter of the jet. Take C_v = 0.98 and speed ratio = 0.45. 10

..2

15 a) Explain the working principle of Pelton turbine with the help of neat sketch. 6
b) Differentiate between impulse and reaction turbines. 4

16 With a neat diagram, explain the working of single acting and double acting actuators. 10

17 a) Difference between inward and outward radial flow turbine. 3
b) Derive expression for impact of jet on moving inclined vane. 3
c) Explain gear pump and vane pump. 4

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Code No. 3421 / N/S

FACULTY OF ENGINEERING

B.E. 3/4 (Mech.) I – Semester (New) (Suppl.) Examination, May / June 2017

Subject: Hydraulic Machinery and Systems

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

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 A jet of water is directed through a nozzle of 5cm diameter against a fixed flat plate held normal to the jet. If the flow through the jet is 100 lit/sec, then the force exerted on the plate is (a) 5093 N (b) 5092 N (c) 5091 N (d) 5000 N. 3

2 The efficiencies of a jet of water having a velocity 'V' striking a series of vertical plates moving with a velocity 'U', is maximum when (a) U = 2V (b) $U = \frac{V}{2}$ (c) $U = \frac{3V}{2}$ (d) $U = \frac{4V}{3}$. 3

3 The indicator diagram of the reciprocating pump indicates
   a) Flow Vs swept volume of the piston
   b) Pressure head Vs swept volume of the piston
   c) Pressure Vs speed
   d) Velocity Vs head 2

4 A reciprocating pump takes water from 3m and delivers at 45m when running at 50 rpm its diameter and stroke are 18 cm and 36 cm respectively. This is power required to drive the pump (the mechanical efficiency is 85%) (a) 8.64 kw (b) 8.46 kw (c) 8.74 kw (d) 8.47 kw. 3

5 The centrifugal pump is required to deliver 150 lit/sec at a head of 45m when running at 1750 rpm. The specific speed of the pump is (a) 18 (b) 125 (c) 39 (d) 1260. 2

6 Water is to be lifted by a net head of 180m. Identical pumps with specific speeds of 30 and rotating at 1450 rpm capable of discharging 200 lit/sec are available. The number of pumps required is (a) 4 (b) 3 (c) 2 (d) 8. 3

7 A pelton wheel develops 500 kw under a head of 30m. If the overall efficiency of the turbine is 0.83. The discharge through the turbine in (m^3/sec) is (a) 2.50 (b) 2.05 (c) 1.41 (d) 1.04. 3

8 A turbine is called an impulse turbine if the total energty at the inlet of the turbine is
   a) Kinetic energy only
   b) PE only
   c) (K.E + P.E)
   d) None of the above 2

9 Axial flow pump is started with its delivery valve
   a) Kept fully open
   b) Kept fully closed
   c) Kept partly open
   d) None of the above 2

10 For high discharge and low head such as irrigation, the type of pump preferred is
   a) Centrifugal pump
   b) Reciprocating pump
   c) Propeller pump
   d) Gear pump 2

PART – B (5x10 = 50 Marks)

11 Explain the classification of various hydraulic machines.

12 A metal plate 20cm x 20cm and 1cm thick is hung so it can swing freely about upper horizontal edge. A horizontal jet of water 2cm in diameter strikes with it axis perpendicular and 5cm below the edge of hinge and keeps it steadily inclined at 30^o to the vertical. Find the velocity of jet required. Take specific weight of the plate as 75.54 kN/m^3.

13 Define indicator diagram and prove that the area of indicator diagram is proportional to the work done by reciprocating pump.

14 A centrifugal pump delivers water against a head of 14.5m when running at 1000 rpm. The outlet angle is 30^o. The outlet diameter of the impeller is 30cm and outlet width is 5 cm. Find the discharge capacity of the pump in lit/min. Assume manometric efficiency as 90%.

15 Differentiate between inward radial flow and outward radial flow reaction turbines and also state why inward radial flow reaction turbines are preferred in practice.

16 A turbine is to operate under a head of 30m at 250 rpm. The discharge is 10.5 m^3/s if the efficiency is 85%. Find out
   a) Power required
   b) Specific speed of the turbine and
   c) Performance under the head of 20m

17 Explain the working and construction detail of double acting actuator and single acting actuator.

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Code No. 3144 / O/S

FACULTY OF ENGINEERING

B.E. 3/4 (Prod.) I – Semester (Old) Examination, May / June 2017

Subject: Machine Tool Engineering

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

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Differentiate between orthogonal cutting and oblique cutting.
2 Draw neat sketch of a single point cutting tool indicating its complete geometry.
3 List the different types of tool wear.
4 What is chip breaker? Describe various common forms.
5 What are the possible reasons of tool failure? Explain brief.
6 Give the specification of a grinding wheel.
7 How do you classify the different types of drills?
8 What are the two tool positioning systems used in NC programming?
9 What is adaptive control? Explain.
10 Differentiate between the shaper and planer.

PART – B (5x10 = 50 Marks)

11 A carbide tipped tool of designation 0-10-5-5-8-90-1 (mm) is used to turn a steel work piece of 50 mm dia with a cutting speed of 240 m/min and feed of 0.25 mm/rev. The data obtained shows the cutting force = 180 N, feed force = 100 N and chip thickness = 0.32 mm. Calculate the shear angle, shear force, normal force acting on shear plane, fiction force, coefficient of friction angle and velocity of chip flow.

12 a) How do you define the cutting tool life? Explain the parameters that control the tool life of a single point cutting tool.
b) What is machinability? Discuss the role of different machining factors that effect on machinability of work material.

13 a) What machining operations can be performed on lathe?
b) How threading tools are set for internal and external threading?

14 a) How are the milling machines classified?
b) What are the differences between simple and differential indexing? Explain the relative merits.

15 a) Which materials are used in the manufacture of grinding wheels? What properties they impart to the wheel.
b) What do you understand by canned cycle in manual programming? Explain the differences between the operation of the canned cycles G81 and G83.

16 a) Describe the desirable properties of tool materials.
b) Sketch gear shaping cutter and label its elements.

17 Write short notes on the following:
a) Work holding devices in lathe
b) Flexible manufacturing systems
c) Gear cutting machines.

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Code No. 3424 / N/S

FACULTY OF ENGINEERING

B.E. 3/4 (Prod.) I – Semester (New) (Suppl.) Examination, May / June 2017

Subject: Machine Tool Engineering

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

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Why diamond tool is not recommended for machining of carbon steels?
2 Sketch the tool geometry of a single point cutting tool.
3 List the different types of tool wear.
4 What is chip breaker? Describe various forms.
5 Explain the criteria for tool wear.
6 Give the specification of a lathe.
7 Differentiate up and down milling.
8 What are the two tool positioning systems used in NC programming?
9 What is adaptive control? Explain.
10 What are the common devices used for clamping the work on a milling machine table?

PART – B (5x10 = 50 Marks)

11 A carbide tipped tool of designation 0-10-5-5-8-90-1 (mm) is used to turn a steel work piece of 50 mm dia with a cutting speed of 240 m/min and feed of 0.25 mm/rev. The data obtained shows the cutting force = 180 N, feed force = 100 N and chip thickness = 0.32 mm. Calculate the shear angle, shear force, normal force acting on shear plane, fiction force, coefficient of friction angle and velocity of chip flow.

12 a) How do you define the cutting tool life? Explain the parameters that control the tool life of a single point cutting tool.
b) What is machinability? Discuss the role of different machining factors that effect on machinability of work material.

13 a) Explain the tool and work holding devices in lathe with sketches.
b) Explain the methods used for the generation of threads in a lathe.

14 a) What are the various types of milling cutters that are used in milling?
b) What are the differences between simple and differential indexing? Explain the relative merits.

15 a) Describe a grinding wheel structure and state different bonding and abrasive materials used in it.
b) Explain with a neat sketch the operation of the canned cycle G81 and G82 as per ISO norms.

16 a) Describe the desirable properties of tool materials.
b) Sketch gear shaping cutter and lable its elements.

17 Write short notes on the following:
a) Cutting fluids
b) Group technology
c) Thread cutting machines.

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Code No. 3427 / N/S

FACULTY OF ENGINEERING

B.E. 3/4 (AE) I - Semester (New)(Suppl.) Examination, May / June 2017

Subject : Automotive Chassis Components

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

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	What are the materials used for chassis and frames?	(3)
2	How is a frame different from chassis?	(2)
3	Write the purpose of front axle and mention its types.	(3)
4	Describe work and warm wheel type steering gear box.	(2)
5	What is the use of propeller shaft? How it is connected in the transmission system?	(3)
6	Explain differential principle in derive system.	(2)
7	Describe the role of shock absorbers in automobiles.	(3)
8	List types of suspension systems.	(2)
9	What are the functions of parking or emergency brakes?	(3)
10	Describe the procedure of adjustment of brakes.	(2)

PART – B (50 Marks)

11 What are the types of chassis layouts? Explain in detail with sketches. (10)

12 Explain the following terms with the help of diagrams: (10)
(i) Caster (ii) Camber (iii) King pin inclination (iv) Toe-in and (v) Toe-out

13 List various types of rear axles and describe the working of any two types with the help of suitable diagrams. (10)

14 Describe a leaf spring suspension system and coil spring suspension system with suitable sketch. (10)

15 Why disc brakes are better than drum type brakes? Explain them in detail using diagrams. (10)

16 List various types of universal joints explain in detail with the help of suitable sketch. (10)

17 Write short notes on the following: (10)
(a) Vacuum brakes
(b) Electrical brakes and
(c) Air brakes

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Code No. 3147/O / S

FACULTY OF ENGINEERING

B.E. 3/4 (AE) I-Semester (Old) Examination, May / June 2017

Subject : Automotive Chassis Components

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 List various types of frame and describe in brief the conventional frame.
2 What are the functions of frame?
3 Sketch a line diagram showing the layout of a steering system. List the main parts of which it consists.
4 What do you mean by : i) Line axle, and ii) Dead axle?
5 Why is hollow shaft used as propeller shaft?
6 Draw a line diagram of a steering linkage for independent front suspension type vehicle.
7 Describe a coil spring suspension system.
8 Explain about the drum and disk brakes.
9 What is the function of a shock absorber? How does a hydraulic shock absorber work?
10 Explain the concept of dual brake system.

PART – B (50 Marks)

11 a) Explain the various loads coming on the chassis frame.
b) Describe in detail about various load acting on the ladder chassis with neat sketches.

12 Write short notes on :
i) Determination of bearing loads on the front axle
ii) the Ackerman principle

13 a) Explain the construction of rear axles, the types of loads acting on the rear axles.
b) Explain the construction of different types of axle housings.

14 Explain about rubber suspension system, pneumatic suspension and shock absorbers.

15 a) Write short notes on eddy retarders, retarded engine brakes.
b) Give the constructional details about the theory of braking and explain about hydraulic and vacuum assisted brake systems.

16 a) What is the function steering linkage? Describe the working of steering linkage for rigid axle suspension.
b) Write the Ackerman's principle of steering. Show with the help of a diagram when vehicle takes a right turn.

17 Write short notes on the following :
a) Power steering
b) Anti lock braking system
c) Leaf springs

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Code No. 3434 / N/S

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I-Semester (New) (Suppl.) Examination, May / June 2017

Subject : Software Engineering

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Why software engineering is said to be layered technology?		2
2	What is Agility?		3
3	What is an analysis model?		2
4	Briefly discuss about the tracking the progress of the project.		3
5	Define cardinality and modality.		2
6	Distinguish between refactoring and refinement.		3
7	What is software architecture?		2
8	What is object constraint language?		3
9	What is stress testing?		2
10	What is pattern? Discuss about testing patterns.		3

PART – B (50 Marks)

11	a)	What is process framework? Explain about the umbrella activities of a software process framework.	5
	b)	Distinguish between incremental and evolutionary process models. Explain spiral model in detail.	5
12	a)	Explain about software project personnel.	5
	b)	What is the purpose of requirements Elicitation? Who are the different stake holders involved in requirements elicitation?	5
13	a)	Enumerate the characteristics of a good software design.	5
	b)	Explain Scenario based modeling approach.	5
14	a)	Define cohesion and coupling. Explain its types.	5
	b)	What is a component? Explain how to conduct component-level design.	5
15	a)	Define software testing. Explain Alpha testing and Beta testing.	5
	b)	Explain the concept of basis path testing in detail with an example.	5
16	a)	Explain O-O testing methods.	5
	b)	List out ISO quality factors and discuss about the metrics for maintenance.	5
17	Write short notes on the following :		
	a)	Unified process	4
	b)	Regression testing	3
	c)	Personal and team process	3

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Code No. 3153/O / S

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I-Semester (Old) Examination, May / June 2017

Subject : Software Engineering

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

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	What do you mean by SDLC? List the various phases involved in it.	3
2	What is an iterative process?	2
3	List the objectives of planning and managing a project.	2
4	What is Risk? How do you quantify it?	3
5	List the goals of analysis modeling.	3
6	What is the purpose of design?	2
7	Define software architecture.	2
8	Differentiate cohesion and coupling.	3
9	When is testing complete?	2
10	Differentiate fault-based testing and scenario based testing.	3

PART – B (50 Marks)

11 What are evolutionary models? Explain the spiral model in detail. 10

12 Why is efforst estimation considered as crucial? List the various types of effort estimation with examples of each type. 10

13 Explain the elements involved in the dimensions of design model in detail. 10

14 Explain the different models that come into play when UI is analyzed and designed in detail. 10

15 What is product metrics? Explain the steps involved in calculating functions points in detail. 10

16 Write short notes on :
- a) FDD (Feature Driven Development) 3
- b) Scrum 3
- c) Object-oriented modeling 4

17 Write short notes on :
- a) Art of Negotiation 3
- b) Layered Architectural style 4
- c) Smoke testing 3

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Code No. 3155 / O/S

FACULTY OF INFORMATICS

B.E. 3/4 (IT) I - Semester (Suppl.) Examination, May / June 2017

Subject : Software Engineering

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

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 What is Requirements Engineering? List different activities of if.. (3)
2 What are different quality Attributes given by Hewlett-Pack ord? (2)
3 Define coupling and cohesion? List few coupling categories. (4)
4 What is meant by component qualification. (2)
5 What are McCalls quality factors? (3)
6 What are four P's? (2)
7 What is verification and validation? (2)
8 What is Unit Testing? (2)
9 Define SCM. (2)
10 What is QFD? (3)

PART – B (50 Marks)

11 Discuss about evolutionary process models and give an example of software project that is amenable to these models. (10)

12 Write the steps required for conducting component-level design for an object-oriented systems. (10)

13 Explain about system strategies in detail. (10)

14 (a) Write about following Design concepts: separation of concerns, modularity and functional independence. (6)
(b) Give Metric's for specification quality. (4)

15 What are Risk projection steps? Explain different techniques used for projecting Risks. (10)

16 Explain in detail about Design model with expect to Data, Architecture, Interface components and Deployment levels design elements. (10)

17 Write short notes on any **two** of the following:
(a) SQA Tasks (5)
(b) RMMM plan (5)
(c) Requirement Elicitation (5)
(d) Debugging process (5)

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Code No. 3437 / N/S

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II - Semester (New) (Suppl.) Examination, May / June 2017

Subject : Software Engineering

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

Note: Answer all questions from Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1	Explain functional and non-functional requirements with an example.	(3)
2	List few Practitioner's Myths.	(2)
3	Define data flow diagram.	(2)
4	Differentiate testing with debugging.	(3)
5	Define Unit Testing, Alpha Test and Beta Test.	(3)
6	Explain Debugging Process.	(2)
7	What are the elements of Software Configuration Management (SCM)?	(3)
8	Differentiate black and while box testing.	(3)
9	List metrics for Design model.	(2)
10	Define measure and metric.	(2)

PART – B (50 Marks)

11	(a) What is process framework? Explain.	(5)
	(b) Explain about Spiral model.	(5)
12	What is software architecture? Explain the various architectural styles.	(10)
13	(a) Write about SQA Tasks, Goals and metries.	(5)
	(b) Explain Validation testing and system testing.	(5)
14	(a) Explain Metrics for Testing and Maintenance.	(5)
	(b) Write about black box Testing and white box testing.	(5)
15	(a) What is Risk? Explain how risk is managed in software development.	(5)
	(b) Write about the software project estimation and discuss in detail about Empirical Estimation Model.	(5)
16	(a) Explain Design process within the context of software Engineering.	(5)
	(b) Short note on component level design.	(5)
17	Write short notes on :	
	(a) RAD model	(3)
	(b) ISO 9000 Quality standards	(4)
	(C) CMMI levels	(3)

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