Code. No: 11474/CBCS/S

FACULTY OF ENGINEERING

B.E (Civil)(CBCS) V-Semester (Suppl.) Examination, May / June 2019

Subject : Water Resources Engineering-I

Time: 3 Hours **Max. Marks: 70**

Note : Answer all questions from part – A and any five questions from Part-B

PART– A (10 x 2 = 20 Marks)

1. Differentiate between single and multi purpose projects.
2. Define the terms Full Reservoir Level and Maximum Water Level.
3. State the expressions for principal and shear stresses at the base of the gravity dam.
4. Mention the expression for the calculation of wave height in gravity dams analysis
5. Distinguish between zoned embankment and diaphragm type earth dams.
6. State the function of down stream drainage system.
7. Distinguish between alternated depths and conjugate depths.
8. List the circumstances under which a chute spillway is adopted.
9. List the components of a hydro electric power plant.
10. Differentiate between storage and pondage.

PART –B (5 x 10 = 50 Marks)

11. Compute the storage capacity of a reservoir to maintain a flow of 450 cumec throughout the year for the following date:

Year	1972	1973	1974	1975	1976	1977	1978	1979	1980
Discharge (cumec)	730	380	452	810	460	800	320	445	390

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989
Discharge (cumec)	440	470	872	350	415	960	435	270	300

Year	1990	1991	1992	1993	1994	1995
Discharge (cumec)	390	1075	440	500	560	790

12 A gravity dam is about 60.0 m height has a top width of 5.0 m and a free board of 1.0m. The u/s face has an inclination of 16.69^{o} in the lower 20.0 m height. Line of drain holes are provided at a distance of 6.5m from the u/s face. The d/s face is vertical upto a height of 5.0m and subsequently has an inclination of I V to 0.7 H. Compute the principal and shear stresses in the dam.

13. a) Calculate the seepage discharge per unit length of an earthen dam having a 20.0m length drainage filter of 1.2m thick on the d/s side. The height of the dam is 24.0 having a free board of 2.0m with a top width of 6.0 m. The u/s face has an inclination of 3:1 and the d/s face is having 2:1 Adopt hydraulic conductivity of the soil as 5×10^{-3} cm/s.
b) Sketch the profiles of earth dams when gravel and clay are available. The foundation is pervious to some depth beyond which impervious layer is available.

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14. a) Explain the circumstances under which a side channel spillway is to be used
b) Describe with neat sketches the energy dissipation arrangements when the TWC lies above post jump depth curve.

15. a) Explain the casings and central impervious core of an earthen dam.
b) Determine the length of vertical drop tank surplus weir with the following data: combined catchment is 26 sq.km., intercepted catchment is 20 sq.km. TBL is 5.9m, FTL is 3.7m, MWL is 4.5m, GL 2.8m, foundation level is 4.2, top width of the bund is 1.8m, bund side slopes are 2:1.

16. a) Explain the circumstances under which different types of stilling basins are to be used.
b) Select the type of stilling basin considering the crest length as 30.0 m and discharge as 425 cumec for an elevation of 120.0m.

17. a) Write the salient features of Riparian rights.
b) Explain the failure of earth dam due to sudden draw – down phenomenon.

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Code No: 11484/CBCS/S

FACULTY OF ENGINEERING

B.E. V – Semester (CBCS)(Supple.) Examination, May / June 2019

Subject: Gender Sensitization (Except Civil Engg.)

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part A & any Five questions from Part B.

PART – A (20 Marks)

1) Define Gender Sensitization
2) Write the summary of the story “Radam” (Raw Wound) by Gogu Shyamala.
3) Why do you think the number of girl children is declining in India?
4) “My mother doesn’t work.” Justify the statement.
5) Write briefly about Gender Discrimination in the case of sports.
6) Do you think there will be more sense of sharing and joy in the house if everyone in family works together at the household chores?
7) Write in brief about Chindu Yellamma who revived the art “Chindu Bhagothm.”
8) Why women’s wage is still considered as supplementary or supportive wage?
9) Should we focus on controlling the lives of women in the name of safety? Give your opinion.
10) Write briefly about Dr. Rupa Bai Furdoonji.

PART – B (5 x 10 = 50 Marks)

11. Explain the role of society in making men and women.
12. “Mary and Onler were not only made to be equal but also complete each other” Explain how their relationship stays balanced..
13. How Judy Brady humorously describes what it means to be a wife?
14. Write about domestic violence and measures to reduce it.
15. Eve-teasing is one of the aspects of harassment. Give details about it.
16. Write a detailed profile on the woman artist of Telangana who is popularly known as “The Nightingale of India”.
17. Where can we find evidence of women as historians in absence of written material?

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Code No. 11610/AICTE

FACULTY OF ENGINEERING

B.E. II – Semester (AICTE)(Main) Examination, May / June 2019

Subject: English

Time : 3 Hours **Max. Marks: 70**

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

PART – A (20 Marks)

1. Fill in the blanks with: **4 x ½ = 2**

a) India is playing_____one-day cricket match against Australia. (Articles).

b) There is a bridge_____the river. (Preposition)

c) Henry had _____idea what the answer to the question was. (determiners)

d) _____of the information proved to be outdated. (determiners)

2. Fill in the blanks with appropriate affixes. **4 x1/2 = 2**

a)_____ + understand

b)_____ + do

c) child +_____

d) nation + _____

3. a. Give the constituent words of the compound words: **4 x ½ = 2**

i) book store

ii) waist coat

b. Give the blends of the following words:

i) camera + recorder

ii) Science + fiction.

4. a) Choose the appropriate transitions to complete the sentences: **4 x ½ = 2**

i) _____we have talked about the dangers of smoking to the students before, I think the information bears being repeated.

a) In fact b) Although c) Despite d) Nevertheless

ii) After so much reasoning and arguments he _____ left New York on 08 September 1978.

a) Finally b) Since c) However d) Furthermore

b) Fill in the blanks with appropriate Connectives given below

A) Though B) Which C) Moreover D) Finally

i) _____ I have lived here for years, I don't know the neighbourhood yet.

ii) He would not believe me, _____worried me too much.

5. a. Choose the correct synonym for the underlined word: **4 x ½ = 2**

i) When the leadership changed, his position in the organization became <u>precarious</u>.

A) Secure B) exalted C) uncertain D) important

Contd..2

b. Choose the correct antonym for the underlined word:

i) The officer was a very strict person.

A) pleasant B) open-hearted C) lenient D) indifferent

c. Give a one-word substitute:

i) A person who loves books.

ii) Not legal or not approved of by society.

6. Transform the following sentences: **2 x 1 = 2**

a) I sent the report yesterday. (convert into Passive)

b) The job has been finished by me. (convert into Active)

7. Transform the following sentences: **2 x 1 = 2**

a) "Can you solve this problem?" he asked me. (change into Indirect speech)

b) Vikram requested his friend to lend him an umbrella. (change into Direct speech)

8. Which word best completes the sentences? **2 x 1 = 2**

a) The ball went _____ the window.

i) threw ii) through

b) Lakshman invited _____ of his friends to his birthday party.

i) known ii) nun iii) none

9. Fill in the blanks with the correct form of the verbs given in the brackets: **2 x 1 = 2**

i) Trains _____(arrive) on time here.

ii) The boat _____(leave) for the bird sanctuary at 6 a.m.

10. Match the following words in Column A with related words in Column B: 2 x1=2

A	**B**
1. hazardous	a. container
2. receptacle	b. the study of animals
3. costly	c. the study of living beings
4. zoology	d. cheap
	e. dangerous
	f. expensive

PART – B (50 Marks)

11. a) Describe Muni's prosperous days in R.K. Narayan's short story **"A Horse and Two Goats".** 5

b) Expand the outline and write a paragraph in about 150 words: 5

Devan-clever thief – robs the rich – gives all to the sick and the needy – other thieves jealous – plan to get rid of him – challenge Devan to steal the King's pyjamas – Devan accepts challenge – finds king sleeping- opens a bottle of red ants on the bed-king badly bitten-cried for help-servants rush in pretends to look for ants-Devan removes King's pyjamas-escapes- other thieves- dumbfounded-accept Devan their leader.

contd…3

12. a) Read the lines and explain them briefly in 150 words: 5

If you can dream – and not make dreams your master;
If you can think-and not make thoughts your aim;
If you can meet with Triumph and Disaster,
And treat those two imposters just the same;

b) Write a paragraph in about 150 words on the benefits of technology to human kind. 5

13. a) Read the passage by Martin Luther King Jr. ..*I have a Dream*. List out the causes of the speaker's dissatisfaction. 5

We can never be satisfied as long as the Negro is the victim of the unspeakable horrors of police brutality.
We can never be satisfied as long as our bodies, heavy with the fatigue of travel, cannot gain lodging in the motels of the high ways and the hotels of the cities.
We cannot be satisfied as long as the Negro's basic mobility is from a smaller ghetto to a larger one.
We can never be satisfied as long as our children are stripped of their selfhood and robbed of their dignity by signs stating "For Whites Only."
We cannot be satisfied as long as a Negro in Mississippi cannot vote and a Negro in New York believes he has nothing for which to vote.
No, no, we are not satisfied, and we will not be satisfied until justice rolls down like waters
and righteousness like a mighty stream.

b) Write a letter to the British Council Library, Jubilee Hills enquiring about the membership plans they offer. 5

14. a) What do the two roads symbolize in Robert Frost's poem "The Road Not Taken"?
b) Write a report on the Annual Day held at your college. 5

15. a) Read the following passage from Orwell's "The Sporting Spirit" and express your views on Orwell's attitude towards sports in 150 words:

I am always amazed when I hear people saying that sport creates goodwill between the nations, and that if only common peoples of the world could meet one another at football or cricket, they would have no inclination to meet on the battle field. Even if one didn't know from concrete examples (the 1936 Olympic Games, for instance) that international sporting contests lead to orgies of hatred, one could deduce it from general principles. 5

b) Write a Statement of Purpose in about 150 words to the admissions committee of a foreign university, seeking admission into a post graduate program. 5

16. a) Answer in about 150 words each: **5**

i) Why does the traveller in "The Road Not Taken" choose the road not taken?

OR

ii) "Now is the time to make justice a reality for all of God's children. It would be fatal for the nation to overlook the urgency of the moment. This sweltering summer of the Negro's legitimate discontent will not pass until there is an invigorating autumn of freedom and equality – 1963 is not an end, but a beginning". What justice does Martin Luther King talk about in these lines?

b) Answer in about 150 words each: **5**

i) How does Orwell compare sports with war in his essay, "The Sporting Spirit"?

OR

ii) What is the main idea of the poem "If" by Rudyard Kipling?

Contd…4

17. a) Arrange the following jumbled sentences to make a meaningful paragraph. Identify the correct order from the options given below:

A. Speech was the first means of conveying information.
B. Thirdly printing helped in dissemination of knowledge in a permanent form. However all these are passive media.
C. Then writing as a means introduced a capacity for storing information.
D. Therefore computer is hailed as the fourth information revolution.
E. Computer is the only medium that cannot only store but analyze information to make decision.

i) BDCEA ii) AECBD iii) ACBED iv) EABCD. 5

b) Read the passage and answer the questions that follow:

This is a story about Columbus. He was an explorer. He is the explorer who came to the Americas from Spain in 1492. This is a story about what might have happened long ago when he was back in Spain.

When Columbus came back from his trip to the Americas, many people praised him. He was made an admiral. That means he was a leader. People said what a great thing he had done. But not everyone liked him. Some were jealous of all the attention he got.

One day Columbus was at a party that a Spanish gentleman gave in his honor. People were saying, “What a great discovery you have made”. Several persons were present who were jealous of the great admiral’s success. They were proud, conceited fellows, and they very soon began to try to make Columbus uncomfortable.

“You have discovered strange lands beyond the seas, “ they said, “but what of that? We do not see why there should be so much said about it. Anybody can sail across the ocean; and anybody can coast along the islands on the other side, Just as you have done. It is the simplest thing in the world. “ Columbus made no answer; but after a while he took an egg from a dish and said to the company “Who among you, gentlemen, can make this egg stand on end?” One by one those at the table tried the experiment. When the egg had gone entirely around and none had succeeded, all said that it could not be done.

Then Columbus took the egg and struck its small end gently upon the table so as to break the shell a little. After that there was no trouble in making it stand upright. “Gentlemen,” said he , “what is easier than to do this which you said was impossible? It is the simplest thing in the world. Anybody can do it – AFTER HE HAS BEEN SHOWN HOW!”

1. Who was Columbus and what did he do?
2. What happened when he returned from his trip to the Americas?
3. Discuss the incident that happened at the party hosted by the Spanish gentlemen.
4. How did Columbus make the egg stand on one end?
5. What is the lesson that the people can learn from this story?

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Code No. 11082/BL

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) I-Semester (Backlog) Examination, May / June 2019

Subject : Reinforced Cement Concrete

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	Explain major and minor compounds in cement.	3
2	Define and explain partial safety factors.	3
3	Differentiate between under reinforced sections and over reinforced sections.	2
4	Explain what is anchorage and where do you provide the same.	2
5	What do you understand from curtailment of reinforcement in beams?	3
6	Give the IS specifications required for the shear design.	2
7	Explain the serviceability in limit state design.	2
8	Define two way slabs.	2
9	Explain yield line theory.	3
10	Give IS specifications for the design of footings.	3

PART – B (50 Marks)

11	a) Differentiate between working stress method and limit state method.	5
	b) Explain the mechanical properties of concrete.	5
12	Design a reinforced concrete beam subjected to a bending moment of 20 kNm. Use M20 grade concrete and fe500 grade steel. Keep the width of the beam equal to the half of the effective depth. Permissible stress in concrete is $7N/mm^2$, permissible stress in steel is $230N/mm^2$, m = 14, use working stress method.	10
13	Design a rectangular beam of 5m effective span which is subjected to dead load of 18 kN/m and live load of 12 kN/m. Use M30 grade concrete and fe550 grade steel .	10
14	Design a ring beam section 50mm wide and 700mm deep subjected to a bending moment of 140 kNm, twisting moment of 10 kNm and a shear force of 130 kN at ultimate. Use M20 grade concrete and fe500 grade steel.	10
15	Design a roof slab for a room 5.4m x 6.6m clear in size to support a superimposed service load of 5 kN/m^2 if two of its adjacent edges are continuous and other two are discontinuous. Assume if any data required.	10
16	Design a short column 7m long to carry a load of 400 kN if its size is restricted to 400mm both ends of the columns are hinged. Use helical reinforcement.	10
17	Design a footing for a 350mm square column reinforced with 8-20mm dia fe500 grade bars. One side of the footing is restricted to 1.5m the gross bearing capacity of the soil is 120 kN/m2. Assume concrete as M25 and grade of steel as fe500.	10

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Code NO: 11088/BL

FACULTY OF ENGINEERING

BE 3/4 (EEE) I-Semester (Backlog) Examination, May/June 2019

SUBJECT : Power Systems-II

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

Note: Answer all questions from Part-A & any Five Questions from Part-B.

PART-A (25 Marks)

1. Determine the voltage at the generating station in the fig-1 Given Transformer ratio 2 kv/11kV, resistance on L.V side = 0.8Ω and h.v side 1.6Ω reactance on c.v & HV side is o.128Ω and 4.6Ω. 3
2. The surge impedance of over head line greater than cable? Justify your answer 2
3. What do you mean by regulated transmission line? 2
4. Write the comparison between series and shunt compensators 3
5. Show that the p4 impedance of the transformer referred to primary side is equal to the p4 impedance of the transformer referred to the secondary side 2
6. Derive the formula for positive sequence current in case of a 3-phase fault 3
7. A 25 MVA, 13.2 kV alternator solidly grounded neutral has and zero sequence Reactances are 0.35 and 0.2 p4 respectively. A single line to ground fault occurs at the terminals of an unloaded alternator, determine sequence components of voltages. 3
8. Draw zero sequence networks for the following 3-ph power transformers $Y_{\frac{1}{2}} - \nabla$ and

   (ii) $Y - Y_{\frac{1}{2}}$ 2
9. A surge of 20 kV magnitude travels along a cable towards its junction with an over head line. The voltage rise at the junction due to the surge is 27.87 kV. The inductance and capacitance of the casse and over head line are respectively 0.3m1+, 0.4μ F and 1.5 1+ , x μF per km. Find x 3
10. Obtain the relation between the voltage and current waves travelling over the trans mission lines. 2

PART-B (50 Marks)

11. a) Derive A,B,C,D Parameters of a long Transmission lines 5
    b) Determine the efficiency and regulation of a 3-ph, 100 kms 50 Hz transmission line delivering 40 MW at a p.1 & .82 lag and 66klV to a balance load. Given that the resistance of a line is 12Ω inductance and capacitance of the line 12.38×10^{-2} H and 9.864×10^{-7} F respectively. Use nomind T method 5

12. a) A-3 ph overhead line has per phase resistance and reactance of 6Ω and 21Ω respectively. The sending end voltage is 66kV while the receiving and voltage is maintained at 66kV by a synchronous phase modifier determine KVAR of the modifier when the load at the receiving end 85 MWct 0.83 leg 5
    b) Draw v-I characteristics 0f (i) TCR (ii) TSC and justify your answer 5

13. a) Four 50 MVA generators if 15% reactance each are connected via four 35 MVA reactors each of 10% reactance to a common bus bar. The feeders are each connected to the junction & each alternator and its reactor determine the rating of each feeder circuit breaker. 5
    b) Draw equivalent circuit & an alternator under (i) sub transient (ii) transient and (iii) stedg state condition Justify your answer. 5

…2

14. a) Three 6.6kV, 12MVA, 3 – Phase alternators are commuter to a commuted & bus bars. The Positive, negative and zero sequence impedances & each alternator are 15%, 12% and 4.5% respectively. If an earth fault occurs on the bus bar, determine the fault current (i) if all alternator renters are solidly grounded and (ii) if on & the alternator renters is earth through a reactance & 0.5 ohm and the others are isolates. 6

b) From the fundamentals, obtain the interconnection & sequence networks of a 3-ph power system network for L-L-G fault. 4

15 a) Determine the co- efficient of reflection, refraction for current and voltage waves when a line of 'z' characteristic impedance terminator through a resistance 5

b) An overhead line with surge impedance 400 bifurcates into two lines of surge impedance 400 and 40 respectively. If a surge & 20 kV is incident on the over head line, determine the magnitude & voltage and current which enter the bifurcated lines 5

16 a) What is travelling wave? Explain the development - & such a wave on an overhead line 5

b) With the help & a neat diagram, explain the operation & off load and on load tap changing transformers 5

17 Write short notes on

a) Disruptive and visual critical voltages and 5

b) Three phase transients R-L series circuits 5

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Code No. 11094/BL

FACULTY OF ENGINEERING

B.E. 3/4 (Inst.) I - Semester (Backlog) Examination, May / June 2019

Subject : Instrumentation Systems

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 working principle of Seismic displacement pickup. (3)

2 What is AC Tachogenerator? (2)

3 What are radiation thermometer? (2)

4 Mention various force measurement methods. (3)

5 An accelerometer has a seismic mass of 0.03 kg and a spring constant of $3x10^3$ N/m, maximum mass displacement is $\pm$ 0.04 m. Calculate
(a) maximum measurable acceleration and (b) natural frequency. (3)

6 What is Anemometer? (2)

7 Draw the block diagram of Voltage divider method. (2)

8 Define Relative Humidity. (2)

9 What are the significant characteristics of piezo-electric microphone? (3)

10 Give the classification of various microphones. (3)

PART – B (50 Marks)

11 (a) Explain the working of a DC tacho-generator with suitable diagram. (5)
(b) A seismic accelerometer sensing displacement has an under damped frequency of 20Hz and a damping ratio of 0.7. Calculate (1) its damping frequency (2) Amplitude ratio (5)

12 (a) Explain the various force measurement using suitable diagram. (5)
(b) Explain in detail construction of Thermocouple with suitable diagram describing various protective protective sheaths. (5)

13 Explain various kinds of Head-type flow meter depending on the physical principle of operation and other characteristics with suitable diagrams and equations. (10)

14 (a) Explain the measurement of Liquid level with variable permeability method. (5)
(b) Explain with suitable diagram the working Resistive and Aluminum Hygrometer. (5)

..2

15 (a) Explain the Piezoelectric Microphone in detail with suitable diagram. (5)
(b) Write short notes on capacitive microphone. (5)

16 (a) A Piezoelectric accelerometer has a transfer function of 61mV/G and a natural frequency of 4500Hz. In a vibration test at 110Hz, a reading of 3.6V peak is obtained. Find the vibration peak displacement. (5)
(b) A load cell consist of a solid cylinder of steel 40mm in diameter four starin gauge bonded to it and connected into four arms of voltage sensitive bridge. The gauges are mounted to have Poisson arrangement. If G_f = 2.1, the bridge excitation voltage 6V, determine the sensitivity of the cell in V/kN. E = 200 GN/m^2 v=0.29. (5)

17 (a) A venture meter is to be fitted in the horizontal section at a 0.15m pipeline. Calculate the cylindrical throat diameter, if the maximum differential pressure obtained is 0.5cm for a maximum flow rate of 5.0 kg /s for water of 20^oC. Assume discharge coefficient of 0.99 (5)
(b) Write short notes on Inductive Microphone. (5)

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Code No. 11096/BL

FACULTY OF ENGINEERING

B. E. ¾ (ECE) I – Semester (Backlog) Examination, May / June 2019

Subject: Linear Integrated Circuit & Applications

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

Note: Answer all question from Part-A & any five questions from Part-B

PART – A (25 Marks)

1. Define Slew Rate. Explain its significance and give its typical value for 741 IC. [2M]
2. What are the desirable characteristics of Instrumentation Amplifier? [3M]
3. Define CMRR and explain about its importance. [2M]
4. Explain the differences between normal Rectifiers and precision Rectifiers. [3M]
5. Explain how Op-Amp acts as Zero-crossing detectors? [2M]
6. Explain the operation of square wave generator using Op-Amp? [3M]
7. Draw the function block diagram of NE 566 and represent all pins. [2M]
8. Explain anyone application of PLL. [3M]
9. What do you understand by current foldback in IC 723 Regulation? [3M]
10. What output voltage would be produced by DAC whose output range is 0 to 5v and input binary word is 11001010.

PART – B (50 Marks)

11. a) Obtain the expression for Differential gain, common mode gain, input impedance and output impedance of single input-balanced output differential circuit. [7M]
    b) What is the need for frequency compensation in Op-Amp? Explain anyone compensation techniques. [3M]

12. a) Implement the following function using single Op-Amp, $3V_1 - 4V_2 + 5V_3 = 0$ [5M]
    b) Explain the operation of sample and hold circuit with neat diagram & wave forms. [5M]

13. a) Design a band pass fitter having a gain of 16 whose frequency ranges between 1.5 kHZ to 15 kHz. [5M]
    b) Explain the operation of peak detectors circuit using Op-Amp. [5M]

14. a) Draw the circuit diagram of Traingular wave form generator using Op-Amp and explain its operation. Also derive the expression for frequency of oscillations. [7M]
    b) Explain how VCO can be used as voltage to frequency controller. [3M]

15. a) Explain the operation of IC 723 as high voltage Regulator. [4M]
    b) Explain the operation of inverted R-2R ladder DAC with neat diagram and example. [6M]

16. a) Explain the operation of practical logarithemic circuit and derive the expression for its output. [6M]
    b) Explain the working of current to voltage converter using Op-Amp. [4M]

17. a) Explain the operation of full wave rectifier using Op-Amp and draw the wave forms. [6M]
    b) Draw the functional block diagram of PLL and explain function of each block. [4M]

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Code NO. 11102/BL

FACULTY OF ENGINEERING

B.E 3/4 (Mech.) I-Semester (Backlog) Examination, May / June 2019

Subject : Applied Thermodynamics

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

Note: Answer All questions From Part-A and any FIVE questions From Part-B.

Part - A (25 Marks)

1. Explain what is perfect inter cooling in Reciprocating air compressors
2. Define (i) Effective Swept volume (ii) Isothermal efficiency
3. What are limitations of simple Carburetor
4. What is significance of Hear Balance Sheet.
5. What are the factors influencing flame speed
6. Draw the theoretical p-θ (Pressure Vs Crank angle) diagram for CI engines
7. Define Boiler, State the advantages and limitations of fire tube boilers over water tube boilers
8. Explain factor of evaporation in Boilers
9. What are different types of Nozzles
10. What is critical pressure ratio in nozzles

Part - B (5x10 = 50 Marks)

11. A single acting 2- stage air compressor delivers air at 18 bar. The temperature and pressure of the air before the compression in LP cylinder are 25oC and 1 bar. The discharge pressure of Lp cylinder is 4.2 bar. The pressure of air leaving the intercooler is 4 bar and the air is cooled to 25oC. The diameter and stroke of LP cyclinder are 40cm and 50cm respectively. The clearance volume is 5% stroke in both cylinders. The speed of compressor is 200 rpm. Assuming the index of compression and re expansion in both the cylinders as 1.25, cp for air = 1.004kj/kg K. Find : (i) Power required to run the compressor (ii) Heat rejected in the intercooler per min 10

12. a) Explain Battery Ignition system 5
    b) A six cylinder petrol engine has a volume compression ratio of 5:1. The clearance volume of each cylinder is 0.000115m^3. The engine consumes 10.5kg of fuel per hour whose calorific value is 41,800kj/kg. The engine runs at 2500 rpm and the efficiency ratio is 0.65 Calculate the average indicated mean effective pressure developed. 5

13 a) Explain the stages of combustion in CI engines 5
    b) What is boiler draught 5

14 a) Sketch and explain Babcock and Wilcox boiler 5
    b) What is boiler draught 5

…2

5Steam is expanded in a set of nozzles from 10bar and 200^{o}C to 5bar. What type of nozzle is it. Neglecting the initial velocity fine maximum area of nozzle required to allow a flow of 3kg/s under the given conditions. Assume that expansion of steam to be isentropic 10

16 a) Derive the expression for critical pressure in nozzles 5
b) What are bolier mounting sketch and explain any two 5

17 a) Explain knocking in SI engines 5
b) Explain why actual cycle are deviated from air standard cycle. 5

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Code NO : 11107/BL

FACULTY OF ENGINEERING

BE 3/4 (Prod.) I-Semester (Backlog) Examination, May / June 2019

Subject: Applied Thermodynamics and Heat Transfer

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

Note: Answer All Questions From Part - A, & Any Five Questions From Part – B.
Note: Assume suitable data, if required for solving the numerical

Part - A (25 Marks)

1. State the conditions which lowers the volumetric efficiency? 3M
2. What are the advantages of multistage compression? 2M
3. Define following 3M
   i) Bore ii) Stoke iii) Displacement Volume.
4. What is the use of air - standard cycle analysis? 2M
5. Explain the principle of carburetion? 3M
6. Explain the reason for cooling an engine? 2M
7. Define 3M
   a) Thermal Conductivity b) Thermal Diffusivity
8. Explain New tons Law of Cooling? 2M
9. Define 3M
   a) Black Body b) Emissivity
10. Differentiate Free and Forced Convection? 2M

Part - B (50 Marks)

11. A Single - stage double acting air compressor is required to deliver $14m^3$ of air per minute measured at 1.013 bar and 15^oC. The delivery pressure is 7 bar and the speed 300rpm. Take the clearance volume as 5% of the swept volume with the compression and expansion index of n = 1.3. Calculate
    i) Swept volume of the cylinder. ii) The delivery temperature.
12. A 4 – Stroke petrol engine delivers a brake power of 36.8KW with a mechanical efficiency of 80%. The air – fuel ratio is 15:1 and the fuel consumption is 0.4068KJ/Kg. Calculate
    i) Indicated Power ii) Friction Power
    iii) Brake thermal efficiency iv) Indicated thermal efficiency
    v) Total fuel consumption vi) Air consumption / second.
13. Explain the stages of combustion in SI engines, elaborating the flame front propagation.
14. Steam is carried in a steel pipe having inner radius 5 cm and outer radius 5.5 cm. this pipe is covered with two layers of insulation each 5 cm thick. The thermal conductivity of the steel pipe and the first and the second layers of insulation are 0.12 W/mK, 50 and 0.06W/mK respectively. The temperature of steam is 225^oC and the temperature of the outer most surface is 25^oC. Calculate the conduction transfer rate per unit length of pipe and the intermediate temperatures.
15. The flow rate of hot and cold water running through a heat exchanger is 600 Kg/h and 1500 kg/h respectively. The inlet temperatures on the hot and cold sides are 70^oC and 25^oC respectively. The exit temperature of hot water is 50^oC. If the individual heat transfer coefficients on the both sides are $700W/m^{2o}C$. Calculate the area of the heat exchanger.

…2

16. Explain the phenomenon of knock in SI engines? Explain the effect of various engine variables on SI engine knock?

17. Write short notes on
    a) Absorptivity, reflectivity and transmisivity.
    b) Kirchoff's Law, Wein's Law and Stefen – Boltsmann Law.

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Code NO. 11110/BL

FACULTY OF ENGINEERING

B.E 3/4 (A.E) I-Semester (Backlog) Examination, May / June 2019

Subject : Automotive Diesel Engines

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

Note: Answer All questions From Part-A and any FIVE questions From Part-B.

Part - A (25 Marks)

1	Write the range of compression ratio of diesel engine	2
2	What are differences between two stroke and four stroke diesel engine?	3
3	What is injection lag? List the parameters influencing it	3
4	State the function of governor	2
5	What is delay period? List the factors affecting delay period	3
6	What is meant by swirl ratio and fuel air mixing?	3
7	What is supercharger?	2
8	What is the principle of exhaust gas recirculation?	2
9	List out the various elements present in diesel smoke	3
10	State the purpose of engine testing	2

Part - B (50 Marks)

11	A) Describe the construction details and working principle of two stroke diesel engine	5
	b) Explain the Cetane number determination test in detail	5
12	With a neat sketch, discuss the construction and working details of distributor types pump	10
13	With a pressure – crank angle diagram explain the stages of combustion in CI engine	10
14	a) Explain how matching of turbo charging is done	5
	b) What are the methods of turbo charging? Explain briefly	5
15	Discuss the Variables affecting the engine performance and emission characteristics	10
16	Explain how the following tests are carried out in a laboratory a) Morse test for multicylinder engine b) Heat balance test	10
17	Write short notes on the following : a) Pneumatic governor used in fuel injection system b) Any two types of injection nozzles	10

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Code No. 11115/BL

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I - Semester (Backlog) Examination, May / June 2019

Subject : Database Management Systems

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

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

PART – A (25 Marks)

1 Write responsibilities of database administrators. (3)
2 Compare file system and DBMS. (3)
3 Define a) Primary key b) Super Key (2)
4 Write about rename and division operators in relational algebra. (2)
5 Define the following constraints a) NOT NULL b) UNIQUE c) CHECK (3)
6 Write about authorization or how privileges are granted in SQL. (3)
7 Define Sparse and Dense indices. (2)
8 What is functional dependency? (2)
9 Write short notes on shadow paging. (3)
10 Write about ARIES (2)

PART – B (50 Marks)

11 a) Describe different subsystems of a database. (5)
b) Explain the concept of specialization and generalization in E-R model with suitable examples. (5)

12 a) Explain briefly about extended relational algebra operations. (7)
b) Explain about mapping cardinalities. (3)

13 a) Explain about Embedded SQL and Dynamic SQL. (6)
b) Differentiate Between 3NF and BCNF. (4)

14 Compare static and dynamic hashing Show the extendable hash structure for the search key values 2,3,5,7,11,17,19,23,29,31 where h(x)=x mod 8 and buckets can hold 3 records. (10)

15 a) Explain ACID properties in detail. (5)
b) Explain Thomas write rule. (5)

16 Write about multiple granuality and validation based protocol in detail. (10)

17 Write short notes on (10)
(a) B + tree
(b) Serializability
(c) E-R Diagrams

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Code No. 11122/BL

FACULTY OF ENGINEERING

B.E. 3/4 (IT) I-Semester (Backlog) Examination, May / June 2019

Subject : Database Management 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	Differentiate between data base and data structure.	2
2	Explain about representation of weak entity set.	3
3	What is the difference between 'char' and 'varchar' in SQL?	2
4	Explain about set-difference operation in relational algebra with example.	3
5	What is difference between function and procedure?	2
6	Explain 2NF with an example.	3
7	What is difference between static hashing and dynamic hashing?	2
8	Draw and explain transaction state diagram.	3
9	Write characteristics of Bt-Tree.	2
10	Explain about check-points.	3

PART – B (50 Marks)

11	List explain various ER design issues with examples.	10
12	Explain various types of joins in SQL with examples.	10
13	Explain about Armstrong axioms and multivalued dependencies.	10
14	Explain in detail about time-stamp based protocols.	10
15	What is the usage of remote back up system and ARIES algorithm? Explain in detail.	10
16	Explain about a) authorization in SQL	5
	b) mapping cardinality in ERD	5
17	Write short notes on :	
	a) Non-Binary relationship set	2
	b) Recursive Query	3
	c) Dense indices	2
	d) Dynamic SQL	3

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